Annual Review

Title: Macroeconomics Research in Low-Income Countries (MRLIC)		
Programme Value £ (full life): £19,835,983		**Review date:** July 2024
Programme Code: 202960	**AMP start date:** Feb 2012	**AMP end date:** Mar 2025

Summary of Programme Performance

Year	2020/21	2021/2022	2022/2023	2023/2024
Overall Output Score	A+	A+	A+	**A**
Risk Rating	Minor	Minor	Minor	Minor

DevTracker Link to Business Case:	https://devtracker.fcdo.gov.uk/projects/GB-1-202960/documents
DevTracker Link to results framework:	https://devtracker.fcdo.gov.uk/projects/GB-1-202960/documents

A. SUMMARY AND OVERVIEW

Description of programme

Macroeconomic Research in Low Income Countries (MRLIC) is a long-standing partnership between FCDO and the International Monetary Fund (IMF) aiming to promote macroeconomic stability and growth in LICs through improved IMF engagement in those countries. It seeks to achieve this by:

(i) producing high quality, policy relevant research on macroeconomic issues affecting LICs.
(ii) ensuring that research products are used by IMF country teams and partner governments.
(iii) shaping high-level IMF policy positions and strengthening engagement by senior IMF policymakers on LIC issues.
(iv) widening the field of academics and policymakers working on these issues[1].

Macroeconomic stability is critical for economic development. Low Income Countries (LICs) are particularly vulnerable to shocks leading to economic instability, such as rising debt or high inflation[2]. Instability deters private investment[3], reduces growth and can lead to deeper poverty and greater risks of conflict. Though macroeconomic stability is not sufficient to guarantee growth, it is a foundation from which growth is more likely to take off.

MRLIC's research is produced mostly by economists in the IMF Research Department, with some commissioned from external academics. It aims to push the frontier of the global understanding on macroeconomics in LICs, a typically under-researched field. MRLIC research also aims generate policy and practice change. The main channel through which this research uptake occurs, is via IMF country missions. The programme also delivers training for Fund staff, and government officials as well as focused engagement with the IMF Board. Linking the IMF Research Department (RES), the Strategy, Policy and Review (SPR) Department and the Institute for Capacity Development (ICD) helps ensure that the research agenda is relevant to the Fund's policy and is disseminated effectively.

Working with the IMF is an efficient route for supporting macroeconomic policy in the countries where FCDO works. It helps the FCDO achieve breadth and leverages the IMF's comparative advantage in providing macroeconomic policy advice and analysis. Figure 1 depicts the

[1] In 2022, the logframe was revised and streamlined. Output 4 was removed, with some indicators subsumed under other Outputs.
[2] Macroeconomic instability refers to high inflation and large currency fluctuations, or important swings in growth rates. For a brief explainer see how the IMF Promotes Global Economic Stability
[3] Macroeconomic stability, investment and growth in developing countries - ScienceDirect

coverage of MRLIC and uptake of its flagship Debt-Investment-Growth tools by IMF country teams, showing good coverage across FCDO priority geographies in Sub-Saharan Africa and the Indo-Pacific.

MRLIC started in March 2012. A fourth phase (£5.1m) was approved in 2019. A no-cost programme extension was approved in 2021, reprofiling disbursements and extending the end date to March 2025.

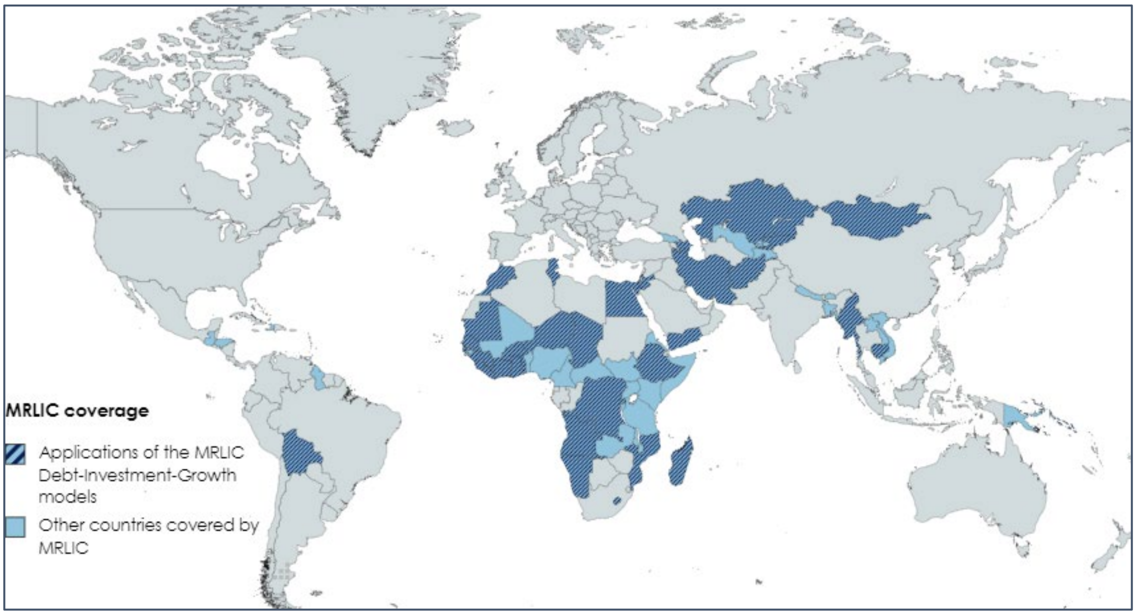
Summary supporting narrative for the overall score in this review

This annual review scores an A. At the output level two outputs score an A and one an A+. The review covers April 2023 to March 2024. During the reporting period the MRLIC programme continued its strong performance in delivering high-quality and policy-relevant research, developing and applying models and toolkits to facilitate policy discussions, and contributing to macroeconomic policymaking in LICs, as they face multifaceted challenges including low growth prospects, high debt levels, tight global financial conditions, and pressing needs to address climate change and inequality.

Contribution to high-level IMF policy papers. Several MRLIC products were featured in high-level policy documents in the IMF. First, MRLIC staff contributed to a Staff Discussion Note (SDN), “Market Reforms and Public Debt Dynamics in Emerging Market and Developing Economics”, which discusses the role of structural reforms in reducing debt-to-GDP ratios by boosting revenues and cutting borrowing costs. Second, two boxes, prepared by MRLIC staff, were featured in the October 2023 edition of the World Economic Outlook, the IMF’s most prominent flagship publication. One of the boxes highlights the role of adopting strong monetary policy in easing higher public debt levels. The other box analyzes the declining growth expectations for the global economy over the medium term, indicating a much lower pace at which poorer countries can catch up with richer ones in terms of living standards.

Supporting IMF policy dialogue with its members. MRLIC products helped support country operations in both Article IV consultations and IMF-supported programs. This includes six country applications of the Debt, Investment, Growth, and Natural Disasters (DIGNAD) model in the context of the Resilience and Sustainability Facility (RSF). The DIGNAD model helps better understand the macroeconomic implications of adaptation investments for climate change and natural disasters in LICs. Additionally, two Selected Issues Papers on the topics of (i) investment and growth resilience, and (ii) big-data and high-frequency surveillance methods were published as part of the Article IV consultations for the Federated States of Micronesia and the Solomon Islands.

Figure 1: Coverage of MRLIC research programme and uptake of DIG models[4]



Applications of the Multi-sector Incomplete Markets Macro Inequality (MIMMI) App in the context of the Article IV Consultations for Guinea and Chad were used to assess the macro-inequality impact of feasible development policies in the context of climate change. These analyses were featured in several presentations to authorities and demonstrated that the MIMMI App can be a useful tool for the analysis of the macro and distributional impact of climate change within the Fund. In addition, the MIMMI App was applied to analyze the macro-inequality impacts of the Simandou mega-mining project in Guinea in a Selected Issues Paper of the 2023 Article IV consultation for Guinea, helping make a case to the Guinean authorities on the need to design and implement clear long-term development plans including education and infrastructure investments using the projected revenues from Simandou.

Capacity Development. MRLIC staff organized nine training events for officials of IMF member countries and IMF staff and developed a user's guide to the DIGNAD model. These training events include workshops on climate change and macro-financial policies, courses on climate in macroeconomic frameworks, and a regional workshop on gender and inequality across several regions and countries.

Policy Conferences. Three high-level policy conferences helped disseminate MRLIC output and advance macroeconomic research in low-income countries. First, a conference on poverty, organized by the International Movement ATD Fourth World, the IMF, and the World Bank. The team also organised a conference on Climate Action for South Asian Economies including two technical sessions on the DIGNAD model and the Natural Disasters for the Debt Dynamic Tool. The MRLIC staff also organised a session at the (American Social Science Association) ASSA 2024 meetings, entitled 'The End of Globalization? Exploring the Drivers and Effects of Geopolitical Fragmentation'. This session discussed the implications that increased fragmentation of international markets can have on LICs.

Paper publications and presentations. During the past financial year, MRLIC staff published 14 papers in the IMF Working Paper series and 8 papers in peer-reviewed academic journals, as well as two IMF blogs. One of the blogs, co-authored with Antoinette Monsio Sayeh, Deputy Managing Director of the IMF and Rishi Goyal, Deputy Director of the Strategy, Policy and Review Department, highlights the macroeconomic benefits of closing gender gaps and calls for global action. In addition, MRLIC gave 15 external presentations, including during

[4] MRLIC coverage includes countries eligible for the IMF concessional financing under the Poverty Reduction and Growth Trust (PRGT) as of 2013, includes the countries that had graduated since then (e.g., Mongolia) but continued to face similar policy challenges. The aim of MRLIC is to focus on the problems that are of particular relevance to LICs, once an analytic toolkit becomes operationalized or "mainstreamed",

the IMF-World Bank Annual Meetings, conferences organized by government institutions, and other highly renowned academic and policy institutions.

Major lessons and recommendations for the year ahead

With a tight budget and funding uncertainties as Phase IV of the MRLIC is coming to an end, one key challenge has been recruiting full-time contractual staff for the project. As a result, this has led to an increasing use of commissioned papers, mainly from external academics. While this constrained approach has the potential advantage of engaging with a diverse range of expertise and views, it results in short-term one-off projects, at the expense of complex modelling work, toolkits, and long-term workstreams for which the MRLIC can build expertise. In addition to staffing constraints, the reduced funding had affected uptake and dissemination activities such as conferences. The IMF was temporarily able to mitigate the effects through its COVID-19 Crisis Capacity Development Initiative (CCDI), but this only lasted a year. This indicates the need to dedicate resources to uptake and dissemination to improve the impact of the research produced by the programme.

Discussions on the one-year bridging extension and the Phase V proposal have provided opportunities to re-think the focus of the MRLIC, but more clarity on next steps is needed. Accordingly, a workshop of academics and policymakers would be organized during the one-year extension to review the thematic coverage of MRLIC. Ongoing discussions between the IMF and FCDO will help align views on the future of the MRLIC given the macroeconomic and structural challenges LICs currently face, such as low growth prospects, heightened geopolitical tensions, trade fragmentation, high-debt levels, climate change, and social tensions.

The year leading into the next phase should be used to re-set and think through a new approach that is better able to translate analysis into uptake (and strengthens the measurement of uptake). The quantity of teams using tools and analysis is high and there is potentially more that could be made of this but ultimately the value for money comes from informing IMF practice and the onward macroeconomic reforms of the countries they work with. Additionally, consider whether there is more that can be done to synthesise studies into bodies of evidence – particularly as easy to use summaries on key macro topics.

Recommendations:

- With the current phase ending in March 2025, FCDO should explore options for continuing research on macroeconomic issues affecting LICs. This should include evaluating broader delivery mechanisms, such as partners or platforms that could complement the IMF's efforts and improve uptake.

- The logframe tracks how MRLIC research influences policy by noting its inclusion in key policy documents and IMF practices. While this shows research uptake, there's room to better evaluate how it leads to actual policy changes. This could involve leveraging other initiatives within FCDO's Research and Evidence Directorate that focus on measuring research impact.

- The assumption that increased visibility of MRLIC among IMF senior staff would boost IMF funding for LIC research hasn't been fully proven. The Theory of Change (ToC) should be updated to acknowledge the challenges in achieving widespread research adoption through existing IMF channels. Engaging with other agencies that have expertise in areas facilitating better uptake by LIC policymakers could amplify the programme's impact. The programme should dedicate some resources to evaluating and testing the assumptions in the current ToC. Getting the output metrics right should help the next phase because at present it’s possible to achieve the outputs without necessarily meeting the outcomes.

B: THEORY OF CHANGE AND PROGRESS TOWARDS OUTCOMES

Summarise the programme's theory of change, including any changes to outcome and impact indicators from the original business case. [1/2 page]

This programme was initiated in 2012. The Theory of Change[5] is summarised below. Successive Annual Reviews have provided evidence from the output and, to some extent, the outcome stage. However, the Theory of Change assumption that the greater visibility of MRLIC among IMF seniors would increase the probability of IMF funding LIC research itself has not been fully validated. The Theory of Change should be revised to reflect the limitations in achieving universal uptake of research through existing IMF channels. The impact of the programme would be multiplied by engagement with other agencies with a comparative advantage in areas which can facilitate better uptake by policy makers in LIC.

OUTPUT 1	High quality, policy relevant research on macroeconomic issues affecting LICs produced.
OUTPUT 2	IMF research products (policy analysis, practical and operational tools and frameworks) produced under this project used by IMF country teams and partner authorities.
OUTPUT 3	Engagement by senior IMF policymakers on issues affecting LICs strengthened through this project.
OUTPUT 4	IMF strengthens research capacity, by expanding the network of researchers and policy makers working on LIC macroeconomics

OUTCOME	Better engagement by IMF policymakers on LIC-specific macroeconomic issues, leading to improved policymaking in specific project thematic areas.

IMPACT	Better macroeconomic policymaking in LICs leading to faster economic growth, job creation and poverty reduction.

Describe where the programme is on/off track to contribute to the expected outcomes and impact. What action is planned in the year ahead?

The programme is on track to meet its expected outcome: *Evidence of improved IMF policymaking and integration of LIC-specifics in project thematic areas*. Key research output across the five broad topics covered**: modelling and understanding policy choices**, addressing issues like data availability in LICs and monetary policy frameworks; **understanding macro-financial linkages**, exploring financial stress impacts and remittance elasticity; **building resilience**, focusing on climate shocks and central bank responses; **promoting structural change and institutional development**, examining topics such as fuel price impacts and trade fragmentation; and **enhancing inclusion**, investigating remote work, digital usage effects on gender equality, and inequality trends. These studies were published in various economic journals and IMF Working Papers, providing insights into economic challenges and policy implications for low-income and developing countries.

Following through on FCDO recommendations made, the MRLIC team has also made progress in terms of describing the outcomes in country although this could go one level further to measuring the policy impact (changes to thinking among LIC policymakers and then actual policy changes in-country) in a structured manner so progress in this area can be tracked over time.

The MRLIC training program has received positive feedback from participants, highlighting its effectiveness in building capacity in Low-Income Countries (LICs). Participants praised the knowledge of instructors, the encouragement of discussions, and the effectiveness of workshop leadership. The peer-to-peer exchange format was particularly appreciated, allowing participants to engage with materials and share experiences from their respective countries. Many expressed a desire for further training to deepen their understanding and

[5] The original Business Case did not specify a formal Theory of Change (ToC) however the implicit ToC for the program is summarised in its logical framework and subsequent Annual Reviews.

apply the tools to their country's context. Participants emphasised the relevance of the knowledge gained for their current roles, with some intending to incorporate climate and inequality considerations into their country's policies.

MRLIC toolkits, particularly the DIGNAD and MIMMI models, have shown potential to directly influence policymaking in LICs. These tools are applied in IMF Article IV Consultations and IMF-supported programs, helping to assess the macroeconomic effects of natural disasters and related climate risks, as well as the distributional impacts of large-scale projects. The DIGNAD toolkit has become instrumental in negotiating Resilience and Sustainability Trust (RST) facilities, while the MIMMI toolkit has been widely used to quantify the distributional impacts of projects and inform macroeconomic policies. Both tools have received positive feedback from IMF officials for their applications in various countries, demonstrating their value in supporting informed decision-making processes and policy formulation.

Justify whether the programme should continue, based on its own merits and in the context of the wider portfolio

The current phase of the programme is due to end in March 2025. The programme should be extended for under year under current arrangements to allow time for a proper consultation and review process to design the next phase of the FCDOs macroeconomic research offer.

The necessity for macroeconomic research focused on Low-Income Countries (LICs) remains clear, particularly in the current global economic climate where economic shocks from pandemics to geopolitical tensions have intensified vulnerabilities in LICs. MRLIC stands out within the Economic Growth Research Team (EGRT) and FCDO's Research and Evidence Directorate portfolio due to its exclusive macroeconomic focus. This unique position not only complements the predominantly microeconomic orientation of other research but also addresses a significant gap in academia. Few economists produce high-quality, policy-relevant macroeconomic research for LICs, making MRLIC's contribution invaluable.

The partnership between MRLIC and the International Monetary Fund (IMF) provides an efficient channel for policy impact. MRLIC research contributes to evidence-based macroeconomic policymaking by informing IMF country assessments and advice, as well as influencing broader Fund policy through the IMF Board. Strong uptake of MRLIC research and toolkits within the IMF has led to improved engagement with LICs.

This collaboration also offers strategic value to the UK, with support from key stakeholders across HMG, including the UK Delegation to the IMF (UKDEL), HM Treasury (HMT), and the FCDO's International Finance Institutions department (IFID). The programme helps showcase the UK's leading role in supporting LICs while enhancing credibility and strengthening relationships within the IMF and Board.

MRLIC continues to demonstrate strong performance, consistently meeting output and outcome targets and shaping IMF policy. Its robust historical performance record, consistently achieving A++ or A+ ratings, underscores its ability to deliver significant value at a relatively low annual cost to the FCDO. This track record of excellence, combined with its strategic importance and unique focus, solidifies MRLIC's position as a crucial component in the landscape of macroeconomic research for Low-Income Countries.

C. DETAILED OUTPUT SCORING

Output Title	High quality, policy relevant research on macroeconomic issues affecting LICs produced.		
Output number:	1	Output Score:	*A*
Impact weighting (%):	34%	Weighting revised since last AR?	No

Indicator(s)	Milestone(s) for this review	Progress
1.1 Number of priority research papers or book chapters produced, on the following research topics: 1) Monetary and exchange rate policies, 2) Public investment, growth, and debt sustainability, 3) Macroeconomic management of natural resources, 4) Macroeconomic policies and income distribution, 5) Financial deepening for macroeconomic stability and sustained growth, 6) Growth through diversification, 7) Gender and macroeconomics, 8) Capital flows	By March 2024: H (196 papers) M (192 papers) L (188 papers)	191 (13 in the past year) exceeded low target
1.2 Number of research papers accepted for publication in appropriate high-quality peer-reviewed journals	By March 2024: H (112 papers) M (110 papers) L (108 papers)	113 (8 in the past year) exceeded high target

Briefly describe the output's activities and provide supporting narrative for the score.

This output assesses the performance of the programme in producing high quality, policy relevant research on macroeconomic issues affecting LICs, particularly the number of papers produced on the five thematic research topics and research papers published in high quality peer reviewed journals. In this review year it scores an A. Indicator 1.1 exceeded the low target and indicator 1.2 exceeded the high target. This output measures MRLIC's ability to produce high quality research papers. Despite the lower level of annual FCDO funding, the programme continued to produce research across the full range of MLIRC themes, and earlier papers were accepted in academic journals, signalling that the high quality has been maintained. This year the milestones for indicator 1.1 were revised upwards to reflect stronger than expected past progress, and the medium target was still met.

With a tight budget and funding uncertainties as Phase IV of the MRLIC is coming to an end, one key challenge has been recruiting full-time contractual staff for the project. As a result, this has led to an increasing use of commissioned papers, mainly from external academics. While this constrained approach has the potential advantage of engaging with a diverse range of expertise and views, it results in short-term one-off projects, at the expense of complex modelling work, and long-term workstreams for which the MRLIC can build expertise.

Output 1.1 – Working Papers

MRLIC produced 13 working papers in the past year, bringing the total to 160 over the programme to date. This exceeds the low target. IMF working papers are high quality and go through a strict quality assurance process within the Fund. Annex A summarises all publications in more detail, but the following illustrate the breadth of MRLIC research.

In the working papers, the programme has made significant contributions across several key areas. For instance, it developed a novel panel nowcasting approach for countries lacking quarterly GDP data, potentially benefiting over 60 developing economies. The research on monetary policy frameworks in the Caucasus and Central Asia highlighted the need for improvements in central bank independence, accountability, and communication this also fed into a departmental paper covering the same topic. In the area of climate change, the programme produced a quantitative spatial model demonstrating how remote and food-insecure households are more vulnerable to climate shocks, with GDP losses estimated at 2.3% annually in Nepal. Another study revealed that fuel price increases are positively associated with social unrest, particularly in countries with high income inequality and low institutional quality.

Output 1.2 – Published Papers
This year MRLIC had eight papers accepted for publication in peer-reviewed journals, including in some prestigious economic journals, bringing the cumulative total to exceeding the high target.

The published papers showcase the programme's ability to produce high-impact research accepted in reputable academic journals. Key findings from these publications include: the substantial welfare costs of increasing tax revenues in low-income countries, with a disproportionate burden falling on rural populations; the potential for an additional $32 billion in remittances if transaction costs are reduced to the SDG target of 3%; and the observation that liberalizing reforms tend to benefit the richest 10% of national income distributions, leading to increased income inequalities within countries. The programme also contributed to the debate on global gender gaps, suggesting that without improved policy measures, gender disparities in labor force participation may persist indefinitely in a large share of countries.

Progress on recommendations from the previous AR (if completed), lessons learned this year and recommendations for the year ahead

Recommendation	Progress
Amidst pressures to expand the breadth of MRLIC to other geographies, maintain a clear focus on low-income countries, including those in Sub-Saharan Africa.	The MRLIC team has continued to produce high quality relevant research on issues affecting LICs. Looking forward at the workplan, this is expected to continue.
Given clarity on 24/25 budget, FCDO and IMF to hold a workshop to discuss MRLIC lessons learnt and future avenues for macroeconomic research.	The FCDO and IMF are working on an extension to the programme which will allow the time for the MRLIC team to produce substantive outputs on lessons learnt and future avenues for macroeconomic research.

The programme has performed well in meeting the output targets during the review period. It continues to produce research addressing challenges facing LICs including climate shocks, structural reforms, and gender gaps.

Recommendation: While the programme is able to demonstrate academic impact via citations and more broadly demonstrate interest through social media circulation, the programme could seek to more specifically demonstrate how research outputs have been able to change IMF policy positions and programming decisions as well as influencing thinking of policymakers in LICs.

Output Title	IMF research products (policy analysis, practical and operational tools and frameworks) produced under this project used by IMF country teams and partner authorities.		
Output number:	2	Output Score:	**A+**
Impact weighting (%):	33%	Weighting revised since last AR?	No

Indicator(s)	Milestone(s) for this review	Progress 2022
2.1 Application and use of tools and frameworks **by IMF country teams** or **country authorities.**	By March 2023, evidence of number of country teams applying policy tools and frameworks: H (225) M (222) L (219)	*223 cumulative (10 in past year)* *Met medium target.*
2.2 **Courses** offered to IMF staff and/or country authorities	By March 2023, evidence of courses offered to IMF staff and/or country authorities. H (49) M (47) L (45)	*52 cumulative. (9 in past year). Exceeded high target.*

Briefly describe the output's activities and provide supporting narrative for the score.
This output assesses the IMF research products produced under MRLIC which are used by IMF country teams and partner authorities as well as training courses to upskill end users. The output scores an A+. Indicator 2.1 met the medium target and indicator 2.2 exceeded the high target. IMF country teams continue to utilise MRLIC tools and models at a pace consistent with previous years.

Indicator 2.1: Applications by IMF country teams and country authorities

The Debt, Investment, Growth, and Natural Disasters (DIGNAD) model has been applied to several countries including Benin, Kenya, Rwanda, Moldova, Mauritania, Cameroon, and the Federated States of Micronesia, primarily in the context of Resilience and Sustainability Facility lending programmes. These simulations consistently demonstrate that investing in climate-adaptive infrastructure and enhancing public investment efficiency can yield substantial benefits. These include mitigating output losses from natural disasters, fostering long-term economic growth, and improving debt sustainability. The studies emphasise the importance of domestic revenue mobilisation, strategic spending, and attracting private sector involvement to finance these crucial investments, particularly given the fiscal constraints faced by many of these nations. Testimonies from

Feedback from policy makers in LICs indicate how the MRLIC toolkits have been applied to influence policymaking in LICs as they formulate Article IV consultations and IMF-supported programmes. In Rwanda, the model was instrumental in identifying sustainable financing strategies for climate investment. It demonstrated that with the right policy and financing mix, including domestic revenue mobilisation and enhanced public investment efficiency, the country could mitigate adverse macroeconomic effects of large-scale climate investments while addressing potential crowding out of other development spending. Similarly, in Tanzania, the DIGNAD model was tailored to illustrate the country's vulnerability to climate change shocks and the benefits of ex-ante adaptation investment. The model's results showed how investing in adaptation infrastructure could improve Tanzania's economic resilience against natural disasters by limiting post-disaster economic losses, recovery costs, and public debt increases. These insights directly supported Tanzania's request to access the IMF's Resilience and Sustainability Facility, demonstrating the model's concrete impact on shaping climate-related policies and investment decisions in low-income countries.

The programme also has focused on income inequality, gender issues, and climate change impacts in developing economies. Notably, a study on Guinea's Simandou mining project highlighted the crucial role of proactive government policies in infrastructure and education for maximising economic benefits and addressing inequality. The MRLIC team enhanced the Multi Sector Incomplete Markets Macro Inequality (MIMMI) App, previously developed under the programme, to support such analyses. In the Pacific region, efforts to improve high-frequency economic surveillance using satellite data on shipping activity were applied to

Solomon Islands. Additionally, in Chad, IMF representatives emphasised the importance of redirecting potential fiscal space from reduced oil subsidies towards infrastructure, education, and climate adaptation during an Article IV mission.

Indicator 2.2: Courses for IMF country teams and country authorities

MRLIC has been actively engaged in developing and disseminating tools and knowledge to address climate change, natural disasters, and inequality issues. The DIGNAD model and toolkit have been central to these efforts, with multiple workshops and training sessions conducted globally. These sessions targeted a diverse audience, including officials from central banks, ministries of finance and environment, and government think tanks in various regions such as Africa and the Middle East. For instance, the ATI/AFS workshop in Pretoria attracted 33 participants from 11 countries, including 3 fragile states, while the CMF course in MF's Regional Technical Assistance Centre for Southern Africa in Mauritius, drew 35 participants from 20 countries. The Nigeria workshop saw 48 attendees from 6 countries. These initiatives focused on integrating climate considerations into macroeconomic policies and enhancing resilience in developing economies. Additionally, the IMF introduced the Climate in Macroeconomic Frameworks (CMF) course, which received positive feedback for its practical approach. The Institute also organised workshops on gender inclusion, attended by representatives from ministries of finance, central banks, and organisations like UNFPA, utilising tools such as the MIMMI App to address gender gaps**.**

Progress on recommendations from the previous AR (if completed), lessons learned this year and recommendations for the year ahead

Following recommendations in previous Annual reviews, the MRLIC team has made progress in explain how MRLIC research is used by government officials to help inform their policy choice. This programme should consider if measurement of policy impact can be more structured to better observe progress over the life span of the programme.

Output Title	Engagement by senior IMF policymakers on issues affecting LICs strengthened through this project.		
Output number:	3	Output Score:	A
Impact weighting (%):	33%	Weighting revised since last AR?	No

Indicator(s)	Milestone(s) for this review	Progress
3.1 High level policy conferences attended by senior IMF staff reflect findings of research papers funded under this project.	By March 2023, number of policy conferences drawing on outputs from the project: H (57) M (56) L (55)	*56 cumulative (3 in past year) met medium target*
3.2. Results of research papers produced reflected in IMF policy papers such as Staff Discussion Notes, policy memos to management etc.	By March 2023: H (64) M (62) L (60)	*62 cumulative (3 in past year) met medium target.*

Briefly describe the output's activities and provide supporting narrative for the score.
This output assesses how the level of engagement by senior IMF policymakers on issues affecting LICs is strengthened through this project. It scores an A. Both indicators 3.1 and 3.2 met the medium target. IMF MRLIC research continued to be influential at high-level policy conferences, addressing critical issues such as poverty, climate action in South Asian economies, and the impacts of geopolitical fragmentation on global markets. The research outputs, reflected in various IMF publications, provided valuable insights on market reforms and public debt dynamics in emerging economies, declining global growth expectations, and the relationship between public debt and inflation expectations, shaping the IMF's policy direction on key macroeconomic issues.

Indicator 3.1: High level conferences

The MRLIC team, in collaboration with other international organisations, continues to address critical global issues through various conferences and events. A notable example is the conference on "Addressing the Hidden Dimensions of Poverty in Knowledge and Policies," organised jointly by the IMF Research Department, the International Movement ATD Fourth World, and the World Bank Poverty Global Practice. This event brought together academics, practitioners, and researchers to discuss innovative approaches to poverty measurement and policy, featuring insights from a multi-year project across several countries and a keynote address by MIT Professor Esther Duflo.

Additionally, the IMF has been actively engaging with climate change issues, particularly in South Asian economies. A series of high-level seminars, policy dialogues, and peer learning events on Climate Action in South Asian Economies were organised, involving key IMF officials and prominent figures from the region. These events aimed to mainstream climate action in macroeconomic management, considering the unique challenges faced by countries in the area. The IMF also participated in the ASSA 2024 meetings, presenting research on the potential fragmentation of international markets and its implications for low-income countries and foreign direct investment patterns.

Indicator 3.2. Research reflected in IMF Board discussion and other IMF policy papers.
IMF MRLIC research has contributed significant insights reflected in several key policy papers and publications - including a Staff Discussion Note on market reforms in emerging market and developing economies (EMDEs) that demonstrates that structural reforms can ease the trade-off between economic support and fiscal sustainability, leading to long-lasting reductions in debt-to-GDP ratios through higher fiscal revenues and lower borrowing costs.

MRLIC research contributed to chapters 1 and 2 of the October World Economic Outlook, which focused on global economic prospects and inflation management. MRLIC's contribution in Chapter 1 highlights a concerning trend of declining medium-term growth expectations globally, a phenomenon observed since the 2008 financial crisis and exacerbated by recent economic shocks. This decline is attributed mainly to lower total factor productivity growth, reduced labour force participation, and decreased capital deepening, with significant implications for income convergence between advanced and developing economies. In Chapter 2 MRLIC's contribution examines the relationship between public debt and inflation expectations, introducing the IAPOC index to measure monetary policy frameworks. The research indicates that higher public debt, especially foreign currency debt, is associated with higher inflation expectations in emerging market and developing economies, emphasising the importance of strong monetary policy frameworks in managing these expectations. The involvement of the MRLIC team resulted in an increased focus on LICs which would have otherwise been overlooked as in reports prior to the programme.

Progress on recommendations from the previous AR (if completed), lessons learned this year and recommendations for the year ahead.

Recommendation	Progress
The indicators should be revised to focus more clearly on what matters for this output, which is exposure and engagement of senior IMF officials to MRLIC research and capturing how much the research influences IMF policy. This should build on existing efforts in FCDO's Research & Evidence Directorate to better monitor the policy influence of research.	This recommendation has not been clearly addressed during the review year, while the output has performed well, more work can be done to demonstrate and systematically capture shifts in IMF positions or policies based on MRLIC output.

D: VALUE FOR MONEY

The MRLIC programme offers good value for money. Use of IMF processes and infrastructure helps ensure that high-quality research outputs are produced at reasonable cost, provides efficient routes for research uptake and effectively supports macroeconomic policy decision-making.

Economy: Delivery through the IMF means that MRLIC benefits from solid governance on the procurement process. MRLIC follows IMF guidelines for hiring, travel, and conferences. Contractual employees undergo a competitive process before being hired. Outputs must meet Fund requirements for publication. The quality of papers is further evaluated when they are submitted to peer-reviewed publications.

Efficiency: The table below shows the unit costs of working papers and unit cost of publications. The cost per working paper is approximately $72,000. The average cost per published paper is approximately $123,000. This is lower than previous estimates of average paper costs from somewhat similar research programmes which give figures in the range of $188,430 (£150,000) per paper. The quality of research outputs is also high, as noted under Output 1. Working with IMF also delivers efficiency gains in terms of research uptake, as MRLIC frameworks and toolkits can easily be operationalised across various areas of IMF practice through training courses or by supporting wider IMF analysis, ultimately feeding into influential policy documents at the country level (e.g. macroeconomic assessments) or at the IMF Board

Cost per Working Paper and Publication over the duration of MRLIC

Total Staff/Contractual/VS Costs[1]	$18,538,652
Research Paper Costs	$13,903,989
Country Applications Costs	$4,634,663
Working Papers[2]	192
Cost Per Working Paper	$72,417
Published Papers[2]	113
Cost per Published Paper	$123,044

[1] Estimated as the sum of the first two lines of Table 3. Note that the first line of Table 3 includes both IMF staff salary and travel expenses. Thus, the per paper cost estimates likely overestimate the true cost of research time.
[2] These include commissioned papers.

Effectiveness: The IMF influences macroeconomic policymaking in Low-Income Countries through its lending programmes, surveillance and capacity building activities. MRLIC's effectiveness in terms of affecting macroeconomic policy rests on its ability to successfully influence policy and practice of the IMF (through Board papers, policy papers, etc.). Moreover, publishing research papers through the IMF's well-regarded IMF Working Paper series helps increase the reach of the research, contributing to the global public good. While there is useful data on efficiency, future reports could include data on how outputs are translating into policy reform.

Equity: MRLIC research workstreams on gender inequality, income inequality and distributional analysis of policy changes have had particular traction and are enhancing the IMF's ability to assess the differential impact of policy recommendations on different groups. Examples include MRLIC providing the analytical underpinning of the IMF Gender Mainstreaming Strategy, and the Multi-sector Incomplete Markets Macro Inequality (MIMMI) App, which is designed to simulate the long-run macro and distributional impacts of different economic policies and shocks.

E: RISK

Overview of risk management

The overall risk remains minor. The risk register is regularly updated and was last updated in April 2024. Despite the sustained reduction in funding, MRLIC has continued to deliver outputs to address the high demand for expertise and research products on LICs. The main risk for the programme remains the uncertainty of the future budget for the programme which results in a negative effect on the MRLIC's ability to recruit and retain high calibre staff, deliver key outputs in a timely manner and engage in effective short to medium-term planning.

- **External context**: Most research is carried out at IMF headquarters using secondary datasets, so has limited exposure to context in LICs.
- **Delivery**: Established delivery systems are in place and have demonstrated high delivery over an extended period. Demand for MRLIC outputs remains high.
- **Operational**: Experienced management teams are in place at both FCDO and IMF.
- **Fiduciary**: All funds are spent directly by the IMF and are subject to extensive IMF financial management controls.
- **Reputational**: Research activities and topics pose little or no reputational risk.
- **Innovation**: Research activities and topics are not subject to substantial innovation risks.
- **Safeguarding**: Programme activities rarely, if ever, involve contact with vulnerable persons, and external researchers are managed in accordance with IMF procedures.

A Central Assurance Assessment (CAA) of the IMF as a whole was conducted by FCDO in December 2021 which confirmed the IMF's position as a low-risk partner. This CAA covered enhanced areas of due diligence including safeguarding procedures. A light touch due diligence was conducted in July 2023. This was largely drawn from the CAA, and it was only necessary to assess any programme-specific differences to the IMF's standard operating procedures. The MRLIC programme and IMF as a whole operate in similar ways. Hence the CAA findings also hold true for the MRLIC programme.

Partnership principles are not applicable. MRLIC is a research programme managed by the IMF. No funding is passed to country governments or similar bodies. All funds are held and managed by the IMF and are subject to strict financial controls under IMF policies and in accordance with the rules applied to donor sub-accounts, in this case the United Kingdom Selected Fund Activities (SFA) sub-account. These rules are set at Board level and are not subject to negotiation by the team.
Looking ahead, a one-year funding extension is proposed for FY2026 (April 2025 to March 2026) to allow time to potentially reshape the MRLIC program before a new phase V is being considered. While this short-term extension will ensure a successful completion of projects started under Phase IV and help explore new research ideas that could be pursued in a potential Phase V, it does not address the substantial uncertainty around the medium-term FCDO funding and the financial viability of the MRLIC partnership.

F: PROGRAMME MANAGEMENT: DELIVERY, COMMERCIAL & FINANCIAL PERFORMANCE

Summarise the performance of partners and FCDO, notably on commercial and financial issues.

FCDO annual funding for the programme saw a significant decrease, dropping from £1.7m annually to £0.8m, following overall UK ODA reductions in 2020 and 2021. This reduction posed potential risks to the programme's impact, as it threatened to compromise core operational costs, especially those related to personnel and knowledge dissemination.

The uncertain funding landscape has created operational risks which impedes the programmes strategic direction, as long-term research initiatives require stable resources. The instability has made it difficult to attract and retain skilled contract researchers.

Institutional constraints at the IMF regarding external funding management may complicate efforts to restore FCDO's contribution to previous levels, potentially limiting research capacity for LIC-focused projects. As plans for the next phase of the program are developed, careful consideration should be given to the pros and cons of multi-donor arrangements.

Coordination between FCDO and IMF remains strong, with regular progress meetings and quarterly output summaries ensuring effective program oversight. The program maintains rigorous procurement and quality control processes, adhering to IMF standards for hiring, travel, and conferences. Research outputs undergo thorough vetting, including peer review for academic publications. The majority of funds have been directed towards research activities conducted by IMF staff and external experts.

This evaluation was carried out by the FCDO program team, the Economic Advisor (PRO) and Deputy Programme Manager, under the guidance of senior leadership in the Economic Growth Research Team.

G: MONITORING, EVIDENCE AND LEARNING

Monitoring
At the end of each fiscal year, the MRLIC team IMF reports the outputs included in the log-frame to FCDO. Quarterly updates of the MRLIC outputs and activities are also routinely shared with the FCDO team to keep them informed about the programme’s research and progress. The MRLIC team also sends out quarterly e-newsletters that reach an audience of more than 1,500 academics, policymakers, central bank staff, and government representatives, among others. These e-newsletters are posted on the project’s website. We routinely organize video conference calls between the IMF and FCDO project members to discuss the program as needed.

Evaluation
While FCDO conducts a yearly evaluation of the program, no budget for an external evaluation was included in the project budget.

Date of last narrative financial report	January 2024	Date of last audited annual statement	April 2023

Annex 1: Summaries of working papers and publications under output 1

Output 1.1 – Working Papers

Topic 1. Modelling and understanding policy choices

1. Panel Nowcasting for Countries Whose Quarterly GDPs are Unavailable
   Omer Faruk Akbal, Seung M Choi, Futoshi Narita, and Jiaxiong Yao

   Summary: Quarterly GDP statistics facilitate timely economic assessment, but the availability of such data are limited for more than 60 developing economies, including about 20 countries in sub-Saharan Africa as well as more than two-thirds of fragile and conflict-affected states. To address this limited data availability, this paper proposes a panel approach that utilizes a statistical relationship estimated from countries where data are available, to estimate quarterly GDP statistics for countries that do not publish such statistics by leveraging the indicators readily available for many countries. This framework demonstrates potential, especially when applied for similar country groups, and could provide valuable real-time insights into economic conditions supported by empirical evidence.

2. Strengthening Monetary Policy Frameworks in the Caucasus and Central Asia
   Tigran Poghosyan, Klakow Akepanidtaworn, Maria Atamanchuk, Ezequiel Cabezon, Selim Cakir, Vahid Khatami, with inputs from Filiz D Unsal, Mariarosaria Comunale, Marina Conesa Martinez, and Omer Faruk Akbal

   Summary: Amidst a global backdrop of persistent post-COVID inflation and spillovers from Russia's war in Ukraine, the countries of the Caucasus and Central Asia (CCA) region have faced strong price pressures in recent years. Inflation is estimated to have peaked in early 2023, but still exceeds central bank targets. In particular, core inflation remains stubbornly high reflecting a combination of second-round effects, surges in global energy and food prices, and domestic demand pressures. More broadly, uncertainty and downside risks also weigh on the economic outlook, including due to regional tensions, financial turmoil related to international monetary policy normalization, and a growth slowdown in key trading partners. In this context, CCA countries' ability to contain inflationary pressures and anchor inflation expectations hinges on the credibility and effectiveness of their monetary policy frameworks. Since gaining independence in the 1990s, countries in the CCA region have made considerable progress in modernizing their monetary policy frameworks. CCA central banks have strengthened their legal frameworks and established broad de-jure independence. Armenia, Georgia, Kazakhstan, the Kyrgyz Republic, and Uzbekistan are transitioning to inflation targeting regimes, while the central banks of Azerbaijan, Tajikistan, and Turkmenistan rely on the exchange rate as an operational target. However, the post-COVID surge in inflation has highlighted the limitations of current frameworks and triggered a fresh policy debate on the need to strengthen monetary policy effectiveness in the CCA. This paper reviews the CCA region's monetary policy landscape, highlights challenges in monetary policy design and implementation, and identifies areas that warrant strengthening. It draws on original surveys of country authorities, IMF country teams, and the work by Unsal and others (2022). It uses novel empirical work to analyze monetary policy transmission, the link between foreign exchange interventions and exchange rate dynamics, the drivers of financial de-dollarization, and the effects of central bank communication in the CCA.

   Monetary Policy Frameworks and Communication in the Caucasus and Central Asia
   Omer Faruk Akbal, Klakow Akepanidtaworn, Ezequiel Cabezon, Mariarosaria Comunale, Marina Conesa Martinez, and Filiz D Unsal

   Summary: Central banks in Caucasus and Central Asia (CCA) have been enhancing their monetary policy frameworks in the last decade, and are at different stages of the transition to a type of inflation targeting regimes. This paper documents their progress and the current state of their monetary policy framework, utilizing the IAPOC index developed by Unsal and others (2022) covering Independence and Accountability, Policy and Operational Strategy, and Communications, as well as drawing from central banks' laws and websites. Additionally, an analysis of press releases from CCA central banks is conducted to evaluate their features, content, and tones. The findings highlight the need for further improvements in the areas of Independence and Accountability, as well as Communications, despite some recent advancements in the latter.

Topic 2. Understanding macro-financial linkages

3. Financial Stress and Economic Activity: Evidence from a New Worldwide Index
   Hites Ahir, Giovanni Dell'Ariccia, Davide Furceri, Chris Papageorgiou, and Hanbo Qi

   Summary: This paper uses text analysis to construct a continuous financial stress index (FSI) for 110 countries over each quarter during the period 1967-2018. It relies on a computer algorithm along with human expert oversight. The new indicator has a larger country and time coverage and higher frequency than similar measures focusing on advanced economies. And it complements existing binary chronologies in that it can assess the severity of financial crises. We use the indicator to assess the impact of financial stress on the economy using both country- and firm-level data. Our main findings are fivefold: i) consistent with existing literature, we show an economically significant and persistent relationship between financial stress and output; ii) the effect is larger in emerging markets and developing economies and (iii) for higher levels of financial stress; iv) we deal with simultaneous causality by constructing a novel instrument—financial stress originating from other countries—using information from the text analysis, and show that, while there is clear evidence that financial stress harms economic activities, OLS estimates tend to overestimate the magnitude of this effect; (iv) we confirm the presence of an exogenous effect of financial stress through a difference-in-differences exercise and show that effects are larger for firms that are more financially constrained and less profitable.

4. Mobile Internet, Collateral, and Banking
   Angelo D'Andrea, Patrick Hitayezu, Kangni R Kpodar, Nicola Limodio, and Andrea F Presbitero

   Summary: Combining administrative data on credit, internet penetration and a land reform in Rwanda, this paper shows that the complementarity between technology and law can overcome financial frictions. Leveraging quasi-experimental variation in 3G availability from lightning strikes and incidental coverage, we show that mobile connectivity steers borrowers from microfinance to commercial banks and improves loan terms. These effects are partly due to the role of 3G internet in facilitating the acquisition of land titles from the reform, used as a collateral for bank loans and mortgages. We quantify that the collateral's availability mediates 35% of the overall effect of mobile internet on credit and 80% for collateralized loans.

Topic 3. Building resilience

5. Coping with Climate Shocks: Food Security in a Spatial Framework
   Diogo Baptista, John A Spray, and Filiz D Unsal

   Summary: We develop a quantitative spatial general equilibrium model with heterogeneous house-holds and multiple locations to study households' vulnerability to food insecurity from climate shocks. In the model, households endogenously respond to negative climate shocks by drawing-down assets, importing food and temporarily migrating to earn additional income to ensure sufficient calories. Because these coping strategies are most effective when trade and migration costs are low, remote households are more vulnerable to climate shocks. Food insecure households are also more vulnerable, as their proximity to a subsistence requirement causes them to hold a smaller capital buffer and more aggressively dissave in response to shocks, at the expense of future consumption. We calibrate the model to 51 districts in Nepal and estimate the impact of historical climate shocks on food consumption and welfare. We estimate that, on an annual basis, floods, landslides, droughts and storms combined generated GDP losses of 2.3 percent, welfare losses of 3.3 percent for the average household and increased the rate of undernourishment by 2.8 percent. Undernourished households experience roughly 50 percent larger welfare losses and those in remote locations suffer welfare losses that are roughly two times larger than in less remote locations (5.9 vs 2.9 percent). In counterfactual simulations, we show the role of better access to migration and trade in building resilience to climate shocks.

6. Monetary Policy Design with Recurrent Climate Shocks
   Vimal V Thakoor and Engin Kara

   Summary: As climate change intensifies, the frequency and severity of climate-induced disasters are expected to escalate. We develop a New Keynesian Dynamic Stochastic General Equilibrium model to analyze the impact of these events on monetary policy. Our model conceptualizes these disasters as left-tail productivity shocks with a quantified likelihood, leading to a skewed distribution of outcomes. This creates a significant trade-off for central banks, balancing increased inflation risks against reduced output. Our results suggest modifying the Taylor rule to give equal weight to responses to both inflation and output growth, indicating a gradual approach to climate exacerbated economic fluctuations.

Topic 4. Promoting structural change and institutional development

7. Social Unrests and Fuel Prices: The Role of Macroeconomic, Social and Institutional Factors
   Alassane Drabo, Kodjovi M. Eklou, Patrick A. Imam, and Kangni R Kpodar

   Summary: This paper investigates the impact of fuel price increases on social unrests in addition to the macroeconomic, social and institutional factors driving this relationship. Using the IV fixed-effect estimator on a sample of 101 developing countries during 2001-2020, we find that changes in fuel prices are positively associated with the number of social unrests, mainly anti-government demonstrations. This impact is however amplified: (i) during economic downturns and periods of high exchange rate instability; (ii) when government spending is low, especially on health and education, thus suggesting that streamlining fuel subsides and diverting parts of the reform savings to the health and education sectors is an appropriate policy that could appease social tensions; (iii) in countries with high income inequality, low institutional quality and high level of corruption. The results are robust to a battery of tests, including the use of an instrumental variable approach to address reverse causality concerns given that social unrests could also prompt a freeze in fuel prices. We also find consistent results using either changes in diesel or gasoline prices. Overall, the findings of the paper provide support to the grievance and deprivation theory in explaining the association between fuel price increases and social unrests, but fail to find evidence for the resource theory and the theory of political opportunities.

8. Do Capital Inflows Spur Technology Diffusion? Evidence from a New Technology Adoption Index
   Gabriela Cugat, and Andrea Manera

   Summary: We construct a novel measure of technology adoption, the Embodied Technology Imports Indicator (ETI), available for 181 countries over the period 1970-2020. The ETI measures the technological intensity of imports of each country by leveraging patent data from PATSTAT and product-level trade data from COMTRADE. We use this index to assess the link between capital flows and the diffusion of new technologies across emerging economies and low-income countries. Through a local projection difference-in-differences approach, we establish that variations in statutory capital flow regulations increase technological intensity by 7-9 percentage points over 5 to 10 years. This increase is accompanied by a significant 28-33 pp rise in the volume of gross capital inflows, driven primarily by foreign direct investment (21 pp increase), and a 9 to 12 percentage points shift in the level of Real GDP per capita in PPP terms.

9. Divided We Fall: Differential Exposure to Geopolitical Fragmentation in Trade
   Shushanik Hakobyan, Sergii Meleshchuk, and Robert Zymek

   Summary: This paper assesses differences in countries' macroeconomic exposure to trade fragmentation along geopolitical lines. Estimating structural gravity regressions for sector-level bilateral trade flows between 185 countries, we find that differences in individual countries' geopolitical ties act as a barrier to trade, with the largest effects concentrated in a few sectors (notably, food and high-end manufacturing). Consequently, countries' exposure via trade to geopolitical shifts varies with their market size, comparative advantage, and foreign policy alignments. Introducing our estimates into a dynamic many-country, many-sector quantitative trade model, we show that geoeconomic fragmentation—modelled as an increased sensitivity of trade costs to geopolitics and greater geopolitical polarization—generally leads to lower trade and incomes. However, emerging markets and developing economies (EMDEs) tend to see the largest impacts: real per-capita income losses for the median EMDE in Asia are 80 percent larger, and for the median EMDE in Africa 120 percent larger, than for the median advanced economy. This suggests that the costs of trade fragmentation could fall disproportionally on countries that can afford it the least.

Topic 5. Enhancing inclusion

10. Will Working from Home Stick in Developing Economies?
    Marina Conesa Martinez, Futoshi Narita, and Chris Papageorgiou

    Summary: In developing economies, a shift to working from home during the COVID-19 pandemic varies substantially. An increase in teleworking days per week ranges from 0.7 to 17.6 percentage points across 10 developing countries covered by an online survey to about 500 respondents per country. An estimated income discount associated with telework disappeared temporarily at the onset of the pandemic. A calibrated model indicates that workers' preferences to telework may largely depend on their educational attainments. Whether telework will sustain in these countries could depend on obstacles to telework, particularly for workers with less education, and a degree of economy-wide externality.

11. When Will Global Gender Gaps Close?
    Alejandro Badel and Rishi Goyal

    Summary: On the current pace of reforms, global gender gaps are estimated to close, using deterministic (linear or log-linear) trends, over the next three centuries. This means that many women will likely not be able to fully use their abilities and talents, to the detriment of societies, for a long time. Yet this paper shows that, absent a significant step up in policy efforts, gender gaps may in fact never close. Using Markov chains, a common approach in macroeconomics, this paper analyzes the dynamics of the cross-country distribution of the gender gap in labor force participation. This methodology does not impose strong restrictions on the data, allowing for episodes of progress as well as regress by countries on gender inequality. Based on the experience of the past three decades, the analysis predicts a further narrowing of gender gaps over time. But the long-run distribution of gender gaps in labor force participation features a substantial share of countries with persistently large gaps, implying that—absent a strengthened and systematic policy effort—some of the current misallocation of women's talents and abilities could persist perpetually.

12. Digitalization and Gender Equality in Political Leadership in Sub-Saharan Africa
    Diego B. P. Gomes and Carine Meyimdjui

    Summary: We examine the impact of digitalization on people's perceptions of women as political leaders in 34 Sub-Saharan African countries. We find that being a social media or internet user is linked to a higher likelihood of people supporting gender equality in political leadership. However, the intensive margin of usage does not appear to be significant. Furthermore, women's perceptions of gender equality in political leadership are more sensitive to internet and social media use than men's. The paper recommends policies for improving ICT infrastructure and investing in technological education.

13. Mining Revenues and Inclusive Development in Guinea
    Alejandro Badel and Rachel Fredman Lyngaas

    Summary: What are the potential benefits of increasing the taxation of a foreign extractive sector? This paper applies this question to the case of Guinea by using a multi-sector macro-inequality model with heterogeneous agents. We quantify the long-run equilibrium impact of additional taxation when the proceeds are invested in human capital, inclusive infrastructure, and social transfers. Our analysis focuses on the response of GDP, labor formalization, poverty rates, Gini coefficients, rural/urban inequality and sectoral reallocation. The three forms of investment are complementary. Infrastructure investments favor formal production in the urban area while growth and government transfers boost the demand for food. These effects help support the rate of return to education, protecting job formalization through higher wages and prices of informal goods, as the education policy boosts labor supply in rural and urban areas.

Output 1.2 – Published Papers

Topic 1. Modelling and understanding policy choices

1. Tax Revenues in Low-Income Countries
   Adrian Peralta-Alva, Xuan S Tam, Xin Tang, and Marina M Tavares
   The Economic Journal

Summary: We quantitatively investigate the welfare costs of increasing tax revenues in low-income countries. We consider three tax instruments: consumption, labour income and capital income taxes. The analysis is based on a general equilibrium model featuring heterogeneous agents, incomplete financial markets, and rural and urban areas. We calibrate the model to Ethiopia and decompose the welfare costs into their aggregate and distributional components. We find that changing taxes alter the composition of demand. This, together with limited labour mobility, causes the incidence of higher taxes to fall disproportionately on the rural population, regardless of the instrument. Consumption taxes are the instrument with the largest welfare loss.

Topic 2. Understanding macro-financial linkages

2. How do transaction costs influence remittances?
   Kangni Kpodar, and Patrick Amir Imam
   World Development

   Summary: Using a new quarterly panel database on remittances, this paper investigates the elasticity of remittances to transaction costs using local projections. The findings suggest that cost reductions have a short-term positive impact on remittances within a quarter, before they stabilize at a higher level. According to our estimates, reducing transaction costs to the Sustainable Development Goal target of 3 percent could generate an additional US$32bn in remittances, higher than the direct cost savings from lower transaction costs, thus suggesting an absolute elasticity greater than one. The cost-elasticity exhibits some heterogeneity along several characteristics of the recipient country, notably competition in the remittance market, financial sector deepening, correspondent banking relationships, transparency in remittance costs, financial literacy and ICT development. Micro data from the USA-Mexico corridor confirm that migrants facing higher transaction costs tend to remit less, and that this effect is less pronounced for skilled migrants and those that have access to a bank account.

Topic 3. Building resilience

3. Monetary policy under natural disaster shocks
   Alessandro Cantelmo, Nikos Fatouros, Giovanni Melina, and Chris Papageorgiou
   International Economic Review

   Summary: With climate change increasing the frequency and intensity of natural disasters, what should central banks do in response to these catastrophic events? Looking at IMF reports for 34 disaster-years, which occurred in 16 disaster-prone countries from 1999 to 2017, reveals lack of any systematic approach adopted by monetary authorities in response to climate shocks. Using a small-open-economy New-Keynesian model with disaster shocks, we show that consistent with textbook theory, inflation targeting remains the welfare-optimal regime. Therefore, the best strategy for monetary authorities is to resist the impulse of accommodating in response to catastrophic natural disasters, and focus on price stability.

Topic 4. Promoting structural change and institutional development

4. Policy distortions and aggregate productivity with endogenous establishment-level productivity
   José-María Da-Rocha, Diego Restuccia, and Marina M. Tavares
   European Economic Review

   Summary: What accounts for income per capita and total factor productivity (TFP) differences across countries? We study resource misallocation across heterogeneous production units in a general equilibrium model where establishment productivity and size are affected by policy distortions. We solve the model in closed form and show that policy distortions have a substantial negative effect on establishment productivity growth, average establishment size, and aggregate productivity. Calibrating a distorted benchmark economy to U.S. data, we find that empirically reasonable variations in distortions generate reductions in aggregate TFP of more than 24 percent while slightly increasing concentration in the establishment size distribution. If distortions in addition lower the exit rate of incumbent establishments, as supported by some empirical evidence, the aggregate TFP loss doubles to 48 percent.

5. Structural Reforms and Elections: Evidence from a World-Wide New Dataset
   Alberto Alesina, Davide Furceri, Jonathan D Ostry, Chris Papageorgiou, and Dennis P Quinn
   Journal of the European Economic Association

   Summary: We present two new databases we have constructed to explore the electoral consequences of structural economic policy reforms. One database measures reforms in domestic finance, external finance, trade, product, and labor markets covering 90 advanced and developing economies from 1973 to 2014. The other chronicles the timing and results of national elections. We find that liberalizing reforms are associated with economic benefits that accrue only gradually over time. Because of this delay, liberalizing reforms are costly to democratic incumbents when they are implemented close to elections. Electoral outcomes also depend on the state of the economy: Reforms are penalized during contractions but are often rewarded in expansions.

Topic 5. Enhancing inclusion

6. The global distribution of gains from globalization
   Valentin Lang, and Marina M. Tavares
   The Journal of Economic Inequality

   Summary: Global interpersonal inequality is increasingly driven by inequalities within countries while the role of inequality between countries diminishes. Is this due to globalization? To answer this question, we use comprehensive global panel data at the country-decile-group level for the past half century and exploit the geographic diffusion of liberalization policies to identify the effect of globalization. Across countries, we find that income gains are substantial for countries at early stages of the globalization process, but the 'marginal returns to globalization' diminish as globalization rises, eventually becoming insignificant for the most globalized countries. Within countries, gains from globalization are largest for the richest ten percent of national income distributions, resulting in substantial increases in national income inequalities. A simple quantitative model is consistent with these empirical results. Over the past half century, globalization has promoted a dual trend of income convergence across countries and income divergence within countries.

7. When will global gender gaps close?
   Alejandro Badel, and Rishi Goyal

Economic Letters

Summary: Global gender gaps are commonly expected to gradually close along a deterministic path over time. This paper uses Markov chains as in Quah (1993) to simulate the future dynamic path of the global distribution of gender labor force participation gaps based on country data from the last 30 years. The simulations suggest that global gender gaps will never close. A large share of countries will feature elevated gaps in the long run owing to the potential for individual episodes of increasing gaps found in the data. Absent improved and strengthened policy measures, the observed waste and misallocation of women's skills and talents may persist indefinitely.

8. Lessons from 40 years of cross-country convergence empirics
   Paul A. Johnson, Chris Papageorgiou, Maria Grazia Pittau, and Roberto Zelli
   Oxford Handbook of Income Distribution and Economic Growth, forthcoming

Summary: We survey the literature testing the absolute convergence hypothesis, the proposition that (the distributions of) countries' long-run per capita income levels are independent of their country specific initial conditions. We conclude that the literature supports the view that the cross-country data is more consistent with the presence of several convergence clubs, groups of countries with similar initial conditions that tend to have similar long-run outcomes, than with absolute convergence, or a single convergence club. We revisit the data from 1970 to 2019 using a mixture model of the cross-country distribution of per capita income and find evidence of multiple convergence clubs. For the 2000s, and 2010s, this result is inconsistent with recent claims of convergence made by some researchers. We close with a consideration of future prospects for reductions in the gap in per capita incomes between poor countries and rich countries in light of the challenges posed by the Covid-19 pandemic, inflation and the associated financial tightening, climate change, and artificial intelligence.

Annex 2: Details of Country Applications under Output 2

Output 2.1 – Country Applications with Authorities and IMF Country Teams

FPAS framework

We have no publication under this topic this year.

Diversification

We have no publication under this topic this year.

DIG/Investment scaling up/Debt sustainability

We have no publication under this topic this year.

Natural disasters/DIGNAD (Debt, Investment, Growth, and Natural Disasters)

1. Benin - DIGNAD country application in the context of the RST facility (Benin—Third Reviews Under the Extended Arrangement Under the Extended Fund Facility and Arrangement Under the Extended Credit Facility and Request for an Arrangement Under the Resilience and Sustainability Facility)

   Summary: Policy lessons from DIGNAD simulations draws lessons from the IMF-DIGNAD (Debt, Investment, Growth, and Natural Disasters) model to demonstrate the consequences of climate change vulnerability in Benin and the impact of investing in ex-ante adaptation on output growth and public debt.

2. Kenya – DIGNAD country application in the context of the RST facility. (Kenya—Fifth Reviews Under the Extended Fund Facility and Extended Credit Facility Arrangements and Request for a 20-Month Arrangement Under the Resilience and Sustainability Facility).

   Summary: Simulations using the IMF Debt, Investment, Growth, and Natural Disasters (DIGNAD) model show that accelerating investment in adaptation infrastructure, catalyzing climate finance, and raising Kenya's public investment efficiency to reach the regional efficiency frontier would save Kenya nearly 3 percent in output loss (US$71.2 million) while reducing macroeconomic and fiscal risks.

3. Rwanda – DIGNAD country application in the context of the RST facility (Selected Issues Paper)

   Summary: The authors illustrate macroeconomic impacts of planned climate focused projects and reforms and discuss sustainable financing strategies. Simulations using the IMF's Debt-Investment-Growth-Natural-Disasters (DIGNAD) model suggest that full NDC implementation has sizeable fiscal costs but could improve Rwanda's macroeconomic stability if accompanied by proper policy and financing mix. Domestic Revenue Mobilization (DRM) and spending rationalization are key to increasing fiscal space and safeguarding debt sustainability. Furthermore, advancing reforms under the Resilience and Sustainability Facility (RSF) would increase public investment efficiency and help catalyzing additional climate financing, thereby addressing the risk of crowding out other development spending.

4. Moldova – DIGNAD country application in the context of the RST facility (Selected Issues Paper)

   Summary: Strengthening resilience to natural disasters will require significant adaptation investments in the coming years. This paper shows that such investments can substantially reduce output losses caused by natural disasters, will be more cost-efficient than responding to disasters ex-post, and will contribute to boost Moldova's long-term economic growth and support its development objectives. Authors use the IMF's Debt-Investment-Growth and Natural Disaster—DIGNAD—Model to simulate the impact of climate adaptation infrastructure investments on resilience to climate shocks and long-term economic growth and to explore the implications for debt sustainability of different financing options.

5. Mauritania – DIGNAD country application in the context of the RST facility (Islamic Republic of Mauritania—First Reviews Under the Arrangements Under the Extended Credit Facility and the Extended Fund Facility, Requests for Modification of Performance Criteria and a Waiver of Nonobservance of Performance Criterion, and Request for an Arrangement Under the Resilience and Sustainability Facility)

Summary: Climate shock modelling using the DIGNAD model suggests substantial economic benefits from improved climate-adaptive public investment. The DIGNAD model highlights the additional resilience to climate shocks provided by increased public investment efficiency and public infrastructure investment adapted to climate change.

6. Cameroon – DIGNAD country application in the context of the RST facility (Cameroon -- Request for an Arrangement Under the Resilience and Sustainability Facility. Staff Report)

   Summary: This annex draws lessons from the IMF-DIGNAD (Debt, Investment, Growth, and Natural Disasters) model to illustrate climate vulnerability in Cameroon and the impact of investing in ex-ante adaptation on output and public debt. The DIGNAD simulation results suggest that investment in adaptation infrastructure would increase Cameroon's resilience to natural disasters. Increasing public investment would result in a higher public debt initially, but these investments would lower the negative impact on the output in case of a shock, support post-disaster recovery, and reduce reconstruction costs. Results also suggest that increasing public investment efficiency would further help limit the impact of a natural disaster shock and reduce rebuilding costs improving public debt dynamics over the reconstruction period. Given the limited fiscal space, PIM reforms are key to achieving economic and infrastructure resilience to climate shocks. The authorities would also need to rely on donor financing to address the growing needs in the face of climate change. Going forward, financing adaptation needs would be challenging without the private sector engagement.

7. Federated States of Micronesia (FSM) – Public Investment, Economic Growth, and Resilience: A Model Based Approach (Selected Issues Paper)

Summary: Enhancing public investment management (selection, planning, and implementation) could significantly improve the efficiency of public investment and support economic growth. This is particularly important as FSM starts a new boost to public investment financed by foreign grants. Using a dynamic DIGNAD model, we illustrate the effects of various policy options on achieving higher and more resilient growth and improving private sector participation. The reforms can also have fiscal benefits through the higher growth dividend. Additionally, the impact of different types of public investment on building resilience to climate shocks emphasizes the benefits of larger investment in climate-resilient infrastructure to minimize GDP loss and allow the economy to bounce back faster after a large natural disaster.

Income and Gender Inequality

8. Guinea: Macro-Inequality Impact of the Simandou Project (Article IV Consultation)

   Summary: During an Article IV Consultation for the Republic of Guinea (from January 29th to February 14th, 2024), the country team presented A. Badel's ongoing research on the macro-inequality impact of the Simandou project, a large mining project in Guinea. The research concludes that the project's success in boosting growth, reducing poverty, reducing inequality, and addressing climate change is heavily dependent on proactive government policy, particularly in infrastructure and education. The findings emphasize the limited impact of the project without such policies. In line with these conclusions, extensions and refinements to the infrastructure capabilities of the Multi Sector Incomplete Markets Macro Inequality (MIMMI) App were developed with this study. The MIMMI App is a product of the FCDO-IMF MRLIC program and are available to IMF staff and external users. The research findings were well-received by key stakeholders, including the Minister of Economy and Finance, the Minister of Planning & International Cooperation, and the Governor of the Central Bank. The project received similarly positive reviews from the IMF Deputy Director for Africa, as well as executives from Rio Tinto, the company in charge of the Simandou project.

IAPOC Toolkit – An Assessment Toolkit for Monetary Policy Frameworks

We have no publication under this topic this year.

Other

9. Big data and high frequency surveillance for Pacific Islands countries: An application to Solomon Islands (Selected Issues Paper)

   Summary: Pacific Islands Countries typically have capacity constraints that prevent them from publishing timely high-frequency data, a key input for macroeconomic surveillance in general and especially during disruptive events, such as social unrest, natural disasters, or pandemics. This project aims to fill this gap by implementing a simplified version of Arslanalp, Koepke and Verschuur (2021) using satellite-based vessel tracking data from the Automatic Identification System on ships activity to nowcast monthly trade flows. Additionally, the project uses port activity data to estimate economic disruptions due to social unrest in 2021.

10. Article IV Mission Presentation: ‘Development Policies in Chad in the Face of Climate Change’

    Summary: A presentation to the Chadian authorities was given in the context of the Article IV Mission to Chad, led by Edouard Martin. Alejandro Badel and Ljubica Dordevic delivered the presentation in French entitled “Development Policies for Chad in the Face of Climate Change”. The presentation emphasized the importance of using potential fiscal space from the reduction of oil subsidies for infrastructure and education, as well as climate adaptation. The team discussed the analysis with the Chadian authorities and received valuable feedback.

Output 2.2 – Courses to Authorities and IMF Country Teams

1. Debt, Investment, Growth, and Natural Disasters (DIGNAD): User's Guide to the Model and Toolkit

Summary: As part of the IMF's Internal Economics Training (IET) program, Azar Sultanov (RES) and Ha Nguyen (ICD) delivered a course titled "Debt, Investment, Growth, and Natural Disasters (DIGNAD): User's Guide to the Model and Toolkit". DIGNAD has emerged as a pivotal model within the IMF, serving to analyze the impact of climate risk resulting from natural disasters and exploring how investments in adaptation infrastructure can effectively mitigate these risks in developing low-income countries and emerging markets. The DIGNAD toolkit was subsequently developed as part of this initiative to simplify the use of the DIGNAD model. It was designed for economists with little to no knowledge of Matlab and Dynare, offering a user-friendly Excel-based interface to facilitate the development of tailored analyses regarding the macro-fiscal impacts of natural disasters and investments in resilience. The hybrid half-day course, conducted on November 2, covered the model itself, examples of past applications, and concluded with a hands-on session on utilizing the toolkit. Participants found the course highly beneficial, praising its flexible presentation style, practical demonstrations, and responsiveness to questions.

2. ATI/AFS Workshop on Climate Change and Macro-Financial Policies, Pretoria, June 5-9, 2023.

   Summary: Climate change induced higher temperatures and an increase in the frequency and severity of natural disasters are affecting countries globally. Globally coordinated mitigation policies are critical for containing climate change, and countries also need to implement adaptation policies to enhance their resilience. The transition to a low carbon economy also creates risks and opportunities across sectors, with implications for the financial sector. Integrating climate considerations in policy formulation is of paramount importance to manage climate-related economic risks and vulnerabilities. Countries also need to mobilize climate finance, especially in a context where many emerging markets and developing economies (EMDEs) are facing constrained fiscal space and elevated debt vulnerabilities. In this context, the DIGNAD Toolkit and its application was presented. The FCDO joined some sessions virtually and donors welcomed the ATI/AFS collaboration and noted the high quality of discussions for the sessions they attended. Requests were received from staff of the central banks of Madagascar, Mozambique, and Zimbabwe on using the DIGNAD. 33 participants (8 female) attended from 11 countries, including 3 fragile states (Comoros, Mozambique, and Zimbabwe).

3. ATI/AFW1/AFC Workshop on Climate Change and Macro-Financial Policies, Abidjan, Cote d'Ivoire on September 18-22, 2023.

   Summary: Following the series of successful ATI/AFE Workshop on Climate Change and Macro-Financial Policies in March and June 2023, the DIGNAD team were invited to present the toolkit with hands-on practice session at a similar workshop (3rd workshop). The delivery responds to the demand for more practical sessions to complement the Macroeconomics of Climate Change (MCC). All the functional departments supporting climate work participated. For the workshop in Côte d'Ivoire, 50 participants (16 female) attended from 18 countries, including 10 fragile states.

4. ATI/AFW2 Workshop on Climate Change and Macro-Financial Policies, Abuja, Nigeria on September 25-29

   Summary: This workshop (4th workshop), targeting anglophone West African countries, responds to the demand for more practical sessions to complement the Macroeconomics of Climate Change (MCC). All the functional departments supporting climate work participated. The Nigeria workshop benefited from the central bank hosting of the participants and providing their training facilities—this could be leveraged further for courses in West Africa. To lighten the in-person agenda, two virtual sessions were organized before the event to introduce the participants to some of the more theoretical concepts. The in-person component included 7 lectures and 8 workshops, as well as 11 country presentations. For the workshop in Nigeria, 48 participants (18 female) attended from 6 countries, including 1 fragile state.

5. ATI Climate Webinar Series. Workshop on Climate Change and Macro-Financial Policies. Mauritius, December 13, 2023

Summary: The 2nd session of the ATI Climate Webinar Series, held at the IMF Africa Training Institute on Wednesday, December 13, 2023. The webinar was moderated by Vimal Thakoor, ATI's Resident Advisor on Macroeconomics and Climate Change, Azar Sultanov (RES) and Ha Nguyen (ICD) delivered a webinar "Investing in Resilience: Insights from the DIGNAD model".

6. Course on Climate in Macroeconomic Frameworks (CMF) (AT24.20) at ATI, Mauritius, February 5-9, 2024.

Summary: The inaugural pilot of the CMF course was delivered to 35 participants from central banks, ministries of finance, and environment from 20 countries. Overall feedback was very positive, with participants welcoming the new course as an added dimension to the Fund's climate training and an opportunity to gain hands-on experience with the various tools and how to integrate them into policy formulation. All three models were received positively. The C-Macroframework Tool (CMT) introduced the highest degree of novelty and participants welcomed the ability to understand how climate shocks impacted various sectors—with some having started work on replicating the file for their countries. DIGNAD was seen as a useful tool in assessing adaptation considerations.

7. Course on Climate in Macroeconomic Frameworks at the IMF, Washington, DC, February 26 – March 1, 2024.

Summary: This is a one-week course with a focus on macroeconomic Excel-based frameworks, tools, and models for integrating climate considerations in policy formulation. Along with a plenary presentation of the climate policy assessment tool (CPAT), three hands-on workshops are preceded with short lectures and cover the following: (i) climate in macroeconomic frameworks (C-Macroframework Toolkit); (ii) debt investment growth and natural disasters (DIGNAD); and (iii) the debt dynamics tool with natural disasters (ND-DDT). Each workshop session ends with group presentations prepared by participants. These are complemented with one lecture on the macro-fiscal implications of climate change, and another on the key approaches for modeling climate change and related policies.
The course attracted 249 candidates of which 38 participants and 2 self-financed officials (including 21 women) have been selected. Around 38 percent of participants already attended in-person, virtual, or online MCC courses. They are mostly officials from ministries of economy, finance, and environment; central banks; statistics bureaus; and government think tanks. The feedback was overwhelmingly positive, with participants commending the relevance and utility of the course materials. Overall, the course received a commendably high evaluation score, reflecting significant learning achievements among the participants.

8. Community of Practice for Climate Models and Macro Frameworks | Virtual Workshop on Climate Adaptation Models, May 22-23, 2023.

   Summary: With frequency and severity of natural disasters increasing as a result of climate change, adaptation through investment in resilient capital is a key coping mechanism. Adaptation, however, is costly, presenting a challenge at the time of heightened fiscal pressures. Moreover, investment in resilient capital competes with other priorities, including health and education expenditures. Macroeconomic models can help analyze these tradeoffs—and how they are affected by financing sources. This workshop for IMF

Staff will introduce several dynamic general equilibrium (DSGE) models developed at the Fund, some of which have been applied to country work, including in the context of RSFs. The main objective is to familiarize Fund staff, particularly country economists, with these models and help them understand similarities and differences between the models and make informed decision about applying the models in their work. In parallel, the discussion and feedback can guide further development of the models.

9. Regional Workshop on Gender and Inclusion

Summary: In collaboration with the Middle East Regional Technical Assistance Center, the Strategy, Policy and Review (SPR) Department of the IMF organized a regional workshop on gender and inclusion. Led by Alejandro Badel, Jiajia Gu, and Lisa Kolovich, the workshop took place in Jordan from November 7th to 9th. The course provided insights into utilizing tools from the IMF to quantify the macroeconomic costs of gender gaps and barriers. Participants were introduced to the model-based inequality toolkit, specifically the Multisector Incomplete Markets Macro Inequality (MIMMI) App. The workshop also covered the identification of macrocritical gender gaps, the design of tailored policy responses to close these gaps, and key concepts related to disparities more broadly and policies addressing them. Invitations were sent out to ministries of finance and central banks of middle- and low-income countries in the region. Representatives from the United Nations Population Fund (UNFPA) and the Jordanian National Commission for Women also participated. Early feedback indicates that hands-on learning opportunities, active engagement from attendees, and numerous stimulating interactions are keys to the course's success.

Annex 3: Engagement by senior IMF policymakers on issues affecting LICs

Output 3.1 – High-level Policy Conferences Attended by IMF Senior Staff

1. ATD/IMF/WB Poverty conference - Addressing the Hidden Dimensions of Poverty in Knowledge and Policies

Summary: On February 15th, 2024, the Research Department of the IMF, together with the International Movement ATD Fourth World, and the World Bank Poverty Global Practice, organized a conference titled 'Addressing the Hidden Dimensions of Poverty in Knowledge and Policies'.
The conference drew on research from a multi-year project by the International Movement ATD Fourth World, in collaboration with Oxford University across Bangladesh, Bolivia, France, Tanzania, the UK, and the US. This project integrates insights from action-based knowledge, academic research, and lived experiences of individuals grappling with poverty, offering fresh perspectives on its multidimensional nature. The conference brought together academics, practitioners, and researchers to discuss how to make further progress in poverty measurement, policy, training, and action. Highlights from the conference include a keynote address by Esther Duflo (Professor, MIT), titled 'Evaluating the Impact of Anti-Poverty Policies: The Value of Multiple Approaches', the presentation of the Instrument for the Deliberative Elaboration and Evaluation of Policies (IDEEP) tool, and a roundtable with Martin Kalisa (Deputy Director, International Movement ATD Fourth World), Ceyla Pazarbasioglu (Director of Strategy, Policy, and Review, IMF), and Olivier De Schutter (Special Rapporteur, United Nations), among others.

2. Climate Action in South Asian Economies

   Summary: The Research Department and the Strategy and Policy Review Department funded a series of high-level seminars, policy dialogues, and peer learning events on Climate Action in South Asian Economies. These successful events were organized thanks to a collaborative effort from three—Asia and Pacific, Research, and Institute for Capacity Development—IMF departments and hosted by IMF SARTTAC and the Center for Social and Economic Progress in New Delhi on July 20. Keynote addresses were given by Bo Li (Deputy Managing Director, IMF), Krishna Srinivasan (Director, Asia and Pacific Department, IMF), Vitor Gaspar (Director, Fiscal Affairs Department, IMF), Antonio Spilimbergo (Deputy Director, Research Department, IMF), Anantha Nageswaran (Chief Economic Advisor, Government of India), Rajeshwa Rao (Deputy Governor, Reserve Bank of India), Abdur Rouf Talukder (Governor, Bangladesh Bank), Professor Lord Nicholas Stern (Chair of the Centre for Climate Change Economics and Policy and IG Patel Professor of Economics and Government at the London School of Economics), among others. The peer learning event aimed at strengthening the policy dialogue on how to mainstream climate action in macroeconomic management, while considering the challenges faced by countries in the region, including low-income countries Maldives and Nepal. The event discussed how the IMF has been incorporating climate throughout all the branches of its work, whether related to country surveillance, capacity development or research, and how countries in the region are developing their climate strategies. Two technical sessions were conducted, giving participants hands-on experience with a set of tools developed by the IMF, (i) using the DIGNAD to assess how ex ante adaptation infrastructure helps manage natural disaster risk and better ensure debt sustainability and (ii) using the Natural Disasters for the Debt Dynamic Tool to develop baseline and alternative scenarios on debt sustainability in the face of natural disasters.

3. Session ASSA 2024: The End of Globalization? Exploring the Drivers and Effects of Geopolitical Fragmentation

   Summary: The IMF Research Department's Development Macroeconomics and Multilateral Surveillance Divisions, together with researchers from the IMF Africa Department, organized this prominent session at the ASSA meetings, chaired by Linda Goldberg (Federal Reserve Bank of New York). The well-attended session (approximately

60 audience members) presented evidence of increased fragmentation of international markets for goods and financial assets. Papers contributed by the IMF discussed potential implications of this trend for low-income countries and for the patterns of FDI. Contributions by the researchers from the European Central Bank and academia (Princeton, Stanford) highlighted the potential global fallout from trade fragmentation and new models for assessing policy to enhance supply-chain resilience. The session was enriched by formal discussions of the contributed papers by policy practitioners and academics as well as a lively audience Q&A.

Output 3.2 –Results of the research reflected in IMF policy papers such as Board papers, SDNs, policy memos to management

Fiscal Monitor/WEO/REO/SDN

1. Market Reforms and Public Debt Dynamics in Emerging Market and Developing Economies

   Summary: Many emerging market and developing economies face a difficult trade-off between economic support and fiscal sustainability. Market-oriented structural reforms ease this trade-off by promoting economic growth and strengthening public finances. The empirical analysis in this note, based on 62 EMDEs over 1973-2014, shows that reforms are associated with sizeable and long-lasting reductions in the debt-to-GDP ratio mainly through higher fiscal revenues and lower borrowing costs. These effects are larger in countries with greater tax efficiency, lower informality, and higher initial debt. Moreover, a model-based analysis elaborates on how such fiscal gains can be enhanced when revenue windfalls associated with reforms are saved or channeled through higher public investment.

2. World Economic Outlook—October 2023: Chapter 1: Global Prospects and Policies

   Summary: Box 1.1 provides an analysis of the declining growth expectations for the global economy over the medium term, a trend observed since the 2008 global financial crisis. This decline has been exacerbated by the economic shocks of 2020-22, such as the COVID-19 pandemic and the Russian invasion of Ukraine. The World Economic Outlook forecasts, along with those from other institutions, show that this downward trend in growth expectations started in the early 2000s for advanced economies and post-crisis for emerging markets and developing economies. The analysis reveals that the decline in per capita output growth, especially in advanced economies, is mainly due to lower total factor productivity growth, followed by declines in labor force participation and capital deepening. Similar factors are responsible for the slowdown in emerging markets and developing economies. The diminished growth prospects have significant implications for income convergence, indicating a much slower pace at which poorer countries can catch up with richer ones in terms of living standards.

3. World Economic Outlook—October 2023: Chapter 2: Managing Expectations: Inflation and Monetary Policy

   Summary: Box 2.2. shows that higher public debt is associated with expectations of higher inflation, given a specific level of monetary policy framework. The latter is captured by a new index, the IAPOC index, developed by Unsal, Papageorgiou, and Garbers (2022). The impact is even more evident when the focus is on the stock of public debt in foreign currency and exacerbated when fiscal deficits are persistent. Overall, the study findings indicate that difficulties posed by higher public debt levels for managing inflation expectations in emerging market and developing economies could be eased by adopting strong monetary policy framework.

Annex 4: Other outputs

Other outputs

Newsletters

1. June 2023 Newsletter
2. September 2023 Newsletter
3. December 2023 Newsletter
4. March 2024 Newsletter

Blogs/Article/Press/Other
1. IMF Blog: Market Reforms Can Stabilize Debt and Foster Growth in Developing Countries
2. IMF Blog: Countries That Close Gender Gaps See Substantial Growth Returns

External presentations
1. Presentation of “A Monetary Policy Framework for Low Income Countries” at the Annual Conference of the Banco Central do Brasil on May 18, 2023.
2. Part of the work “A Monetary Policy Framework for Low Income Countries” was presented as the analytical corner “Distributional Impacts of External Food Price Shocks to Low-Income Countries” in the October 2023 Annual Meetings of the IMF and the World Bank.
3. Presentation of "Monetary Policy Frameworks-An Index and New Evidence" in a special session of the Royal Economic Society annual conference in Glasgow about "New monetary policy databases" on April 3, 2023.
4. Presentation of “A Monetary Policy Framework for Low Income Countries” at Society of Economics Dynamics in June 2023.
5. Presentation of “Macroeconomic Framework of Climate Adaptation" at the 2023 Annual Meeting of the Society for Economic Dynamics in June 2023.
6. Presentation of “Macroeconomic Framework of Climate Adaptation" at the International Economic Association 2024 World Congress in December 2023.
7. Presentation of “Divided We Fall: Differential Exposure to Geoeconomic Fragmentation in Trade” at the ASSA Meetings in January 2024.
8. Presentation of “Monetary Policy Frameworks and Communication in the Caucasus and Central Asia” at the CCAMTAC Seminar Series in February 2024.
9. Workshop on the IMF book ‘Promoting Inclusive Growth in the Middle East and North Africa: Challenges and Opportunities in a Post-Pandemic World’ at the October 2023 Annual Meetings of the IMF and the World Bank.
10. Presentation on work developed on mining revenues and sustainable growth at a mini-conference attended by representatives from the World Bank, IMF's Inclusion and Gender Unit, and the mining industry on August 2, 2023.
11. Presentation of “Natural Disasters and the Cost of Public Debt: An Empirical Assessment” at 1st Women in Macroeconomics, Law, and Economics Workshop in June 2023.
12. Presentation of “Natural Disasters and the Cost of Public Debt: An Empirical Assessment” at the 29th Ulvön Conference on Environmental Economics.
13. Presentation of “Natural Disasters and the Cost of Public Debt: An Empirical Assessment” at the Macro Development Workshop 2023 in July 2023.
14. Presentation of “Climate Change Impacts in Guinea” at a Research Therapy Workshop organized by the African Department of the IMF in December 2024.
15. Presentation of IMF's role in assisting low-income countries in optimizing the collection and allocation of revenues derived from extractive industries to key stakeholders, including the Inter-American Development Bank, World Bank, US Department of Commerce, representatives from the lithium mining industry, and Argentine mining authorities on July 18, 2023.

Macroeconomic Research in Low-Income Countries
An FCDO/IMF Research Partnership

Twelfth Year Annual Report to FCDO
(for period April 2023—March 2024)

Prepared by the Staff of the Research (Hites Ahir, Cedric Okou, Chris Papageorgiou, Petia Topalova) and Strategy, Policy and Review (Alejandro Badel, Ana Paola Cepeda Valor, and Baoping Shang) Departments

May 28, 2024

1. PROGRAM DESCRIPTION

The “Macroeconomic Research in Low-Income Countries” (MRLIC) program was established as a strategic research partnership between the FCDO and the IMF. It aims at (a) supporting cutting edge research on macro critical issues in low-income countries (LICs); (b) ensuring uptake through the design of the research, and its execution in close collaboration with policymakers within and outside the IMF; (c) leveraging the Fund’s catalytic power to expand the network of macroeconomic researchers working on LICs; and (d) achieving this in a cost-effective way. The project begun in March 2012. The current phase (Phase IV) will conclude on March 31, 2025 (Phase IV was extended by two years from the original end date of March 31, 2023).

Our research agenda is structured around the macroeconomic challenges that LICs face at this juncture. As a leading multilateral financial institution with worldwide membership, the IMF has a global reach. We leverage its catalytic power, by designing and implementing state-of-the art analytical tools to address long-standing and emerging macroeconomic issues. The IMF focuses on core macroeconomic and development challenges that are central to achieving sustained and inclusive growth, yet receive limited attention from economists. Few macroeconomists work on LICs; few development economists work on macroeconomics (outside of structural/growth issues); and central banks and other macroeconomic institutions in LICs face capacity constraints.

The topics investigated in the fourth phase of the program fall under five broad themes:

(1) Modelling and understanding policy choices
- For example, monetary, exchange rate, fiscal and structural policies

(2) Understanding macro-financial linkages
- For example, capital flows, financial deepening and inclusion, macro-prudential policies, and transmission of macro-financial shocks

(3) Building resilience
- For example, issues related to natural disaster, climate change, migration, and conflicts

(4) Promoting structural change and institutional development
- For example, public investment, growth, and debt sustainability, macroeconomic management of natural resource wealth, growth through diversification, structural reforms

(5) Enhancing inclusion
- For example, income inequality, macroeconomic policy and income distribution, gender and macroeconomics

The high-quality research papers produced by IMF staff and project-funded researchers help inform the Fund’s policy advice in LICs. To further maximize the policy impact of the project’s research outputs, most papers are openly shared with FCDO and external policy makers. This is done through FCDO’s research portal and a dedicated project website maintained by the IMF. To boost the uptake of the MRLIC outputs by country authorities and IMF country teams, the program engages in a broad range of activities, including designing frameworks to support IMF policy for LICs, making presentations at high-level policy conferences, training government officials and IMF staff, commissioning papers from academics, disseminating quarterly e-newsletters to a broad network of LIC researchers and policy makers, and organizing conferences.

Start and End Dates:

Phase I: March 2012 to March 2015
Phase II: April 2015 to March 2017
Phase III: April 2017 to March 2020
Phase IV: April 2020 to March 2025

Countries Covered:

Table 1 lists the countries that the project covers. These countries are referred to as "low-income countries (LICs)" in this report.

Table 1. Countries Covered in the FCDO-IMF Project and Their GNI Per Capita[1]

Country	2011 GNI per capita (US $)	Country	2011 GNI per capita (US $)
Afghanistan	410	Maldives	6530
Bangladesh	770	Mali	610
Benin	780	Marshall Islands	3910
Bhutan	2070	Mauritania	1000
Bolivia	2040	Micronesia	2900
Burkina Faso	570	Moldova	1980
Burundi	250	Mongolia	2320
Cambodia	830	Mozambique	470
Cameroon	1210	Myanmar	NA
Cape Verde	3540	Nepal	540
Central African Republic	470	Nicaragua	1170
Chad	690	Niger	360
Comoros	770	Nigeria	1200
Congo, Rep.	2270	Papua New Guinea	1480
Congo, Dem. Rep.	190	Rwanda	570
Côte d'Ivoire	1100	Samoa	3190
Djibouti	1270	São Tomé and Principe	1360
Dominica	7090	Senegal	1070
Eritrea	430	Sierra Leone	340
Ethiopia	400	Solomon Islands	1110
Gambia, The	610	Somalia	NA
Georgia	2860	South Sudan	984
Ghana	1410	St. Lucia	6680
Grenada	7220	St.Vincent and the Grenadines	6100
Guinea	440	Sudan	1300
Guinea-Bissau	600	Tajikistan	870
Guyana	2900	Tanzania	540
Haiti	700	Timor-Leste	2730
Honduras	1970	Togo	560
Kenya	820	Tonga	3580
Kiribati	2110	Tuvalu	5010
Kyrgyz Republic	920	Uganda	510
Lao PDR	1130	Uzbekistan	1510
Lesotho	1220	Vanuatu	2870
Liberia	240	Vietnam	1260
Madagascar	430	Yemen	1070
Malawi	340	Zambia	1160
Memorandum Item			
Zimbabwe	640		

Source: Fund WEO, World Bank, World Development Indicators, and OP 3.10, Annex C, of July 2012. Fund Board decision of April 8, 2013, on Eligibility to Use the Fund's Facilities for Concessional Financing.

[1] The table lists countries that were eligible for the IMF concessional financing under the Poverty Reduction and Growth Trust (PRGT) as of 2013, including those that had graduated since then (e.g., Bolivia and Mongolia) but continued to face similar policy challenges as PRGT-eligible countries.

2. OVERVIEW OF THE YEAR

Progress and Achievements

Financial year 2024 (April 2023 to March 2024) marked the 12th year of MRLIC operations. The FCDO-IMF partnership has continued its strong performance in delivering high-quality and policy-relevant research, developing and applying models and toolkits to facilitate policy discussions, and contributing to macroeconomic policymaking in LICs, as they face multifaceted challenges including low growth prospects, high debt levels, tight global financial conditions, and pressing needs to address climate change and inequality. The program reached or exceeded middle targets in all seven output indicators, with three meeting or exceeding the high targets (Table 2).[1]

Contribution to high-level IMF policy papers. Several MRLIC products were featured in high-level policy documents in the IMF. First, MRLIC staff contributed to a Staff Discussion Note (SDN), “Market Reforms and Public Debt Dynamics in Emerging Market and Developing Economics”, which discusses the role of structural reforms in reducing debt-to-GDP ratios by boosting revenues and cutting borrowing costs. Second, two boxes, prepared by MRLIC staff, were featured in the October 2023 edition of the World Economic Outlook, the IMF’s most prominent flagship publication. One of the boxes highlights the role of adopting strong monetary policy in easing higher public debt levels. The other box analyzes the declining growth expectations for the global economy over the medium term, indicating a much lower pace at which poorer countries can catch up with richer ones in terms of living standards.

Supporting IMF policy dialogue with its members. MRLIC products helped support country operations in both Article IV consultations and IMF-supported programs. This includes six country applications of the Debt, Investment, Growth, and Natural Disasters (DIGNAD) model in the context of the Resilience and Sustainability Facility (RSF). The DIGNAD model helps better understand the macroeconomic implications of adaptation investments for climate change and natural disasters in LICs. Additionally, two Selected Issues Papers on the topics of (i) investment and growth resilience, and (ii) big-data and high-frequency surveillance methods were published as part of the Article IV consultations for the Federated States of Micronesia and the Solomon Islands.

Applications of the Multi-sector Incomplete Markets Macro Inequality (MIMMI) App in the context of the Article IV Consultations for Guinea and Chad were used to assess the macro-inequality impact of feasible development policies in the context of climate change. These analyses were featured in several presentations to authorities and demonstrated that the MIMMI App can be a useful tool for the analysis of the macro and distributional impact of climate change within the Fund. In addition, the MIMMI App was applied to analyze the macro-inequality impacts of the Simandou mega-mining project in Guinea in a Selected Issues Paper of the 2023 Article IV consultation for Guinea, helping make a case to the Guinean authorities on the need to design

[1] Please refer to Appendix 3 for a more detailed description of MRLIC output, which has also been disseminated through the MRLIC quarterly newsletters.

and implement clear long-term development plans including education and infrastructure investments using the projected revenues from Simandou.

Capacity Development. MRLIC staff organized nine training events for officials of IMF member countries and IMF staff and developed a user's guide to the DIGNAD model. These training events include workshops on climate change and macro-financial policies, courses on climate in macroeconomic frameworks, and a regional workshop on gender and inequality across several regions and countries.

Policy Conferences. Three high-level policy-critical conferences helped disseminate MRLIC output and advance macroeconomic research in low-income countries.

- First, a conference on poverty, organized by the International Movement ATD Fourth World, the IMF, and the World Bank, addressed new dimensions in knowledge and policies for poverty alleviation. The conference benefited from the participation of Ceyla Pazarbasioglu (Director of the Strategy, Policy, and Review Department, IMF) through her inputs in a high-level policy panel. Nobel Prize winner—Esther Duflo—gave the keynote speech, and Olivier de Schutter, United Nations Special Rapporteur on Extreme Poverty and Human Rights, lead the concluding roundtable.
- Second, a conference on Climate Action for South Asian Economies included keynote addresses by Bo Li (Deputy Managing Director, IMF), Krishna Srinivasan (Director, Asia and Pacific Department, IMF), Vitor Gaspar (Director, Fiscal Affairs Department, IMF), and Antonio Spilimbergo (Deputy Director, Research Department, IMF). This conference also included two technical sessions to provide insights on a set of tools developed by the IMF (the DIGNAD model and the Natural Disasters for the Debt Dynamic Tool).
- Third, MRLIC staff organized a session at the ASSA 2024 meetings, entitled 'The End of Globalization? Exploring the Drivers and Effects of Geopolitical Fragmentation'. This session discussed the implications that increased fragmentation of international markets can have on LICs. The session was attended by two IMF officials as presenters and one official as discussant.

Paper publications and presentations. During the past financial year, MRLIC staff published 14 papers in the IMF Working Paper series and 8 papers in peer-reviewed academic journals, as well as two IMF blogs. One of the blogs, co-authored with Antoinette Monsio Sayeh, Deputy Managing Director of the IMF and Rishi Goyal, Deputy Director of the Strategy, Policy and Review Department, highlights the macroeconomic benefits of closing gender gaps and calls for global action. In addition, MRLIC gave 15 external presentations, including during the IMF-World Bank Annual Meetings, conferences organized by government institutions, and other highly renowned academic and policy institutions.

Recognizing the critical role of the MRLIC program in supporting low-income countries, **Catherine Pattillo**, Deputy Director of the IMF's African Department, stated that "Our region has particularly benefited from the FCDO-IMF partnership, with a number of our countries receiving analytical support from the MRLIC program in their Article IV Consultations and IMF-supported programs. The analytic support covers a range of areas—including fiscal and monetary policies, understanding the debt-investment-growth nexus, climate change, and inequality—providing policy-relevant analysis to help tackle both immediate and structural challenges facing low-income countries. We look forward to further deepening our collaboration with MRLIC in supporting low-income countries in the region." **Guillaume Chabert**, Deputy Director in the IMF's Strategy, Policy, Review Department coordinating low-income country work, added that "MRLIC has filled a major gap in macroeconomic research in low-income countries and has made significant contributions to IMF policies for low-income countries. The models and toolkits developed under MRLIC have been particularly useful in helping formulate country-specific policy advice. The FCDO-IMF partnership is thus very important to the IMF, and we see great potential for the partnership going forward."

Highlights of five broad topics

In this section, we provide a summary of the aforementioned research output across the five main topics covered by the program.

(i) Modeling and understanding policy choices

Three papers were published on (i) how to address limited data availability in LICs through a panel nowcasting approach for countries lacking quarterly GDP series, (ii) the challenges and opportunities for strengthening monetary policy frameworks in the Caucasus and Central Asia, and (iii) the welfare costs and inequality implications of fiscal policy. The first two papers were published in the IMF Working Papers series, while the latter piece was published in *The Economic Journal*.

(ii) Understanding macro-financial linkages

Three papers were published on (i) the existence of a significant and persistent relationship between financial stress and output, with larger effects in emerging market and developing economies (EMDEs), (ii) measuring the positive effects of mitigating financial barriers through the synergy between technology and legal reforms in Rwanda, and (iii) measuring the elasticity of remittances to transaction costs, revealing that reducing costs could generate an additional US$32 billion in remittances. The first two pieces were published in the IMF Working Paper series, while the latter was published in the *World Development* journal.

(iii) Building resilience

Three papers were published on (i) the impact of food insecurity from climate shocks for households near the subsistence threshold and the importance of migration and trade in building resilience, (ii) the trade-offs faced by central banks in response to escalating climate-induced disasters, and (iii) inflation targeting, as opposed to discretionary policy, as the optimal policy framework for central banks facing natural disaster shocks. The first two papers were published in the IMF Working Paper series, while the latter one was published in the *International Economic Review* journal.

(iv) Promoting structural change and institutional development

Five papers were published on (i) the impact of fuel price increases on social unrest, suggesting redirection of fuel subsidies to health and education to mitigate tensions, (ii) the effect of capital flow regulations on technological intensity of imports, investment and real GDP per capita, (iii) the impact of trade fragmentation, highlighting the more pernicious effect of trade barriers in resource-scarce countries, (iv) the impact of resource misallocation and policy distortions on income per capita and total factor productivity disparities, and (v) providing two databases to analyze the electoral impacts of structural reforms. The first three papers were published in the IMF Working Paper series while the last two were published in the *European Economic Review* and the *Journal of the European Economic Association*, respectively.

<u>(v) Enhancing inclusion</u>

Six papers were published on (i) cross-country heterogeneity in remote work during the COVID-19 pandemic and their relationship education levels, (ii) the effect of higher digital usage in Sub-Saharan Africa on support for gender equality in political leadership, (iii) the benefits of higher taxes on Guinea's extractive sector, demonstrating how investing in human capital, infrastructure, and social transfers can foster economic growth, formalize labor, reduce poverty, and address inequality, (iv) macroeconomic convergence tools to extrapolate the dynamics of the global distribution of gender gaps in labor force participation, calling for enhanced policy efforts to promote gender equality, (v) rising inequality within countries due to globalization, revealing significant initial income gains but diminishing returns over time, alongside notable within-country inequality increases, and (vi) a forthcoming paper showing lessons from 40 years of cross-country convergence empirics, finding support for multiple convergence clubs rather than absolute convergence. The first three papers were published in the IMF Working Paper series, while the last three were published in *The Journal of Economic Inequality*, *Economics Letters*, and the *Oxford Handbook of Income Distribution and Economic Growth*, respectively.

Challenges and Opportunities

With a tight budget and funding uncertainties as Phase IV of the MRLIC is coming to an end, one key challenge has been recruiting full-time contractual staff for the project. As a result, this has led to an increasing use of commissioned papers, mainly from external academics. While this constrained approach has the potential advantage of engaging with a diverse range of expertise and views, it results in short-term one-off projects, at the expense of complex modeling work, toolkits, and long-term workstreams for which the MRLIC can build expertise.

Discussions on the one-year bridging extension and the Phase V proposal have provided opportunities to re-think the focus of the MRLIC, but more clarity on next steps is needed. Accordingly, a workshop of academics and policymakers would be organized during the one-year extension to review the thematic coverage of MRLIC. Ongoing discussions between the IMF and FCDO will help align views on the future of the MRLIC given the macroeconomic and structural challenges LICs currently face, such as low growth prospects, heightened geopolitical tensions, trade fragmentation, high-debt levels, climate change, and social tensions.

3.LOG-FRAME OUTPUTS

This research project has a four-pronged goal:

1) Produce high quality, policy-relevant research on macroeconomic issues affecting LICs
2) Promote and increase the usage of IMF research products generated under this project by IMF country teams and partner authorities
3) Strengthen engagement by senior IMF policymakers on issues affecting LICs
4) Strengthen capacity-building by expanding the network of LIC researchers

Table 2 presents a snapshot of the research outputs for the past twelve years. For year 12 (FY2024) of the program, we reached or exceeded middle targets in all seven output indicators, with three meeting or exceeding the high targets. It is worth noting that the project deliverables remained on track despite the very challenging global context—reduced but lingering inflationary pressures, heightened debt, trade disruption and geopolitical tensions—and budget cuts and turnover in staff.

Table 2. Summary of Research Outputs[2]

Type of output	Year 1 Outputs	Year 2 Outputs	Year 3 Outputs	Year 4 Outputs	Year 5 Outputs	Year 6 Outputs	Year 7 Outputs	Year 8 Outputs	Year 9 Outputs	Year 10 Outputs	Year 11 Outputs	Year 12 Outputs	Total	Revised Targets
	FY2013	FY2014	FY2015	FY2016	FY2017	FY2018	FY2019	FY2020	FY2021	FY2022	FY2023	FY2024		
Working papers (1.1)	13	17	10	16	20	18	20	16	21	14	13	14	192	H 196 M 192 L 188
Published papers (1.2)	2	6	8	9	15	10	12	15	13	8	7	8	113	H 112 M 110 L 108
Instances of uptake by authorities and IMF teams (2.1)	10	14	17	16	23	34	22	25	22	20	10	10	223	H 225 M 222 L 219
Courses (2.2)	.	.	.	.	.	9	7	4	8	10	5	9	52	H 49 M 47 L 45
High-level policy conferences attended by senior IMF staff (3.1)	6	4	2	1	9	8	6	4	2	8	3	3	56	H 57 M 56 L 55
Results of the research reflected in IMF policy papers such as Board papers, SDNs, policy memos to management (3.2)	4	4	3	2	6	10	7	5	8	5	5	3	62	H 64 M 62 L 60
Thematic areas of IMF policy influenced and made LIC-specific (1)	3	2	0	0	3	2	1	1	4	2	2	1	21	H 21 M 20 L 19

[2] The targets were revised up in February 2024.

Log-frame Outputs

Output 1: Produce high quality, policy relevant research on macroeconomic issues affecting LICs

This year's outputs include 14 working papers and 8 papers published in peer-reviewed journals.

Output 1.1 – Working Papers

Topic 1. Modelling and understanding policy choices

1. Panel Nowcasting for Countries Whose Quarterly GDPs are Unavailable
2. Strengthening Monetary Policy Frameworks in the Caucasus and Central Asia
3. Monetary Policy Frameworks and Communication in the Caucasus and Central Asia

Topic 2. Understanding macro-financial linkages

4. Financial Stress and Economic Activity: Evidence from a New Worldwide Index
5. Mobile Internet, Collateral, and Banking

Topic 3. Building resilience

6. Coping with Climate Shocks: Food Security in a Spatial Framework
7. Monetary Policy Design with Recurrent Climate Shocks

Topic 4. Promoting structural change and institutional development

8. Social Unrests and Fuel Prices: The Role of Macroeconomic, Social and Institutional Factors
9. Do Capital Inflows Spur Technology Diffusion? Evidence from a New Technology Adoption Index
10. Divided We Fall: Differential Exposure to Geopolitical Fragmentation in Trade

Topic 5. Enhancing inclusion

11. Will Working from Home Stick in Developing Economies?
12. When Will Global Gender Gaps Close?
13. Digitalization and Gender Equality in Political Leadership in Sub-Saharan Africa
14. Mining Revenues and Inclusive Development in Guinea

Output 1.2 – Published Papers

Topic 1. Modelling and understanding policy choices

1. Tax Revenues in Low-Income Countries
   The Economic Journal

Topic 2. Understanding macro-financial linkages

2. How do transaction costs influence remittances?
   World Development

Topic 3. Building resilience

3. Monetary policy under natural disaster shocks
   International Economic Review

Topic 4. Promoting structural change and institutional development

4. Policy distortions and aggregate productivity with endogenous establishment-level productivity
   European Economic Review

5. Structural Reforms and Elections: Evidence from a World-Wide New Dataset
   Journal of the European Economic Association

Topic 5. Enhancing inclusion

6. The global distribution of gains from globalization
   The Journal of Economic Inequality

7. When will global gender gaps close?
   Economic Letters

8. Lessons from 40 years of cross-country convergence empirics
   Oxford Handbook of Income Distribution and Economic Growth, forthcoming

Output 2: IMF research products used by authorities and IMF country teams

In FY2024, there were 10 instances of uptake by country authorities and IMF country teams of IMF research outputs produced under this project, and 9 courses offered to country authorities and IMF staff.

Output 2.1 –Country Applications by authorities and IMF country teams

Natural disasters/DIGNAD

1. Benin - DIGNAD country application in the context of the RST facility (Benin— Third Review under the Extended Fund Facility and the Extended Credit Facility Arrangements and Request for an Arrangement under the Resilience and Sustainability Facility)
2. Kenya – DIGNAD country application in the context of the RST facility. (Kenya—Fifth Review under the Extended Fund Facility and Extended Credit Facility Arrangements and Request for a 20-Month Arrangement Under the Resilience and Sustainability Facility).
3. Rwanda – DIGNAD country application in the context of the RST facility (Selected Issues Paper)
4. Republic of Moldova – DIGNAD country application in the context of the RST facility (Selected

Issues Paper)

5. Mauritania – DIGNAD country application in the context of the RST facility (Islamic Republic of Mauritania—First Reviews Under the Arrangements Under the Extended Credit Facility and the Extended Fund Facility, Requests for Modification of Performance Criteria and a Waiver of Nonobservance of Performance Criterion, and Request for an Arrangement Under the Resilience and Sustainability Facility)
6. Cameroon – DIGNAD country application in the context of the RST facility (Cameroon—Request for an Arrangement Under the Resilience and Sustainability Facility)
7. Federated States of Micronesia (FSM) – Public Investment, Economic Growth, and Resilience: A Model Based Approach (Selected Issues Paper)

Income and Gender Inequality

8. Guinea: Macro-Inequality Impact of the Simandou Project (Article IV Consultation)

Other

9. Big data and high frequency surveillance for Pacific Islands countries: An application to Solomon Islands (Selected Issues Paper)
10. Article IV Mission Presentation: 'Development Policies in Chad in the Face of Climate Change'

Output 2.2 – Courses to authorities and IMF Staff

1. Debt, Investment, Growth, and Natural Disasters (DIGNAD): User's Guide to the Model and Toolkit.
2. ATI/AFS Workshop on Climate Change and Macro-Financial Policies, Pretoria, June 5-9, 2023.
3. ATI/AFW1/AFC Workshop on Climate Change and Macro-Financial Policies, Abidjan, Cote d'Ivoire, September 18-22, 2023.
4. ATI/AFW2 Workshop on Climate Change and Macro-Financial Policies, Abuja, Nigeria, September 25-29, 2023.
5. ATI Climate Webinar Series. Workshop on Climate Change and Macro-Financial Policies. Mauritius, December 13, 2023.
6. Course on Climate in Macroeconomic Frameworks (CMF) (AT24.20) at ATI, Mauritius, February 5-9, 2024.
7. Course on Climate in Macroeconomic Frameworks at the IMF, Washington, DC, February 26 – March 1, 2024.
8. Community of Practice for Climate Models and Macro Frameworks, Virtual Workshop on Climate Adaptation Models, May 22-23, 2023.
9. Regional Workshop on Gender and Inclusion

Output 3: Strengthen engagement by senior IMF policymakers on issues affecting LICs

This year our team organized and contributed to 3 high-level policy conferences, involving IMF senior staff. The team also contributed to 3 outputs that were discussed at the IMF Executive Board.

Output 3.1 – High-level Policy Conferences Attended by IMF Senior Staff

1. ATD/IMF/WB Poverty conference - Addressing the Hidden Dimensions of Poverty in Knowledge and Policies
2. Climate Action in South Asian Economies
3. Session ASSA 2024: The End of Globalization? Exploring the Drivers and Effects of Geopolitical Fragmentation

Output 3.2 – Results of the research reflected in IMF policy papers such as Board papers, SDNs, policy memos to management

1. Market Reforms and Public Debt Dynamics in Emerging Market and Developing Economies
2. World Economic Outlook—October 2023: Chapter 1: Global Prospects and Policies
3. World Economic Outlook—October 2023: Chapter 2: Managing Expectations: Inflation and Monetary Policy

Outcome Indicator 1 – Thematic areas of IMF policy influenced and made LIC-specific

1. Nowcasting: Panel Nowcasting for Countries Whose Quarterly GDPs are Unavailable.

<u>Other Outputs</u>

E-newsletters

1. June 2023 Newsletter
2. September 2023 Newsletter
3. December 2023 Newsletter
4. March 2024 Newsletter

Blogs/Articles/Press/Other

1. IMF Blog: Market Reforms Can Stabilize Debt and Foster Growth in Developing Countries
2. IMF Blog: Countries That Close Gender Gaps See Substantial Growth Returns

External presentations

1. Presentation of “A Monetary Policy Framework for Low Income Countries” at the Annual Conference of the Banco Central do Brasil on May 18, 2023.
2. Part of the work “A Monetary Policy Framework for Low Income Countries” was presented at the Analytical Corner “Distributional Impacts of External Food Price Shocks to Low-Income Countries” during the October 2023 Annual Meetings of the IMF and the World Bank.
3. Presentation of "Monetary Policy Frameworks-An Index and New Evidence" in a special

session of the Royal Economic Society Annual Conference in Glasgow about "New monetary policy databases" on April 3, 2023.

4. Presentation of “A Monetary Policy Framework for Low Income Countries” at the Society of Economics Dynamics in June 2023.
5. Presentation of “Macroeconomic Framework of Climate Adaptation" at the 2023 Annual Meeting of the Society for Economic Dynamics in June 2023.
6. Presentation of “Macroeconomic Framework of Climate Adaptation" at the International Economic Association 2024 World Congress in December 2023.
7. Presentation of “Divided We Fall: Differential Exposure to Geoeconomic Fragmentation in Trade” at the ASSA Meetings in January 2024.
8. Presentation of “Monetary Policy Frameworks and Communication in the Caucasus and Central Asia” at the CCAMTAC Seminar Series in February 2024.
9. Workshop on the IMF book ‘Promoting Inclusive Growth in the Middle East and North Africa: Challenges and Opportunities in a Post-Pandemic World’ at the October 2023 Annual Meetings of the IMF and the World Bank.
10. Presentation on work developed on mining revenues and sustainable growth at a mini-conference attended by representatives from the World Bank, IMF's Inclusion and Gender Unit, and the mining industry on August 2, 2023.
11. Presentation of “Natural Disasters and the Cost of Public Debt: An Empirical Assessment” at the 1st Women in Macroeconomics, Law, and Economics Workshop in June 2023.
12. Presentation of “Natural Disasters and the Cost of Public Debt: An Empirical Assessment” at the 29th Ulvön Conference on Environmental Economics.
13. Presentation of “Natural Disasters and the Cost of Public Debt: An Empirical Assessment” at the Macro Development Workshop 2023 in July 2023.
14. Presentation of “Climate Change Impacts in Guinea” at a Research Therapy Workshop organized by the African Department of the IMF in December 2023.
15. Presentation of IMF's role in assisting low-income countries in optimizing the collection and allocation of revenues derived from extractive industries to key stakeholders, including the Inter-American Development Bank, World Bank, US Department of Commerce, representatives from the lithium mining industry, and Argentine mining authorities on July 18, 2023.

4. OUTPUTS: ADDITIONAL INFORMATION

Nothing more to report at this time.

5. UPTAKE/ENGAGEMENT WITH BENEFICIARIES

By design, this project strives to produce high quality research that is applicable to LICs and usable by country authorities, academics, and IMF staff. Each output captured in the log-frame reflects this overarching goal. Sections 2, 3, and 6 of this report address our uptake and engagement with beneficiaries in greater detail.

6. OUTCOMES AND IMPACTS

In addition to the high volume of output, evidence also points to strong research and policy impacts of the MRLIC program.

Citations, downloads, and mentions in social media. MRLIC research published either as IMF Working Papers (WP) or in peer-reviewed journals had a total of 5,203 citations in the financial year, representing a 28 percent increase from the year earlier and continuing the rising trend over the past years. 71 percent of MRLIC publications have been cited, with an average citation count of 20.5 per article. On *Scopus*, MRLIC journal publications this year are mapped to Sustainable Development Goals (SDG), covering SDGs 1, 5, 8, 10, 13, and 17. IMF WPs are the most frequently cited, including both externally and internally, with a total of 1,582 citations. Furthermore, 89 percent of the citations originate from organizations with no IMF or FCDO affiliation. Geographically, MRLIC publications have been cited by over 165 organizations across 52 countries. In addition, the number of downloads of MRLIC-related IMF WPs increased by 13 percent (from 155,000 downloads last year to 176,000), with an average of 918 downloads per paper.

Several MRLIC articles and publications have also been widely circulated on social media and other platforms. There are over 1,737 social media posts from 76 different countries, a 15.8 percent increase from the 1,500 posts last year. For example, the MRLIC paper, titled "*Building Back Better: How Big are Green Spending Multipliers?*" by Batini and others, illustrates the social media interactions with MRLIC output. Mr. Regan, Associate Professor at the School of Politics, and International Relations at *University College Dublin*, with over 17,800 *X* (formerly known as *Twitter*) followers, retweeted content related to the paper. The publication has continued to be mentioned and re-tweeted, reaching an audience of up to 60,146 followers. The most recent mentions were in December 2023 by Mr. Ermgassen, Ecological Economist from *Oxford University*, and by Mr. O'Callaghan, Lead Researcher and Project Manager of the *Oxford Economic Recovery Project*. Another paper, "*Loss-of-Learning and the Post-Covid Recovery in Low-Income Countries*" by Buffie and others, has continued to garner attention from several users on *X*, including Mr. Saavedra, a Human Development Director at the *World Bank* with over 70,400 followers, and Mr. Patrinos, Senior Adviser at the *World Bank*, with 9,221 followers. Since its publication, the paper has reached an audience of up to 230,254 followers.

Feedback from participants on capacity development. MRLIC training has received strong evaluations from participants, indicating its effectiveness in helping build capacity in LICs.

- High ratings were obtained on the knowledge of instructors, their willingness to encourage discussion, and their effectiveness in leading the workshops. The feedback obtained highlights an appreciation for the materials presented and the support offered for various IMF tools, developed in cooperation with MRLIC.
- The peer-to-peer exchange format was useful in helping participants engage with the materials and allowed them to share experiences from their respective countries.
- Many participants expressed a desire for further training to deepen their understanding and application of the tools to their country's context.

- Participants emphasized the relevance of the knowledge gained for their current roles, with some intending to incorporate climate and inequality considerations into their country's policies (in the context of DIGNAD and the MIMMI App training).

Mr. Ives Eric Kouassi (Head of the Promotion of Environmental Matrices Department, Ministry of the Environment, Sustainable Development and Ecological Transition of Cote d'Ivoire) on the workshop in Cote d'Ivoire: "... It was a great opportunity for knowledge sharing and learning between state actors (ministries of the economy and the environment) and central bank actors who compared their understanding of climate change. The modules taught made it possible, on the one hand, to enlighten me in particular on the role of the IMF in terms of climate change, on green management and climate assessment tools, as well as on the constraints and opportunities linked to the mobilization of private sector resources for the fight against climate change."

Ms. Natalia Owoo (Economist/ Deputy Chief Manager at the Bank of Ghana) on the workshop in Nigeria: "As a central banker, I have constantly grappled with the role the central bank needs to play in pushing the climate change agenda. This particular workshop represented my first comprehensive lesson on the macroeconomic and financial implications of climate change and the mitigation and adaptation policies needed to deliver on the Paris Agreement. The opportunity to interact with, and learn from, colleagues from other institutions in the sub-region was priceless. I am now better equipped to contribute to the development of climate change policies at the Bank of Ghana."

Mr. Carlos Bentub (Economist, Ministry of Finance and Business Development of Cabo Verde) on the workshop in Nigeria: "The course came at a good time, as Cape Verde is currently negotiating a RSF with the IMF. In this sense, the course will help us to define the best policies and select the best projects, aiming to comply with the assumed objectives of reducing CO2, creating resilience in our economy, achieving sustainable development, and contributing to the construction of a better and friendly world of the environment."

Feedback on MRLIC toolkits. MRLIC toolkits have the potential to directly influence policymaking in LICs, as they are applied to formulate IMF policies in Article IV Consultations and IMF-supported programs.

The DIGNAD toolkit has become a workhorse model in the IMF to study the macroeconomic effects of natural disasters and related climate risks. It assesses how investments in adaptation infrastructure can help mitigate these risks, in particular in low-income countries. The DIGNAD toolkit is a pivotal resource when the Fund negotiates a Resilience and Sustainability Trust (RST) facility to help vulnerable low-income countries build resilience to external shocks, such as those induced by climate change, and ensure sustainable growth. One of the requirements for the successful deployment of RST funds is the assessment of funding needs to deal with such long-term challenges, including investments in resilience to natural disasters. The DIGNAD toolkit allows to evaluate the potential impacts of shocks on various macroeconomic indicators, such as output growth, debt, private investment, and household consumption under a rich set of scenarios. Through a comparative approach, the DIGNAD toolkit helps illustrate the tangible implications of macro-critical shocks and the benefits of the building resilience, increasing fiscal buffers, and improving public investment efficiency, thereby supporting informed decision-making processes:

Ruben Atoyan (Deputy Division Chief, African Department, IMF) on the application of the DIGNAD model in Rwanda: "Implementing an ambitious climate agenda is a major challenge for most countries in the SSA region, as it could risk weakening debt sustainability and crowding out other much-needed developmental investments. For Rwanda, the DIGNAD model, which has become a workhorse model in the IMF to study the macroeconomic effects of climate risk, has been instrumental in identifying sustainable financing strategies to support climate investment. The model has been extensively used to showcase that with proper policy and financing mix, which increases the fiscal space through domestic revenue mobilization, spending rationalization, and enhancement of public investment efficiency, countries can mitigate the adverse macroeconomic effects of large-scale climate investment and address the crowding out of other development spending."

Charalambos Tsangarides (Advisor, African Department, IMF) on the application of the DIGNAD model in Tanzania: "The AFR Tanzania team collaborated with RES-DM to calibrate the Debt, Investment, Growth, and Natural Disasters (DIGNAD) model for Tanzania. The Tanzania-tailored DIGNAD model was applied to illustrate the country's vulnerability to climate change shocks, and the benefits of ex-ante adaptation investment on key macroeconomic variables. The results show that investing in adaptation infrastructure, instead of standard non-resilient infrastructure, can improve Tanzania's economic resilience against natural disasters by limiting post-disaster economic losses, recovery costs, and increases in public debt. Reforms that improve public investment efficiency and domestic resource mobilization can further boost the benefits of investing in adaptation and help to enhance long term debt sustainability. Complementing the key diagnostic materials (C-PIMA and CPD), the DIGNAD results were used to support the Tanzanian authorities' request to access the Fund's Resilience and Sustainability Facility to help address climate-related risks and challenges."

The MIMMI toolkit is another key MRLIC output, which has been widely used by IMF country teams to quantify the distributional impacts of large-scale projects and inform macroeconomic policies in LICs:

Pilar Garcia Martinez (Deputy Division Chief, African Department, IMF) on the application of the MIMMI model in Guinea: "The MIMMI model helped assess the macro-inequality impacts of one of Africa's largest mining projects – the Simandou iron ore project – in Guinea, as part of its 2024 Article IV Consultation. The application was tailored to Guinea's specific conditions and received positive feedback from stakeholders of the project, including high-level government officials. The analysis shows that spending the potential tax revenues on education and infrastructure could result in higher growth and stronger poverty reduction."

7. COSTS, VALUE FOR MONEY, AND MANAGEMENT

The approved budget for the project is US$29.5 million.[3]

The project's financial report, generated by the IMF's accounting system, is shown in Appendix 2. As of April 2024, $26.2 million has been drawn from the subaccount. These figures reflect a lag of actual expenses of approximately two to three months to enable the requisite verification of expenses before they are charged to donor subaccounts.

The table below provides an indicative breakdown of spending over 12 years of the project. We do not foresee any changes in cost structures due to exchange rates.

Table 3. Project Expenditures in Years 1-12

Activity	Years 1-12, Cumulative
HQ led missions including entire mission team	$6,823,847
Research HQ based / Visiting Scholars; Short-term Advisors; Development of CD tools; Development of general CD technical materials; Development of training courses or other learning materials	$11,714,805
Seminars & Study Tours; Interactive learning and workshops	$1,829,889
Project Backstopping	$3,173,599
Project Management	$429,135
Exceptional Expenses	$550,638
Language Services	$2,170
Trust Fund Fee	$1,716,686
Total	**$26,240,769**

Source: Appendix 2.
Note: Activity items are consolidated.

<u>Value for Money:</u>

The project remains highly cost effective, thanks to strong management of the procurement process and the high-quality work by the team. The team strictly follows all Fund guidelines for hiring, travel, and conferences. All contractual employees are hired through a highly competitive recruitment process. Outputs are produced within strict timeframes and must meet Fund requirements for publication. The quality of our papers is further assessed by external peer-reviewers when they are submitted to academic journals for publications.

The average cost per paper is lower than the FCDO benchmark of $188,430 (£150,000) per paper.[4] Table 4 shows that the cost per working paper for the 12 years is approximately $72,000 (£57,000),-about the same as last year. The cost per published paper is about $123,000 (£98,000), compared to approximately $124,000 (£100,000) last year. We estimate that staff, contractual employees, and visiting scholars spend 75 percent of their time on research papers, while the

[3] This is based on $23.3 million up to Phase III plus $6.2 million for Phase IV (which is equivalent to £4.9 million based on the exchange rate as of May 13, 2024).

[4] The currency conversion is based on the exchange rate as of May 13, 2024 (U.K. £1 = U.S. $1.26). The FCDO benchmark cost per paper is £150,000, while its value in U.S. dollars is subject to exchange rate fluctuations.

remaining 25 percent is devoted to country applications work.[5] The total staff, contractual, and visiting scholar cost is thus split between papers and applications.

The quality of the project outputs is very high despite the low average cost. The total number of publications reached 113 over the 12-year period. A full list of the publications is available at the project's website (in an excel file under "Outputs" in the middle of the left-side menu section). As noted in a dedicated paragraph in the Progress and Achievements part of Section 2, the papers are published in high-ranked journals and are well cited by external researchers. Our products are also featured in programs of prestigious conferences as noted in Section 3. Strong uptakes by country authorities and IMF country teams also demonstrate the relevance and usefulness of the project's outcomes in practical policymaking.

Table 4. Cost per Working and Published Paper during Years 1-12

Total Staff/Contractual/VS Costs[1]	$18,538,652
Research Paper Costs	$13,903,989
Country Applications Costs	$4,634,663
Working Papers[2]	192
Cost Per Working Paper	$72,417
Published Papers[2]	113
Cost per Published Paper	$123,044

[1] Estimated as the sum of the first two lines of Table 3. Note that the first line of Table 3 includes both IMF staff salary and travel expenses. Thus, the per paper cost estimates likely overestimate the true cost of research time.

[2] These include commissioned papers.

Direct project management costs represent approximately one percent of the total budget. If Trust Fund management fees are included, program management costs rise to approximately eight percent. This implies that the majority of funds allocated to the project have been directed toward producing high-quality research.

[5] The total research staff costs are estimated as the sum of the first two lines of Table 3. Note that the first line of Table 3 includes both IMF staff salary and travel expenses. Thus, the estimates we have calculated for working and published paper costs likely overestimate the true cost of research time.

8. WORK PLAN AND TIMETABLE

Individual work plans

An overview of our thematic work plans is presented below.

(1) Modelling policy choices

a. The team will work on a Selected Issues Paper on fiscal policy and monetary policy reactions under natural resource windfalls in Mozambique. The project involves customizing the DIGNAR model to Mozambique to provide targeted analysis of the monetary policy response to various fiscal policy decisions in the context of a natural resource revenue windfall from LNG (Liquified Natural Gas) production (such as spending all revenues, allocating revenues from LNG between sovereign wealth fund and financing the public investment).

b. The team will work on another Selected Issues Paper on *Policy Reforms for Public Investment, Growth, and Debt Sustainability in Senegal*. The paper will inform discussion with Senegalese authorities during an upcoming Article IV Consultation on the importance of policy reforms to enhance value for money and secure growth dividend from public investment. Given that the paper will adopt a regional approach, contrasting Senegal with comparators in the region to define the scope for more ambitious policy reforms, the paper will also lay the ground for a subsequent working paper. The DIGNAR model will be customized to Senegal to build alternative scenarios to underpin the analysis for the Selected Issues Paper and the working paper.

c. A project will analyze the macroeconomic implications of the new Compact of Free Association (COFA) Agreement on the three Freely Associated States (FAS): Republic of Palau, the Federated States of Micronesia and the Republic of Marshall Islands. It will also assess the implications for policies aimed at enhancing resilience, increasing economic and social development, addressing the implications of climate change, while ensuring fiscal and external sustainability. The paper will calibrate and extend the DIGNAD/DIGNAR model to reflect the characteristics of FAS, and will be part of the upcoming Article IV consultation.

d. The DIGNAD models will be expanded to incorporate energy transition, by including a new module with firms in the energy sector endogenously choosing between using brown and green technologies, based on the relative price of green energy, the productivity of each technology, and the fixed cost of adopting green technology. The model can be used to analyze debt sustainability under different energy transition scenarios. The authors will calibrate the model to the case of Bangladesh and simulate a fiscal reform aimed at kickstarting the energy transition. The authors will then calibrate the model to a representative country, which is highly vulnerable to natural disasters, and will analyze a build-back-better scenario.

e. Using credit registry data on loans, another working paper will examine the transmission of monetary policy shocks to households in Uganda. The analysis exploits granular bank-borrower characteristics to disentangle credit supply from credit demand when assessing the quantity (new loan amount) and price (loan interest rate) effects of a change in the policy rate. The analysis will provide estimates of the speed, magnitude and persistence of monetary policy transmission, controlling for loan, banks, and borrowers characteristics and the macroeconomic environment.

f. Two papers will use factor vector autoregression models to build higher frequency nowcasting of GDP growth in Kenya and Angola, respectively. As is the case in many low-income and developing economies, real-time activity data in Kenya and Angola are scarce.

g. To assess the distributional consequences of monetary policy in LICs, an open economy HANK (Heterogeneous Agent New Keynesian) model with relevant features for LICs (e.g. hand-to-mouth consumers and consumers close to subsistence levels) is developed and calibrated for a typical LIC. The model will be used to assess monetary policy in the presence of an external price shock (such as for food), with the analysis featured in a working paper.

h. A paper will explore the effect of commodity price fluctuations on debt and the role of governance in intermediating that relationship. Boom and bust cycles in commodity prices typically result in to a persistent surge in spending which eventually leads to debt accumulation as commodity export revenues fall. Many developing economies are facing a looming debt crisis, with a new cycle for green minerals on the horizon, and this has important macroeconomic policy implications.

i. Work will be undertaken to extend the Multi Sector Incomplete Markets Macro Inequality (MIMMI) App for modeling the impact of intermediate goods use and tax adjustments in economies with incomplete crediting of sales taxes for firms, with country applications (e.g., Bolivia).

(2) Understanding macro-financial linkages

a. A paper will document trends in financial flows to LICs, particularly after COVID-19 amid the dramatic changes in global macroeconomic and financial conditions, rising geopolitical fragmentation, and growing urgency to address climate change. The paper will include a comprehensive review of the literature on the level and composition of financial inflows to LICs, the potential drivers of changes in the trends, and their policy implications.

b. Another paper will analyze how financial flows, including foreign direct investment (FDI), portfolio investment, and aid, interact with trade flows in low-income countries.

Specifically, the paper will examine the role of policy and institutions such as trade and investment treaties, financial development, and expropriation risk in helping attract different types of financial flows and develop trade links.

(3) Building resilience

a. The DIGNAD model will be used to provide analytical support for several countries' application to use IMF's RST facility, namely Tanzania and the Maldives. The model will illustrate the countries' vulnerabilities to climate change and the benefits of ex-ante adaptation investment on key macroeconomic variables, namely greater economic resilience against natural disaster shocks, lower post-disaster economic losses, recovery costs, and increases in public debt. Reforms that improve public investment efficiency and domestic resource mobilization can further amplify the benefits of investing in adaptation and enhance long term debt sustainability.

b. The DIGNAD model will also be used in the context of climate coverage in several Article IV Consultations, namely Kiribati, Senegal, Sao Tome and Principe, and South Sudan. The work involves calibrating the DIGNAD model for the specific economy to provide analysis of the impacts of natural disasters and ex-ante adaptation investments on output growth and public debt.

c. A new paper and toolkit will develop and implement a macroeconomic framework of climate adaptation. Climate adaptation needs in developing economies will be analyzed through the lens of a small open economy model with slowly moving climate risks, such as the gradual depletion of natural resources, and various frictions (e.g. in financial, labor markets, etc.) that are relevant for emerging markets and LICs. The model features endogenous entry and adaptation choice in the land-intensive agricultural sector, while firms behave under neoclassical assumptions in the manufacturing and services sectors. The model will examine how government policies can help achieve the first-best level of private adaptation.

d. A paper will look at the diffusion of green technology in LICs by creating a new index measuring the green technology embodied in imports (ETI) building on Cugat and Manera (2024). The novel measure will allow to examine the effect of policies in promoting technology diffusion across countries as well as the effect of such diffusion on climate-related outcomes.

e. Another paper will look at climate change and domestic debt costs. The frequency of extreme weather events increased over the last decades. These disasters have significant macroeconomic consequences, including the deterioration of public finances and borrowing cost. Only a few recent studies examine the impact of climate shocks on international borrowing cost, and none on domestic borrowing cost. Yet, foreign borrowing may often be constrained in the aftermath of a natural disaster, forcing countries to rely heavily on domestic borrowing. Moreover, domestic debt is increasing in the total public debt of many developing countries, and, unlike external debt, domestic debt is more difficult to restructure. This paper extends the literature and investigates the effect of climate shocks on the cost of domestic debt.

f. A team will develop a Global Vector Autoregressive (GVAR) model incorporating climate uncertainty through stochastic volatility. By incorporating temperature risk into the GVAR framework, the study will analyze the impact of temperature volatility on economic growth, inflation, exchange rates, and other macroeconomic variables. The project will explore heterogeneity between LICs and other countries, help better understand the channels through which temperature volatility affects different economies, identify key factors driving these effects, and shed light on different adaptive strategies.

g. A paper will look at productive capacities, economic vulnerability and growth volatility in Sub-Saharan Africa. The COVID-19 pandemic and its economic, social, and financial fallout have led to a renewed interest in identifying appropriate policies and means to build economic resilience to future shocks, particularly in developing countries. Focusing on Sub-Saharan countries that are more prone to low and volatile economic growth, this paper investigates whether strengthening productive capacities could mitigate the effects of adverse shocks on growth volatility. Using macroeconomic data from diverse sources, the paper (i) assesses the effect of economic vulnerability and productive capacity on growth volatility, (ii) analyses if productive capacities reduce the effect of economic vulnerability on growth volatility.

h. A project will explore how private sector reacts to large natural disasters in terms of investment. Using both country and firm level data, the project will analyze the effect of climate shocks on private investment and the role of public investment.

i. A paper will investigate the effects of global energy and food price shocks on LICs since the onset of the pandemic. It notes a significant increase in real energy and fertilizer prices, as well as a rise in food prices driven by global economic recovery and geopolitical events. Utilizing a spatial general equilibrium model, the study aims to quantify the impact of these shocks on local economies and households in LICs. Key objectives include assessing trade and labor patterns, analyzing urban-rural migration, and evaluating fiscal policy options to mitigate the effects of rising prices.

j. Another paper investigates the role of governance in mediating the relationship between natural disasters and economic activity. It extends existing literature on the impact of natural disasters on economies, especially in the context of climate change-induced increases in disaster frequency. Despite this, the aggregate effect on GDP remains uncertain due to varying country capacities to withstand disasters. Factors such as preparedness, the ability to mobilize resources for reconstruction, and the availability of insurance play crucial roles. Understanding which governance elements mitigate the impact of natural disasters is essential for informing policy decisions aimed at enhancing economic resilience.

k. Another paper will look at remittance costs around natural disasters The paper investigates how natural disasters influence the pricing of remittances by remittance service providers (RSPs). Despite the countercyclical nature of remittances during crises, which would typically lead to increased costs, many RSPs allegedly waive transfer fees during disasters due to corporate social responsibility. The study aims to answer several questions, including the impact of disasters on remittance costs and how this varies with factors like disaster type, RSP type, transaction speed, and country income level. The empirical model will build on existing literature on remittance cost determinants, augmented with natural disaster data to provide insights into this phenomenon.

l. A paper will look at climate shocks and structural transformation. The occurrence of climate shocks and natural disasters may affect economic sectors differently and may have larger impact on agriculture, leading to reallocation of labor to industry and services. This change is similar to traditional structural transformation, except that it is caused by productivity decline in agriculture and not by production improvements in other sectors. The project explores this atypical structural change caused by climate shocks using relevant measures of structural transformation and disaggregated sector-level data.

m. A paper will explore the effect of temperature increase on tax revenue mobilization. The paper will build on existing literature documenting the negative effect of temperature increase from climate change on economic activity through reduced productivity, especially in developing countries. Tax revenues are pervasively low in developing countries and exploring how temperature increase may exacerbate that phenomenon is important from a policy standpoint.

n. A project will update the climate-focused application of the Multi-Sector Incomplete Markets Macro Inequality (MIMMI) App. The update will enable migration across urban and rural areas, enhancing the application of this model for climate analysis.

o. Another project will look at the role of macroeconomic policies on conflict prevention. The project assesses the rate of return of prevention policies in fragile states and estimates the effect of fiscal policies on the risk of violence and conflict.

(4) Promoting structural change and institutional development

a. There will be a paper on *Trade Barriers and Imbalances in Small Open Economies*. The paper provides a framework for analyzing the impact of temporary and permanent changes in trade barriers on external imbalances in small open economies. The paper uses the model to analyze aspects of the 1995-2019 globalization experience for a large set of small open economies, including emerging markets and low-income countries, and to assess the possible impact of geoeconomic fragmentation.

b. The project on *The Allocation of Talent across Space and Time*. This project will combine a theoretical framework developed in Hsieh et al. (2019) with cross country administrative micro data from the Luxembourg Income Study to assess: (i) differences in barriers to occupational access for women across a large set of advanced, emerging and low-income countries; (ii) the contribution that the decline in such barriers has made to TFP growth in recent decades; and (iii) the potential for TFP growth from the removal of remaining barriers.

c. Another paper will be on *Can Mobile usage Enhance Productivity? A Structural Model and Evidence from Food Suppliers in Benin*. The paper analyzes the drivers of digital technology adoption and how it affects the productivity of small-scale businesses in the grains and legumes markets in Africa. The authors collect data from two semi-rural markets in Benin, where grains and legumes are key staple foods and one-third of the population has internet access. A structural model is built to rationalize digital technology adoption—defined as the use of mobile broadband internet connection through smartphones—as well as usage patterns and outcomes observed in the data.

d. Another project will look at growth strategies and diversification for Pacific Islands countries. The team will examine growth strategies for the Pacific Islands countries by focusing on the effects of tourism and diversification. First, the team will quantify the contribution of tourism to growth using panel regressions and compute how much additional tourism would be needed by Pacific Islands countries to sustain the growth rate of comparators. The team will then identify diversification spurts in the Pacific Islands countries and quantify its benefits using the synthetic control method. Finally, the team will outline a framework for designing growth strategies in the Pacific Islands countries, focusing on how to detect Pacific Islands countries' binding constraints and work around its limitations.

e. A paper will investigate the middle-income trap by analyzing transitions between income classes and computing mean passage times. It aims to enhance existing research by utilizing more available data and examining intermediate traps not only in GDP per capita and per worker but also in total factor productivity (TFP), capital-output ratio, human capital, and labor force participation rate. If intermediate traps are identified in TFP or capital-output ratio, the study will extend analysis to institutional variables like state capacity. Additionally, the research will assess mobility within distributions and employ formal mobility measures, alongside utilizing the Dobrushin coefficient and asymptotic half-life for analysis.

f. Another paper delves into the persistence of low relative income in countries, aiming to understand the factors contributing to this phenomenon, such as civil conflict and natural resource endowments. A key innovation is the development of a method to generate a counterfactual distribution for cross-country relative GDP per capita, allowing for the isolation and assessment of the effects of specific variables. By comparing this counterfactual with observed distributions, policymakers can discern which factors are central to low-income traps, aiding in priority-setting for policy and research endeavors.

g. A paper will look into growth accelerations/decelerations and structural reforms. Two views dominate the literature on structural reforms. One strand of the literature has argued that countries will only implement structural reforms when confronted with a deterioration in economic conditions, i.e., the so called "crisis-induces-reform hypothesis". Another strand of the literature highlights that strong economic growth is needed to foster structural reforms. This paper aims to answer the following questions: (i) do growth accelerations (or decelerations) operate as catalysts of structural reforms or does the reverse apply? ii) how important are "contagion" (peer-pressure) effects from neighboring countries as far as the reform momentum is concerned?; iii) is there a nonlinear role played by the existing degree of economic uncertainty, especially in the context of low-income countries?

(5) Enhancing inclusion

a. There will be work on revisiting the relationship between GDP growth and inequality. The authors revisit the discussions on the Kuznets curve around the relationship between growth and inequality, using datasets on global income distributions derived from surveys with families. The authors also analyze how other factors such as higher life expectancy contribute to holistic measures of welfare in comparison to GDP in advanced economies, emerging economies, and low-income economies.

b. The team will develop the Multi Sector Incomplete Markets Macro Inequality (MIMMI) app, focusing on gender (MIMMI-G App) to quantify gender-specific impacts of macro-inequality shocks and policies. This work will extend the MIMMI App by incorporating gender differences and introducing a new visual interface. It will enable the simulation of gender and macro-distributional outcomes within a comprehensive application including features such as general equilibrium, life-cycle structure, endogenous fertility, endogenous migration, and flexible labor supply. The app's purpose is to analyze the growth, distributional, and gender-inequality impacts of educational, labor market, and tax-transfer policies within a customizable setup to facilitate the analysis.

c. A paper will explore how the arrival of internet access, whether through mobile or cable technology, impacts local credit markets. It suggests that this advancement can significantly shape the economy by enhancing business opportunities and facilitating better credit provision through improved screening and reduced transaction costs. Using credit registry and firm-level data from Rwanda or Uganda, the study will examine loan-level details, credit sources, and geographic locations. Detailed information on mobile and cable technology will inform robust identification strategies. The findings aim to inform policymakers on working channels, constraints, and targeted policies to promote credit and productivity, potentially influencing technology investment preferences.

d. A team will look at past episodes during which public debt rose substantially during crises and were subsequently reduced, with the aim to better understand debt dynamics and its distributional implications. The paper will also discuss how countries could tackle high debt levels after COVID-19 while addressing inequality and supporting growth.

e. A working paper will outline the calculation and policy implications of the macro-inequality impact of the Simandou mining project in Guinea. The research will examine the project's effectiveness in stimulating growth, alleviating poverty, reducing inequality, and addressing climate change. Additionally, it will explore the implications of government policies, particularly in infrastructure and education, on the project's outcomes.

f. Another paper will explore Chad's "one percent" development policy, assessing its effectiveness in leveraging limited fiscal space to mitigate climate change impacts.

g. A project will design and calibrate a model for Botswana to optimize its social transfer system. It will simulate policy options to enhance social welfare and economic stability.

h. Another project will analyze the long-term effects of rising international food prices on growth and inequality in Africa, while proposing policy solutions to mitigate any adverse impacts.

9. RISK

Budgetary uncertainties, including cuts, disbursement delays, and overall funding unpredictability, threaten the continuity of the MRLIC program. These uncertainties hinder the program's ability to deliver key outputs in a timely manner, competitively attract and retain high-caliber staff, and engage in effective short to medium-term planning. These financial instabilities undermine the program's operational integrity and strategic direction, impeding its capacity to meet objectives and maintain a high level of performance. Looking ahead, a one-year funding extension is proposed for FY2026 (April 2025 to March 2026) to allow time to potentially reshape the MRLIC program before a new phase V is considered. While this short-term extension will ensure a successful completion of projects started under Phase IV and help explore new research ideas that could be pursued in a potential Phase V, it does not address the substantial uncertainty around the medium-term FCDO funding and the financial viability of the MRLIC partnership.

10. MONITORING AND EVALUATION

Monitoring

At the end of each fiscal year, the MRLIC team IMF reports the outputs included in the log-frame to FCDO. Quarterly updates of the MRLIC outputs and activities are also routinely shared with the FCDO team to keep them informed about our research and progress. The MRLIC team also sends out quarterly e-newsletters that reach an audience of more than 1,500 academics, policymakers, central bank staff, and government representatives, among others. These e-newsletters are posted on the project's website. We routinely organize video conference calls between the IMF and FCDO project members to discuss the program as needed.

Evaluation

While FCDO conducts a yearly evaluation of the program, no budget for an external evaluation was included in the project budget.

11. FURTHER INFORMATION

Our team has started brainstorming on a Phase V proposal to improve the analytical and policy tools to bolster the economic resilience of LICs amid increasingly frequent and large shocks.

APPENDIX 1. LOG-FRAME

PROJECT NAME	Macroeconomic Research in Low-Income Countries (LICs)								
IMPACT	**Impact Indicator 1**		**Baseline**	**Milestone 1**	**Milestone 2**	**Milestone 3**	**Milestone 4**	**Target (March 2025)**	
Better macroeconomic policymaking in LICs leading to faster economic growth, job creation and poverty reduction.	Proportion of people living in extreme poverty in LICs	**Planned**	(2018) MRLIC countries: 28.5%						
		Achieved							
		Source							
		World Bank, Poverty and Equality dataset, Poverty headcount ratio at $1.90 a day (2011 PPP) (% of population), Simple average of MRLIC countries (Table 1 of Annual Report).							
	Impact Indicator 2		**Baseline**	**Milestone 1**	**Milestone 2**	**Milestone 3**	**Milestone 4**	**Target (March 2025)**	
	Economic growth rates in LICs	**Planned**	(2019) MRLIC countries: 4.0%						
		Achieved							
		Source							
		IMF WEO data, Real GDP growth, Annual percent change, Simple average of MRLIC countries (Table 1 of Annual Report).							

OUTCOME	**Outcome Indicator 1**		**Baseline**	**Milestone 1**	**Milestone 2**	**Milestone 3**	**Milestone 4**	**Target (March 2025)**	**Assumptions**
Better engagement by IMF policy-makers on LIC-specific macroeconomic issues, leading to improved policy-making in specific project thematic areas.	Evidence of Improved IMF policymaking and **integration of LIC-specifics in project thematic areas**.	**Planned**	March 2020 (12)	By March 2021: H (16) M (14) L (12)	By March 2022: H (18) M (16) L (14)	By March 2023: H (20) M (19) L (18)	By March 2024: H (21) M (20) L (19)	By March 2025: H (22) M (21) L (20)	Specific context: the average per year (Yr 1 - 8) is 2. So medium case is one per year for Yr 11-13. High case one additional, low case one fewer.
		Achieved		16	18	20	21		
		Source							
		IMF Reporting - board papers, policy papers, conference reports/papers, pilot applications of country teams, refs in staff docs, or internal policy memos.							

INPUTS (£)	**FCDO (£)**	**Govt (£)**	**Other (£)**	**Total (£)**		**FCDO SHARE (%)**	**Memorandum**
	£5.1 million		**£1.0 million**	**£6.1 million**		**84**	"Other" is USD 1.2 million for FY2022 from the IMF's COVID-19 Crisis Capacity Development Initiative (CCCDI), which is an external funding vehicle (with U.K. £1 = USD 1.219950, as of May 13, 2022). "Other" does not include the cost-sharing from the IMF's internal budget. The outputs of the CCCDI-funded project are counted towards the output targets for the MRLIC, only when the outputs are assessed to be within the aims and scope of the MRLIC. For Yr 11 - 13, the annual disbursement is rephased and the output target levels are adjusted accordingly.

OUTPUT 1	Output Indicator 1.1		Baseline	Milestone 1	Milestone 2	Milestone 3	Milestone 4	Target (March 2025)	Assumptions
High quality, policy relevant research on macroeconomic issues affecting LICs produced.	Number of **priority research papers** produced, on the **five research themes of the MRLIC** (see Assumptions)	**Planned**	March 2020 (130)	By March 2021: H (151 papers) M (146 papers) L (141 papers)	By March 2022: H (167 papers) M (160 papers) L (155 papers)	By March 2023: H (176 papers) M (172 papers) L (168 papers)	By March 2024: H (196 papers) M (192 papers) L (188 papers)	By March 2025: H (200papers) M (196 papers) L (190 papers)	**Specific context**: the average output per year (Yr 1 - 8) is 16. So medium case is 8 per year for Yr 11-13. High case 3 additional, low case 3 fewer. **High-level context**: 1) No major global challenge was initially assumed, such that IMF staff can devote time to the project as committed, but two global shocks (COVID-19 pandemic, war in Ukraine) required adjustments. 2) IMF are able to identify high-quality academics working on specific research topics, and agreeable to IMF terms and conditions. 3) Academic researchers are able to deliver contracted inputs consistent with timeframes envisaged for the project. 4) Counterpart inputs materialise as anticipated. **Five research themes of the MRLIC**: (1) Modelling and understanding policy choices (2) Understanding macro-financial linkages (3) Building resilience (4) Promoting structural change and institutional development (5) Enhancing inclusion
		Achieved		151	162	178	192		
		Source							

		IMF publications							
	Output Indicator 1.2		**Baseline**	**Milestone 1**	**Milestone 2**	**Milestone 3**	**Milestone 4**	**Target (March 2025)**	**Assumptions**
	Number of **research papers accepted for publication** in appropriate high-quality peer-reviewed journals	**Planned**	March 2020 (77)	By March 2021: H (90 papers) M (86 papers) L (82 papers)	By March 2022: H (99 papers) M (95 papers) L (91 papers)	By March 2023: H (105 papers) M (103 papers) L (101 papers)	By March 2024: H (112 papers) M (110 papers) L (108 papers)	By March 2023: H (117 papers) M (115 papers) L (113 papers)	Specific context: the average output per year (Yr 1 - 8) is 9. So medium case is 5 per year for Yr 11-13. High case 2 additional, low case 2 fewer.
		Achieved		90	98	105	113		
IMPACT WEIGHTING (%)		**Source**							
34		IMF to provide details of academic publications and acceptances							

OUTPUT 2	Output Indicator 2.1		Baseline	Milestone 1	Milestone 2	Milestone 3	Milestone 4	Target (March 2025)	Assumptions
IMF research products (pollicy analysis, practical and operational tools and frameworks) produced under this project used by IMF country teams and partner authorities.	Application and use of tools and frameworks by country authorities and country teams.	**Planned**	March 2020 (161)	By March 2021: H (181) M (174) L (167)	By March 2022: H (199) M (194) L (189)	By March 2023: H (214) M (211) L (208)	By March 2024: H (225) M (222) L (219)	By March 2025: H (233) M (230) L (227)	Specific context: the average output per year (Yr 1 - 8) is 21, including cources that are now separated to new output indicator 2.2. Medium case is 8 per year for Yr 11-13. High case is 3 additional, low case is 3 fewer.
		Achieved		183	203	213	223		
		Source							
		IMF reporting on evidence of number of country teams applying policy tools and frameworks							
	Output Indicator 2.2		**Baseline**	**Milestone 1**	**Milestone 2**	**Milestone 3**	**Milestone 4**	**Target (March 2025)**	**Assumptions**
	Courses offered to country authorities and IMF staff	**Planned**	March 2020 (20)	By March 2021: H (28) M (25) L (22)	By March 2022: H (35) M (32) L (30)	By March 2023: H (44) M (42) L (40)	By March 2024: H (49) M (47) L (45)	By March 2025: H (53) M (51) L (49)	Specific context: Newly separated from output indicator 2.1. Medium case is 4 per year for Yr 11-13. High case 2 additional, low case 2 fewer.
		Achieved		28	38	43	52		
IMPACT WEIGHTING (%)		**Source**							
33		IMF reporting evidence of number of country authorities applying policy tools and frameworks							

<table>
<tr><th>OUTPUT 3</th><th>Output Indicator 3.1</th><th></th><th>Baseline</th><th>Milestone 1</th><th>Milestone 2</th><th>Milestone 3</th><th>Milestone 4</th><th>Target (March 2025)</th><th>Assumptions</th></tr>
<tr><td rowspan="7">Engagement by senior IMF policymakers on issues affecting LICs strengthened through this project.</td><td rowspan="3">High level policy conferences attended by senior IMF staff reflect findings of research papers funded under this project.</td><td>Planned</td><td>March 2020 (40)</td><td>By March 2021
H (45)
M (43)
L (41)</td><td>By March 2022:
H (48)
M (46)
L (44)</td><td>By March 2023:
H (54)
M (53)
L (52)</td><td>By March 2024:
H (57)
M (56)
L (55)</td><td>By March 2025:
H (60)
M (59)
L (58)</td><td>Specific context: the average output per year (Yr 1 - 8) is 5. Medium case is 2 per year for Yr 11-13. High case is 1 additional, low case is 1 fewer.</td></tr>
<tr><td>Achieved</td><td></td><td>42</td><td>50</td><td>53</td><td>56</td><td></td><td></td></tr>
<tr><td colspan="8">Source
IMF reporting on number of policy conferences drawing on outputs from the project</td></tr>
<tr><td>Output Indicator 3.2</td><td></td><td>Baseline</td><td>Milestone 1</td><td>Milestone 2</td><td>Milestone 3</td><td>Milestone 4</td><td>Target (March 2025)</td><td>Assumptions</td></tr>
<tr><td rowspan="5">Results of the research reflected in IMF Board discussions and papers such as IMF Policy Papers, Staff Discussion Notes, policy memos to management etc.</td><td>Planned</td><td>March 2020 (41)</td><td>By March 2021:
H (48)
M (45)
L (42)</td><td>By March 2022:
H (53)
M (52)
L (50)</td><td>By March 2023:
H (59)
M (57)
L (55)</td><td>By March 2024:
H (64)
M (62)
L (60)</td><td>By March 2025:
H (67)
M (65)
L (63)</td><td>Specific context: the average output per year (Yr 1 - 8) is 5. Medium case is 3 per year for Yr 11-13. High case is 2 additional, low case is 2 fewer.</td></tr>
<tr><td>Achieved</td><td></td><td>49</td><td>54</td><td>59</td><td>62</td><td></td><td></td></tr>
<tr><td colspan="8">Source</td></tr>
<tr><td>IMPACT WEIGHTING (%)</td><td colspan="8" rowspan="2">IMF reporting on number of IMF Board discussions and IMF Policy Papers drawing on outputs from the project</td></tr>
<tr><td>33</td></tr>
</table>

APPENDIX 2. FINANCIAL REPORTS

International Monetary Fund
United Kingdom - Project on Macroeconomic Research in LICs
Bilateral - Cash Flow Statement
As of April 30, 2024
(In U.S. Dollars)

	Cumulative FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	Total
Contributions[1/]	21,592,572	2,088,790	-	2,270,441	-	2,116,823	28,068,626
Interest Earned	121,913	41,005	236	1,438	54,253	107,273	326,118
Total Cash Available	**21,714,485**	**2,129,795**	**236**	**2,271,879**	**54,253**	**2,224,096**	**28,394,744**
Expenses Paid[2/]	18,889,017	1,892,694	1,790,325	1,093,151	1,253,384	1,322,198	26,240,769
Cash Balance	**2,825,468**	**3,062,569**	**1,272,480**	**2,451,208**	**1,252,077**	**2,153,975**	**2,153,975**

1/Contributions are net of transfers and return of funds.

2/Expenses paid include the 7% TFM.

International Monetary Fund
United Kingdom - Project on Macroeconomic Research in LICs
Bilateral - Detailed Progress Report
As of April 30, 2024
(In U.S. Dollars)

Region/Country	Project ID	Project Description	Status	Start Date	End Date	Latest Approved/ Proposed Budget	Expenses	Remaining Balance [1/]	Execution (%)
International Monetary Fund	IMF_IMF_2012_01	DFID Macro Research 1&2	Closed	5/1/2012	3/31/2017	12,451,409	12,451,410	-	100%
		HQ led missions including entire mission team				6,411,796	6,411,796	-	-
		Short-term Advisors - CD delivery				477,102	477,102	-	-
		Research HQ based / Visiting Scholars				2,235,765	2,235,765	-	-
		Seminars & Study Tours				1,273,384	1,273,384	-	-
		Project Backstopping				1,911,379	1,911,379	-	-
		Project Management				141,984	141,984	-	-
International Monetary Fund	SPR_IMF_2017_04	DFID Macro Research 3	Closed	4/1/2017	3/31/2020	6,991,674	6,991,674	-	100%
		HQ led missions including entire mission team				389,849	389,849	-	-
		Short-term Advisors - CD delivery				48,460	48,460	-	-
		Research HQ based / Visiting Scholars				4,677,110	4,677,110	-	-
		Seminars & Study Tours				400,115	400,115	-	-
		Project Backstopping				1,054,899	1,054,899	-	-
		Project Management				84,611	84,611	-	-
		Exceptional Expenses				335,282	335,282	-	-
		Language Services				1,348	1,348	-	-
International Monetary Fund	SPR_IMF_2020_02	DFID-4 Macro Research	Approved	4/1/2020	3/31/2025	6,902,048	5,080,999	1,821,049	74%
		HQ led missions including entire mission team				22,202	22,202	-	-
		Research HQ based / Visiting Scholars				1,185,909	1,185,909	-	-
		Project Backstopping				207,321	207,321	-	-
		Project Management				20,668	20,668	-	-
		Exceptional Expenses				215,356	215,356	-	-
		Language Services				822	822	-	-
		CD project management 2/				305,000	181,872	-	-
		Development of CD tools 2/				77,349	93,181	-	-
		Development of general CD technical materials 2/				3,957,322	2,914,156	-	-
		Development of training courses or other learning materials 2/				100,100	83,122	-	-
		Field-Based work 2/				50,000	-	-	-
		Interactive learning and workshops 2/				760,000	156,390	-	-
Sub Total						**26,345,131**	**24,524,083**	**1,821,049**	
Trust Fund Management Fee						1,844,159	1,716,686	127,473	
Grand Total						**28,189,290**	**26,240,769**	**1,948,522**	

Agreement Summary	
Contributions to date	28,068,626
Net Transfers	-
Interest Earned	326,117
Total Inflows(A)	**28,394,743**
Expenses	26,240,769
Remaining Budget (including projects pending approval)	1,948,522
Total Outflows(B)	**28,189,291**
Future Contributions (based on signed agreements)(C)	-
Total Available & Future Contributions(A-B+C)	**205,452**

1/ The remaining balance for closed projects is zeroed out upon project completion.
2/ The expenses shown do not inculde costs related to Long-Term Experts.

APPENDIX 3. RESEARCH OUTPUTS

Output 1.1 – Working Papers

Topic 1. Modelling and understanding policy choices

1. [Panel Nowcasting for Countries Whose Quarterly GDPs are Unavailable]
   Omer Faruk Akbal, Seung M Choi, Futoshi Narita, and Jiaxiong Yao

   Summary: Quarterly GDP statistics facilitate timely economic assessment, but the availability of such data are limited for more than 60 developing economies, including about 20 countries in sub-Saharan Africa as well as more than two-thirds of fragile and conflict-affected states. To address this limited data availability, this paper proposes a panel approach that utilizes a statistical relationship estimated from countries where data are available, to estimate quarterly GDP statistics for countries that do not publish such statistics by leveraging the indicators readily available for many countries. This framework demonstrates potential, especially when applied for similar country groups, and could provide valuable real-time insights into economic conditions supported by empirical evidence.

2. [Strengthening Monetary Policy Frameworks in the Caucasus and Central Asia]
   Tigran Poghosyan, Klakow Akepanidtaworn, Maria Atamanchuk, Ezequiel Cabezon, Selim Cakir, Vahid Khatami, with inputs from Filiz D Unsal, Mariarosaria Comunale, Marina Conesa Martinez, and Omer Faruk Akbal

   Summary: Amidst a global backdrop of persistent post-COVID inflation and spillovers from Russia's war in Ukraine, the countries of the Caucasus and Central Asia (CCA) region have faced strong price pressures in recent years. Inflation is estimated to have peaked in early 2023, but still exceeds central bank targets. In particular, core inflation remains stubbornly high reflecting a combination of second-round effects, surges in global energy and food prices, and domestic demand pressures. More broadly, uncertainty and downside risks also weigh on the economic outlook, including due to regional tensions, financial turmoil related to international monetary policy normalization, and a growth slowdown in key trading partners. In this context, CCA countries' ability to contain inflationary pressures and anchor inflation expectations hinges on the credibility and effectiveness of their monetary policy frameworks. Since gaining independence in the 1990s, countries in the CCA region have made considerable progress in modernizing their monetary policy frameworks. CCA central banks have strengthened their legal frameworks and established broad de-jure independence. Armenia, Georgia, Kazakhstan, the Kyrgyz Republic, and Uzbekistan are transitioning to inflation targeting regimes, while the central banks of Azerbaijan, Tajikistan, and Turkmenistan rely on the exchange rate as an operational target. However, the post-COVID surge in inflation has highlighted the limitations of current frameworks and triggered a fresh policy debate on the need to strengthen monetary policy effectiveness in the CCA. This paper reviews the CCA region's monetary policy landscape, highlights challenges in monetary policy design and implementation, and identifies areas that warrant strengthening. It draws on original surveys of country authorities, IMF country teams, and the work by Unsal and others (2022). It uses novel empirical work to analyze monetary policy transmission, the link between foreign exchange interventions and exchange rate dynamics, the drivers of financial de-dollarization, and the effects of central bank communication in the CCA.

3. Monetary Policy Frameworks and Communication in the Caucasus and Central Asia
   Omer Faruk Akbal, Klakow Akepanidtaworn, Ezequiel Cabezon, Mariarosaria Comunale, Marina Conesa Martinez, and Filiz D Unsal

   Summary: Central banks in Caucasus and Central Asia (CCA) have been enhancing their monetary policy frameworks in the last decade, and are at different stages of the transition to a type of inflation targeting regimes. This paper documents their progress and the current state of their monetary policy framework, utilizing the IAPOC index developed by Unsal and others (2022) covering Independence and Accountability, Policy and Operational Strategy, and Communications, as well as drawing from central banks' laws and websites. Additionally, an analysis of press releases from CCA central banks is conducted to evaluate their features, content, and tones. The findings highlight the need for further improvements in the areas of Independence and Accountability, as well as Communications, despite some recent advancements in the latter.

Topic 2. Understanding macro-financial linkages

4. Financial Stress and Economic Activity: Evidence from a New Worldwide Index
   Hites Ahir, Giovanni Dell'Ariccia, Davide Furceri, Chris Papageorgiou, and Hanbo Qi

   Summary: This paper uses text analysis to construct a continuous financial stress index (FSI) for 110 countries over each quarter during the period 1967-2018. It relies on a computer algorithm along with human expert oversight. The new indicator has a larger country and time coverage and higher frequency than similar measures focusing on advanced economies. And it complements existing binary chronologies in that it can assess the severity of financial crises. We use the indicator to assess the impact of financial stress on the economy using both country- and firm-level data. Our main findings are fivefold: i) consistent with existing literature, we show an economically significant and persistent relationship between financial stress and output; ii) the effect is larger in emerging markets and developing economies and (iii) for higher levels of financial stress; iv) we deal with simultaneous causality by constructing a novel instrument—financial stress originating from other countries—using information from the text analysis, and show that, while there is clear evidence that financial stress harms economic activities, OLS estimates tend to overestimate the magnitude of this effect; (iv) we confirm the presence of an exogenous effect of financial stress through a difference-in-differences exercise and show that effects are larger for firms that are more financially constrained and less profitable.

5. Mobile Internet, Collateral, and Banking
   Angelo D'Andrea, Patrick Hitayezu, Kangni R Kpodar, Nicola Limodio, and Andrea F Presbitero

   Summary: Combining administrative data on credit, internet penetration and a land reform in Rwanda, this paper shows that the complementarity between technology and law can overcome financial frictions. Leveraging quasi-experimental variation in 3G availability from lightning strikes and incidental coverage, we show that mobile connectivity steers borrowers from microfinance to commercial banks and improves loan terms. These effects are partly due to the role of 3G internet in facilitating the acquisition of land titles from the reform, used as a collateral for bank loans and mortgages. We quantify that the collateral's availability mediates 35% of the overall effect of mobile internet on credit and 80% for collateralized loans.

Topic 3. Building resilience

6. Coping with Climate Shocks: Food Security in a Spatial Framework
   Diogo Baptista, John A Spray, and Filiz D Unsal

   Summary: We develop a quantitative spatial general equilibrium model with heterogeneous house-holds and multiple locations to study households' vulnerability to food insecurity from climate shocks. In the model, households endogenously respond to negative climate shocks by drawing-down assets, importing food and temporarily migrating to earn additional income to ensure sufficient calories. Because these coping strategies are most effective when trade and migration costs are low, remote households are more vulnerable to climate shocks. Food insecure households are also more vulnerable, as their proximity to a subsistence requirement causes them to hold a smaller capital buffer and more aggressively dissave in response to shocks, at the expense of future consumption. We calibrate the model to 51 districts in Nepal and estimate the impact of historical climate shocks on food consumption and welfare. We estimate that, on an annual basis, floods, landslides, droughts and storms combined generated GDP losses of 2.3 percent, welfare losses of 3.3 percent for the average household and increased the rate of undernourishment by 2.8 percent. Undernourished households experience roughly 50 percent larger welfare losses and those in remote locations suffer welfare losses that are roughly two times larger than in less remote locations (5.9 vs 2.9 percent). In counterfactual simulations, we show the role of better access to migration and trade in building resilience to climate shocks.

7. Monetary Policy Design with Recurrent Climate Shocks
   Vimal V Thakoor and Engin Kara

   Summary: As climate change intensifies, the frequency and severity of climate-induced disasters are expected to escalate. We develop a New Keynesian Dynamic Stochastic General Equilibrium model to analyze the impact of these events on monetary policy. Our model conceptualizes these disasters as left-tail productivity shocks with a quantified likelihood, leading to a skewed distribution of outcomes. This creates a significant trade-off for central banks, balancing increased inflation risks against reduced output. Our results suggest modifying the Taylor rule to give equal weight to responses to both inflation and output growth, indicating a gradual approach to climate exacerbated economic fluctuations.

Topic 4. Promoting structural change and institutional development

8. Social Unrests and Fuel Prices: The Role of Macroeconomic, Social and Institutional Factors
   Alassane Drabo, Kodjovi M. Eklou, Patrick A. Imam, and Kangni R Kpodar

   Summary: This paper investigates the impact of fuel price increases on social unrests in addition to the macroeconomic, social and institutional factors driving this relationship. Using the IV fixed-effect estimator on a sample of 101 developing countries during 2001-2020, we find that changes in fuel prices are positively associated with the number of social unrests, mainly anti-government demonstrations. This impact is however amplified: (i) during economic downturns and periods of high exchange rate instability; (ii) when government spending is low, especially on health and education, thus suggesting that streamlining fuel subsides and diverting parts of the reform savings to the health and education sectors is an appropriate policy that could appease social tensions; (iii) in countries with high income inequality, low institutional quality and high level of corruption. The results are robust to a battery of tests, including the use of an instrumental variable approach to address reverse causality concerns given that social unrests could also prompt a freeze in fuel prices. We also find consistent results using either changes in diesel or gasoline prices. Overall, the findings of the paper provide support to the grievance and deprivation theory in explaining the association between fuel price increases and social unrests, but fail to find evidence for the resource theory and the theory of political opportunities.

9. Do Capital Inflows Spur Technology Diffusion? Evidence from a New Technology Adoption Index
   Gabriela Cugat, and Andrea Manera

   Summary: We construct a novel measure of technology adoption, the Embodied Technology Imports Indicator (ETI), available for 181 countries over the period 1970-2020. The ETI measures the technological intensity of imports of each country by leveraging patent data from PATSTAT and product-level trade data from COMTRADE. We use this index to assess the link between capital flows and the diffusion of new technologies across emerging economies and low-income countries. Through a local projection difference-in-differences approach, we establish that variations in statutory capital flow regulations increase technological intensity by 7-9 percentage points over 5 to 10 years. This increase is accompanied by a significant 28-33 pp rise in the volume of gross capital inflows, driven primarily by foreign direct investment (21 pp increase), and a 9 to 12 percentage points shift in the level of Real GDP per capita in PPP terms.

10. Divided We Fall: Differential Exposure to Geopolitical Fragmentation in Trade
    Shushanik Hakobyan, Sergii Meleshchuk, and Robert Zymek

    Summary: This paper assesses differences in countries' macroeconomic exposure to trade fragmentation along geopolitical lines. Estimating structural gravity regressions for sector-level bilateral trade flows between 185 countries, we find that differences in individual countries' geopolitical ties act as a barrier to trade, with the largest effects concentrated in a few sectors (notably, food and high-end manufacturing). Consequently, countries' exposure via trade to geopolitical shifts varies with their market size, comparative advantage, and foreign policy alignments. Introducing our estimates into a dynamic many-country, many-sector quantitative trade model, we show that geoeconomic fragmentation—modelled as an increased sensitivity of trade costs to geopolitics and greater geopolitical polarization—generally leads to lower trade and incomes. However, emerging markets and developing economies (EMDEs) tend to see the largest impacts: real per-capita income losses for the median EMDE in Asia are 80 percent larger, and for the median EMDE in Africa 120 percent larger, than for the median advanced economy. This suggests that the costs of trade fragmentation could fall disproportionally on countries that can afford it the least.

Topic 5. Enhancing inclusion

11. Will Working from Home Stick in Developing Economies?
    Marina Conesa Martinez, Futoshi Narita, and Chris Papageorgiou

    Summary: In developing economies, a shift to working from home during the COVID-19 pandemic varies substantially. An increase in teleworking days per week ranges from 0.7 to 17.6 percentage points across 10 developing countries covered by an online survey to about 500 respondents per country. An estimated income discount associated with telework disappeared temporarily at the onset of the pandemic. A calibrated model indicates that workers' preferences to telework may largely depend on their educational attainments. Whether telework will sustain in these countries could depend on obstacles to telework, particularly for workers with less education, and a degree of economy-wide externality.

12. When Will Global Gender Gaps Close?
    Alejandro Badel and Rishi Goyal

    Summary: On the current pace of reforms, global gender gaps are estimated to close, using deterministic (linear or log-linear) trends, over the next three centuries. This means that many women will likely not be able to fully use their abilities and talents, to the detriment of societies, for a long time. Yet this paper shows that, absent a significant step up in policy efforts, gender gaps may in fact never close. Using Markov chains, a common approach in macroeconomics, this paper analyzes the dynamics of the cross-country distribution of the gender gap in labor force participation. This methodology does not impose strong restrictions on the data, allowing for episodes of progress as well as regress by countries on gender inequality. Based on the experience of the past three decades, the analysis predicts a further narrowing of gender gaps over time. But the long-run distribution of gender gaps in labor force participation features a substantial share of countries with persistently large gaps, implying that—absent a strengthened and systematic policy effort—some of the current misallocation of women's talents and abilities could persist perpetually.

13. Digitalization and Gender Equality in Political Leadership in Sub-Saharan Africa
    Diego B. P. Gomes and Carine Meyimdjui

    Summary: We examine the impact of digitalization on people's perceptions of women as political leaders in 34 Sub-Saharan African countries. We find that being a social media or internet user is linked to a higher likelihood of people supporting gender equality in political leadership. However, the intensive margin of usage does not appear to be significant. Furthermore, women's perceptions of gender equality in political leadership are more sensitive to internet and social media use than men's. The paper recommends policies for improving ICT infrastructure and investing in technological education.

14. Mining Revenues and Inclusive Development in Guinea
Alejandro Badel and Rachel Fredman Lyngaas

Summary: What are the potential benefits of increasing the taxation of a foreign extractive sector? This paper applies this question to the case of Guinea by using a multi-sector macro-inequality model with heterogeneous agents. We quantify the long-run equilibrium impact of additional taxation when the proceeds are invested in human capital, inclusive infrastructure, and social transfers. Our analysis focuses on the response of GDP, labor formalization, poverty rates, Gini coefficients, rural/urban inequality and sectoral reallocation. The three forms of investment are complementary. Infrastructure investments favor formal production in the urban area while growth and government transfers boost the demand for food. These effects help support the rate of return to education, protecting job formalization through higher wages and prices of informal goods, as the education policy boosts labor supply in rural and urban areas.

Output 1.2 – Published Papers

Topic 1. Modelling and understanding policy choices

1. Tax Revenues in Low-Income Countries
   Adrian Peralta-Alva, Xuan S Tam, Xin Tang, and Marina M Tavares
   The Economic Journal

   Summary: We quantitatively investigate the welfare costs of increasing tax revenues in low-income countries. We consider three tax instruments: consumption, labour income and capital income taxes. The analysis is based on a general equilibrium model featuring heterogeneous agents, incomplete financial markets, and rural and urban areas. We calibrate the model to Ethiopia and decompose the welfare costs into their aggregate and distributional components. We find that changing taxes alter the composition of demand. This, together with limited labour mobility, causes the incidence of higher taxes to fall disproportionately on the rural population, regardless of the instrument. Consumption taxes are the instrument with the largest welfare loss.

Topic 2. Understanding macro-financial linkages

2. How do transaction costs influence remittances?
   Kangni Kpodar, and Patrick Amir Imam
   World Development

   Summary: Using a new quarterly panel database on remittances, this paper investigates the elasticity of remittances to transaction costs using local projections. The findings suggest that cost reductions have a short-term positive impact on remittances within a quarter, before they stabilize at a higher level. According to our estimates, reducing transaction costs to the Sustainable Development Goal target of 3 percent could generate an additional US$32bn in remittances, higher than the direct cost savings from lower transaction costs, thus suggesting an absolute elasticity greater than one. The cost-elasticity exhibits some heterogeneity along several characteristics of the recipient country, notably competition in the remittance market, financial sector deepening, correspondent banking relationships, transparency in remittance costs, financial literacy and ICT development. Micro data from the USA-Mexico corridor confirm that migrants facing higher transaction costs tend to remit less, and that this effect is less pronounced for skilled migrants and those that have access to a bank account.

Topic 3. Building resilience

3. Monetary policy under natural disaster shocks
   Alessandro Cantelmo, Nikos Fatouros, Giovanni Melina, and Chris Papageorgiou
   International Economic Review

   Summary: With climate change increasing the frequency and intensity of natural disasters, what should central banks do in response to these catastrophic events? Looking at IMF reports for 34 disaster-years, which occurred in 16 disaster-prone countries from 1999 to 2017, reveals lack of any systematic approach adopted by monetary authorities in response to climate shocks. Using a small-open-economy New-Keynesian model with disaster shocks, we show that consistent with textbook theory, inflation targeting remains the welfare-optimal regime. Therefore, the best strategy for monetary authorities is to resist the impulse of accommodating in response to catastrophic natural disasters, and focus on price stability.

Topic 4. Promoting structural change and institutional development

4. Policy distortions and aggregate productivity with endogenous establishment-level productivity
   José-María Da-Rocha, Diego Restuccia, and Marina M. Tavares
   European Economic Review

   Summary: What accounts for income per capita and total factor productivity (TFP) differences across countries? We study resource misallocation across heterogeneous production units in a general equilibrium model where establishment productivity and size are affected by policy distortions. We solve the model in closed form and show that policy distortions have a substantial negative effect on establishment productivity growth, average establishment size, and aggregate productivity. Calibrating a distorted benchmark economy to U.S. data, we find that empirically reasonable variations in distortions generate reductions in aggregate TFP of more than 24 percent while slightly increasing concentration in the establishment size distribution. If distortions in addition lower the exit rate of incumbent establishments, as supported by some empirical evidence, the aggregate TFP loss doubles to 48 percent.

5. Structural Reforms and Elections: Evidence from a World-Wide New Dataset
   Alberto Alesina, Davide Furceri, Jonathan D Ostry, Chris Papageorgiou, and Dennis P Quinn
   Journal of the European Economic Association

Summary: We present two new databases we have constructed to explore the electoral consequences of structural economic policy reforms. One database measures reforms in domestic finance, external finance, trade, product, and labor markets covering 90 advanced and developing economies from 1973 to 2014. The other chronicles the timing and results of national elections. We find that liberalizing reforms are associated with economic benefits that accrue only gradually over time. Because of this delay, liberalizing reforms are costly to democratic incumbents when they are implemented close to elections. Electoral outcomes also depend on the state of the economy: Reforms are penalized during contractions but are often rewarded in expansions.

Topic 5. Enhancing inclusion

6. The global distribution of gains from globalization
   Valentin Lang, and Marina M. Tavares
   The Journal of Economic Inequality

   Summary: Global interpersonal inequality is increasingly driven by inequalities within countries while the role of inequality between countries diminishes. Is this due to globalization? To answer this question, we use comprehensive global panel data at the country-decile-group level for the past half century and exploit the geographic diffusion of liberalization policies to identify the effect of globalization. Across countries, we find that income gains are substantial for countries at early stages of the globalization process, but the 'marginal returns to globalization' diminish as globalization rises, eventually becoming insignificant for the most globalized countries. Within countries, gains from globalization are largest for the richest ten percent of national income distributions, resulting in substantial increases in national income inequalities. A simple quantitative model is consistent with these empirical results. Over the past half century, globalization has promoted a dual trend of income convergence across countries and income divergence within countries.

7. When will global gender gaps close?
   Alejandro Badel, and Rishi Goyal
   Economic Letters

   Summary: Global gender gaps are commonly expected to gradually close along a deterministic path over time. This paper uses Markov chains as in Quah (1993) to simulate the future dynamic path of the global distribution of gender labor force participation gaps based on country data from the last 30 years. The simulations suggest that global gender gaps will never close. A large share of countries will feature elevated gaps in the long run owing to the potential for individual episodes of increasing gaps found in the data. Absent improved and strengthened policy measures, the observed waste and misallocation of women's skills and talents may persist indefinitely.

8. Lessons from 40 years of cross-country convergence empirics
   Paul A. Johnson, Chris Papageorgiou, Maria Grazia Pittau, and Roberto Zelli
   Oxford Handbook of Income Distribution and Economic Growth, forthcoming

   Summary: We survey the literature testing the absolute convergence hypothesis, the proposition that (the distributions of) countries' long-run per capita income levels are independent of their country specific initial conditions. We conclude that the literature supports the view that the cross-country data is more consistent with the presence of several convergence clubs, groups of countries with similar initial conditions that tend to have similar long-run outcomes, than with absolute convergence, or a single convergence club. We revisit the data from 1970 to 2019 using a mixture model of the cross-country distribution of per capita income and find evidence of multiple convergence clubs. For the 2000s, and 2010s, this result is inconsistent with recent claims of convergence made by some researchers. We close with a consideration of future prospects for reductions in the gap in per capita incomes between poor countries and rich countries in light of the challenges posed by the Covid-19 pandemic, inflation and the associated financial tightening, climate change, and artificial intelligence.

Output 2.1 – Country Applications with Authorities and IMF Country Teams

FPAS framework

We have no publication under this topic this year.

Diversification

We have no publication under this topic this year.

DIG/Investment scaling up/Debt sustainability

We have no publication under this topic this year.

Natural disasters/DIGNAD (Debt, Investment, Growth, and Natural Disasters)

1. Benin - DIGNAD country application in the context of the RST facility (Benin—Third Reviews Under the Extended Arrangement Under the Extended Fund Facility and Arrangement Under the Extended Credit Facility and Request for an Arrangement Under the Resilience and Sustainability Facility)

   Summary: Policy lessons from DIGNAD simulations draws lessons from the IMF-DIGNAD (Debt, Investment, Growth, and Natural Disasters) model to demonstrate the consequences of climate change vulnerability in Benin and the impact of investing in ex-ante adaptation on output growth and public debt.

2. Kenya – DIGNAD country application in the context of the RST facility. (Kenya—Fifth Reviews Under the Extended Fund Facility and Extended Credit Facility Arrangements and Request for a 20-Month Arrangement Under the Resilience and Sustainability Facility).

   Summary: Simulations using the IMF Debt, Investment, Growth, and Natural Disasters (DIGNAD) model show that accelerating investment in adaptation infrastructure, catalyzing climate finance, and raising Kenya's public investment efficiency to reach the regional efficiency frontier would save Kenya nearly 3 percent in output loss (US$71.2 million) while reducing macroeconomic and fiscal risks.

3. Rwanda – DIGNAD country application in the context of the RST facility (Selected Issues Paper)

Summary: The authors illustrate macroeconomic impacts of planned climate focused projects and reforms and discuss sustainable financing strategies. Simulations using the IMF's Debt-Investment-Growth-Natural-Disasters (DIGNAD) model suggest that full NDC implementation has sizeable fiscal costs but could improve Rwanda's macroeconomic stability if accompanied by proper policy and financing mix. Domestic Revenue Mobilization (DRM) and spending rationalization are key to increasing fiscal space and safeguarding debt sustainability. Furthermore, advancing reforms under the Resilience and Sustainability Facility (RSF) would increase public investment efficiency and help catalyzing additional climate financing, thereby addressing the risk of crowding out other development spending.

4. Moldova – DIGNAD country application in the context of the RST facility (Selected Issues Paper)

   Summary: Strengthening resilience to natural disasters will require significant adaptation investments in the coming years. This paper shows that such investments can substantially reduce output losses caused by natural disasters, will be more cost-efficient than responding to disasters ex-post, and will contribute to boost Moldova's long-term economic growth and support its development objectives. Authors use the IMF's Debt-Investment-Growth and Natural Disaster—DIGNAD—Model to simulate the impact of climate adaptation infrastructure investments on resilience to climate shocks and long-term economic growth and to explore the implications for debt sustainability of different financing options.

5. Mauritania – DIGNAD country application in the context of the RST facility (Islamic Republic of Mauritania—First Reviews Under the Arrangements Under the Extended Credit Facility and the Extended Fund Facility, Requests for Modification of Performance Criteria and a Waiver of Nonobservance of Performance Criterion, and Request for an Arrangement Under the Resilience and Sustainability Facility)

   Summary: Climate shock modelling using the DIGNAD model suggests substantial economic benefits from improved climate-adaptive public investment. The DIGNAD model highlights the additional resilience to climate shocks provided by increased public investment efficiency and public infrastructure investment adapted to climate change.

6. Cameroon – DIGNAD country application in the context of the RST facility (Cameroon -- Request for an Arrangement Under the Resilience and Sustainability Facility. Staff Report)

   Summary: This annex draws lessons from the IMF-DIGNAD (Debt, Investment, Growth, and Natural Disasters) model to illustrate climate vulnerability in Cameroon and the impact of investing in ex-ante adaptation on output and public debt. The DIGNAD simulation results suggest that investment in adaptation infrastructure would increase Cameroon's resilience to natural disasters. Increasing public investment would result in a higher public debt initially, but these investments would lower the negative impact on the output in case of a shock, support post-disaster recovery, and reduce reconstruction costs. Results also suggest that increasing public investment efficiency would further help limit the impact of a natural disaster shock and reduce rebuilding costs improving public debt dynamics over the reconstruction period. Given the limited fiscal space, PIM reforms are key to achieving economic and infrastructure resilience to climate shocks. The authorities would also need to rely on donor financing to address the growing needs in the face of climate change. Going forward, financing adaptation needs would be challenging without the private sector engagement.

7. Federated States of Micronesia (FSM) – Public Investment, Economic Growth, and Resilience: A Model Based Approach (Selected Issues Paper)

   Summary: Enhancing public investment management (selection, planning, and implementation) could significantly improve the efficiency of public investment and support economic growth. This is particularly important as FSM starts a new boost to public investment financed by foreign grants. Using a dynamic DIGNAD model, we illustrate the effects of various policy options on achieving higher and more resilient growth and improving private sector participation. The reforms can also have fiscal benefits through the higher growth dividend. Additionally, the impact of different types of public investment on building resilience to climate shocks emphasizes the benefits of larger investment in climate-resilient infrastructure to minimize GDP loss and allow the economy to bounce back faster after a large natural disaster.

Income and Gender Inequality

8. Guinea: Macro-Inequality Impact of the Simandou Project (Article IV Consultation)

   Summary: During an Article IV Consultation for the Republic of Guinea (from January 29th to February 14th, 2024), the country team presented A. Badel's ongoing research on the macro-inequality impact of the Simandou project, a large mining project in Guinea. The research concludes that the project's success in boosting growth, reducing poverty, reducing inequality, and addressing climate change is heavily dependent on proactive government policy, particularly in infrastructure and education. The findings emphasize the limited impact of the project without such policies. In line with these conclusions, extensions and refinements to the infrastructure capabilities of the Multi Sector Incomplete Markets Macro Inequality (MIMMI) App were developed with this study. The MIMMI App is a product of the FCDO-IMF MRLIC program and are available to IMF staff and external users. The research findings were well-received by key stakeholders, including the Minister of Economy and

Finance, the Minister of Planning & International Cooperation, and the Governor of the Central Bank. The project received similarly positive reviews from the IMF Deputy Director for Africa, as well as executives from Rio Tinto, the company in charge of the Simandou project.

IAPOC Toolkit – An Assessment Toolkit for Monetary Policy Frameworks

We have no publication under this topic this year.

Other

9. Big data and high frequency surveillance for Pacific Islands countries: An application to Solomon Islands (Selected Issues Paper)

   Summary: Pacific Islands Countries typically have capacity constraints that prevent them from publishing timely high-frequency data, a key input for macroeconomic surveillance in general and especially during disruptive events, such as social unrest, natural disasters, or pandemics. This project aims to fill this gap by implementing a simplified version of Arslanalp, Koepke and Verschuur (2021) using satellite-based vessel tracking data from the Automatic Identification System on ships activity to nowcast monthly trade flows. Additionally, the project uses port activity data to estimate economic disruptions due to social unrest in 2021.

10. Article IV Mission Presentation: 'Development Policies in Chad in the Face of Climate Change'

    Summary: A presentation to the Chadian authorities was given in the context of the Article IV Mission to Chad, led by Edouard Martin. Alejandro Badel and Ljubica Dordevic delivered the presentation in French entitled "Development Policies for Chad in the Face of Climate Change". The presentation emphasized the importance of using potential fiscal space from the reduction of oil subsidies for infrastructure and education, as well as climate adaptation. The team discussed the analysis with the Chadian authorities and received valuable feedback.

Output 2.2 – Courses to Authorities and IMF Country Teams

1. Debt, Investment, Growth, and Natural Disasters (DIGNAD): User's Guide to the Model and Toolkit

   Summary: As part of the IMF's Internal Economics Training (IET) program, Azar Sultanov (RES) and Ha Nguyen (ICD) delivered a course titled "Debt, Investment, Growth, and Natural Disasters (DIGNAD): User's Guide to the Model and Toolkit". DIGNAD has emerged as a pivotal model within the IMF, serving to analyze the impact of climate risk resulting from natural disasters and exploring how investments in adaptation infrastructure can effectively mitigate these risks in developing low-income countries and emerging markets. The DIGNAD toolkit was subsequently developed as part of this initiative to simplify the use of the DIGNAD model. It was designed for economists with little to no knowledge of Matlab and Dynare, offering a user-friendly Excel-based interface to facilitate the development of tailored analyses regarding the macro-fiscal impacts of natural disasters and investments in resilience. The hybrid half-day course, conducted on November 2, covered the model itself, examples of past applications, and concluded with a hands-on session on utilizing the toolkit. Participants found the course highly beneficial, praising its flexible presentation style, practical demonstrations, and responsiveness to questions.

2. ATI/AFS Workshop on Climate Change and Macro-Financial Policies, Pretoria, June 5-9, 2023.

   Summary: Climate change induced higher temperatures and an increase in the frequency and severity of natural disasters are affecting countries globally. Globally coordinated mitigation policies are critical for containing climate change, and countries also need to implement adaptation policies to enhance their resilience. The transition to a low carbon economy also creates risks and opportunities across sectors, with implications for the financial sector. Integrating climate considerations in policy formulation is of paramount importance to manage climate-related economic risks and vulnerabilities. Countries also need to mobilize climate finance, especially in a context where many emerging markets and developing economies (EMDEs) are facing constrained fiscal space and elevated debt vulnerabilities. In this context, the DIGNAD Toolkit and its application was presented. The FCDO joined some sessions virtually and donors welcomed the ATI/AFS collaboration and noted the high quality of discussions for the sessions they attended. Requests were received from staff of the central banks of Madagascar, Mozambique, and Zimbabwe on using the DIGNAD. 33 participants (8 female) attended from 11 countries, including 3 fragile states (Comoros, Mozambique, and Zimbabwe).

3. ATI/AFW1/AFC Workshop on Climate Change and Macro-Financial Policies, Abidjan, Cote d'Ivoire on September 18-22, 2023.

   Summary: Following the series of successful ATI/AFE Workshop on Climate Change and Macro-Financial Policies in March and June 2023, the DIGNAD team were invited to present the toolkit with hands-on practice session at a similar workshop (3rd workshop). The delivery responds to the demand for more practical sessions to complement the Macroeconomics of Climate Change (MCC). All the functional departments supporting climate work participated. For the workshop in Côte d'Ivoire, 50 participants (16 female) attended from 18 countries, including 10 fragile states.

4. ATI/AFW2 Workshop on Climate Change and Macro-Financial Policies, Abuja, Nigeria on September 25-29

   Summary: This workshop (4th workshop), targeting anglophone West African countries, responds to the demand for more practical sessions to complement the Macroeconomics of Climate Change (MCC). All the functional departments supporting climate work participated. The Nigeria workshop benefited from the central bank hosting of the participants and providing their training facilities—this could be leveraged further for courses in West Africa. To lighten the in-person agenda, two virtual sessions were organized before the event to introduce the participants to some of the more theoretical concepts. The in-person component included 7 lectures and 8 workshops, as well as 11 country presentations. For the workshop in Nigeria, 48 participants (18 female) attended from 6 countries, including 1 fragile state.

5. ATI Climate Webinar Series. Workshop on Climate Change and Macro-Financial Policies. Mauritius, December 13, 2023

   Summary: The 2nd session of the ATI Climate Webinar Series, held at the IMF Africa Training Institute on Wednesday, December 13, 2023. The webinar was moderated by Vimal Thakoor, ATI's Resident Advisor on Macroeconomics and Climate Change, Azar Sultanov (RES) and Ha Nguyen (ICD) delivered a webinar "Investing in Resilience: Insights from the DIGNAD model".

6. Course on Climate in Macroeconomic Frameworks (CMF) (AT24.20) at ATI, Mauritius, February 5-9, 2024.

   Summary: The inaugural pilot of the CMF course was delivered to 35 participants from central banks, ministries of finance, and environment from 20 countries. Overall feedback was very positive, with participants welcoming the new course as an added dimension to the Fund's climate training and an opportunity to gain hands-on experience with the various tools and how to integrate them into policy formulation. All three models were received positively. The C-Macroframework Tool (CMT) introduced the highest degree of novelty and participants welcomed the ability to understand how climate shocks impacted various sectors—with some having started work on replicating the file for their countries. DIGNAD was seen as a useful tool in assessing adaptation considerations.

7. Course on Climate in Macroeconomic Frameworks at the IMF, Washington, DC, February 26 – March 1, 2024.

   Summary: This is a one-week course with a focus on macroeconomic Excel-based frameworks, tools, and models for integrating climate considerations in policy formulation. Along with a plenary presentation of the climate policy assessment tool (CPAT), three hands-on workshops are preceded with short lectures and cover the following: (i) climate in macroeconomic frameworks (C-Macroframework Toolkit); (ii) debt investment growth and natural disasters (DIGNAD); and (iii) the debt dynamics tool with natural disasters (ND-DDT). Each workshop session ends with group presentations prepared by participants. These are complemented with one lecture on the macro-fiscal implications of climate change, and another on the key approaches for modeling climate change and related policies.
   The course attracted 249 candidates of which 38 participants and 2 self-financed officials (including 21 women) have been selected. Around 38 percent of participants already attended in-person, virtual, or online MCC courses. They are mostly officials from ministries of economy, finance, and environment; central banks; statistics bureaus; and government think tanks. The feedback was overwhelmingly positive, with participants commending the relevance and utility of the course materials. Overall, the course received a commendably high evaluation score, reflecting significant learning achievements among the participants.

8. Community of Practice for Climate Models and Macro Frameworks | Virtual Workshop on Climate Adaptation Models, May 22-23, 2023.

   Summary: With frequency and severity of natural disasters increasing as a result of climate change, adaptation through investment in resilient capital is a key coping mechanism. Adaptation, however, is costly, presenting a challenge at the time of heightened fiscal pressures. Moreover, investment in resilient capital competes with other priorities, including health and education expenditures. Macroeconomic models can help analyze these tradeoffs—and how they are affected by financing sources. This workshop for IMF Staff will introduce several dynamic general equilibrium (DSGE) models developed at the Fund, some of which have been applied to country work, including in the context of RSFs. The main objective is to familiarize Fund staff, particularly country economists, with these models and help them understand similarities and differences between the models and make informed decision about applying the models in their work. In parallel, the discussion and feedback can guide further development of the models.

9. Regional Workshop on Gender and Inclusion

   Summary: In collaboration with the Middle East Regional Technical Assistance Center, the Strategy, Policy and Review (SPR) Department of the IMF organized a regional workshop on gender and inclusion. Led by Alejandro Badel, Jiajia Gu, and Lisa Kolovich, the workshop took place in Jordan from November 7th to 9th. The course provided insights into utilizing tools from the IMF to quantify the macroeconomic costs of gender gaps and barriers. Participants were introduced to the model-based inequality toolkit, specifically the Multisector Incomplete Markets Macro Inequality (MIMMI) App. The workshop also covered the identification of macrocritical gender gaps, the design of tailored policy responses to close these gaps, and key concepts related to disparities more broadly and policies addressing them. Invitations were sent out to ministries of finance and central banks of middle- and low-income countries in the region. Representatives from the United Nations Population Fund (UNFPA) and the Jordanian National Commission for Women also participated. Early feedback indicates that hands-on learning opportunities, active engagement from attendees, and numerous stimulating interactions are keys to the course's success.

Output 3.1 – High-level Policy Conferences Attended by IMF Senior Staff

1. ATD/IMF/WB Poverty conference - Addressing the Hidden Dimensions of Poverty in Knowledge and Policies

   Summary: On February 15th, 2024, the Research Department of the IMF, together with the International Movement ATD Fourth World, and the World Bank Poverty Global Practice, organized a conference titled 'Addressing the Hidden Dimensions of Poverty in Knowledge and Policies'.
   The conference drew on research from a multi-year project by the International Movement ATD Fourth World, in collaboration with Oxford University across Bangladesh, Bolivia, France, Tanzania, the UK, and the US. This project integrates insights from action-based knowledge, academic research, and lived experiences of individuals grappling with poverty, offering fresh perspectives on its multidimensional nature. The conference brought together academics, practitioners, and researchers to discuss how to make further progress in poverty measurement, policy, training, and action. Highlights from the conference include a keynote address by Esther Duflo (Professor, MIT), titled 'Evaluating the Impact of Anti-Poverty Policies: The Value of Multiple Approaches', the presentation of the Instrument for the Deliberative Elaboration and Evaluation of Policies (IDEEP) tool, and a roundtable with Martin Kalisa (Deputy Director, International Movement ATD Fourth World), Ceyla Pazarbasioglu (Director of Strategy, Policy, and Review, IMF), and Olivier De Schutter (Special Rapporteur, United Nations), among others.

2. Climate Action in South Asian Economies

   Summary: The Research Department and the Strategy and Policy Review Department funded a series of high-level seminars, policy dialogues, and peer learning events on Climate Action in South Asian Economies. These successful events were organized thanks to a collaborative effort from three—Asia and Pacific, Research, and Institute for Capacity Development—IMF departments and hosted by IMF SARTTAC and the Center for Social and Economic Progress in New Delhi on July 20. Keynote addresses were given by Bo Li (Deputy Managing Director, IMF), Krishna Srinivasan (Director, Asia and Pacific Department, IMF), Vitor Gaspar (Director, Fiscal Affairs Department, IMF), Antonio Spilimbergo (Deputy Director, Research Department, IMF), Anantha Nageswaran (Chief Economic Advisor, Government of India), Rajeshwa Rao (Deputy Governor, Reserve Bank of India), Abdur Rouf Talukder (Governor, Bangladesh Bank), Professor Lord Nicholas Stern (Chair of the Centre for Climate Change Economics and Policy and IG Patel Professor of Economics and Government at the London School of Economics), among others. The peer learning event aimed at strengthening the policy dialogue on how to mainstream climate action in macroeconomic management, while considering the challenges faced by countries in the region, including low-income countries Maldives and Nepal. The event discussed how the IMF has been incorporating climate throughout all the branches of its work, whether related to country surveillance, capacity development or research, and how countries in the region are developing their climate strategies. Two technical sessions were conducted, giving participants hands-on experience with a set of tools developed by the IMF, (i) using the DIGNAD to assess how ex ante adaptation infrastructure helps manage natural disaster risk and better ensure debt sustainability and (ii) using the Natural Disasters for the Debt Dynamic Tool to develop baseline and alternative scenarios on debt sustainability in the face of natural disasters.

3. Session ASSA 2024: The End of Globalization? Exploring the Drivers and Effects of Geopolitical Fragmentation

   Summary: The IMF Research Department's Development Macroeconomics and Multilateral Surveillance Divisions, together with researchers from the IMF Africa Department, organized this prominent session at the ASSA meetings, chaired by Linda Goldberg (Federal Reserve Bank of New York). The well-attended session (approximately 60 audience members) presented evidence of increased fragmentation of international markets for goods and financial assets. Papers contributed by the IMF discussed potential implications of this trend for low-income countries and for the patterns of FDI. Contributions by the researchers from the European Central Bank and academia (Princeton, Stanford) highlighted the potential global fallout from trade fragmentation and new models for assessing policy to enhance supply-chain resilience. The session was enriched by formal discussions of the contributed papers by policy practitioners and academics as well as a lively audience Q&A.

Output 3.2 –Results of the research reflected in IMF policy papers such as Board papers, SDNs, policy memos to management

Fiscal Monitor/WEO/REO/SDN

1. Market Reforms and Public Debt Dynamics in Emerging Market and Developing Economies

   Summary: Many emerging market and developing economies face a difficult trade-off between economic support and fiscal sustainability. Market-oriented structural reforms ease this trade-off by promoting economic growth and strengthening public finances. The empirical analysis in this note, based on 62 EMDEs over 1973-2014, shows that reforms are associated with sizeable and long-lasting reductions in the debt-to-GDP ratio mainly through higher fiscal revenues and lower borrowing costs. These effects are larger in countries with greater tax efficiency, lower informality, and higher initial debt. Moreover, a model-based analysis elaborates on how such fiscal gains can be enhanced when revenue windfalls associated with reforms are saved or channeled through higher public investment.

2. World Economic Outlook—October 2023: Chapter 1: Global Prospects and Policies

   Summary: Box 1.1 provides an analysis of the declining growth expectations for the global economy over the medium term, a trend observed since the 2008 global financial crisis. This decline has been exacerbated by the economic shocks of 2020-22, such as the COVID-19 pandemic and the Russian invasion of Ukraine. The World Economic Outlook forecasts, along with those from other institutions, show that this downward trend in growth expectations started in the early 2000s for advanced economies and post-crisis for emerging markets and developing economies. The analysis reveals that the decline in per capita output growth, especially in advanced economies, is mainly due to lower total factor productivity growth, followed by declines in labor force participation and capital deepening. Similar factors are responsible for the slowdown in emerging markets and developing economies. The diminished growth prospects have significant implications for income convergence, indicating a much slower pace at which poorer countries can catch up with richer ones in terms of living standards.

3. World Economic Outlook—October 2023: Chapter 2: Managing Expectations: Inflation and Monetary Policy

   Summary: Box 2.2. shows that higher public debt is associated with expectations of higher inflation, given a specific level of monetary policy framework. The latter is captured by a new index, the IAPOC index, developed by Unsal, Papageorgiou, and Garbers (2022). The impact is even more evident when the focus is on the stock of public debt in foreign currency and exacerbated when fiscal deficits are persistent. Overall, the study findings indicate that difficulties posed by higher public debt levels for managing inflation expectations in emerging market and developing economies could be eased by adopting strong monetary policy framework.

Other outputs

Newsletters

1. June 2023 Newsletter
2. September 2023 Newsletter
3. December 2023 Newsletter
4. March 2024 Newsletter

Blogs/Article/Press/Other

1. IMF Blog: Market Reforms Can Stabilize Debt and Foster Growth in Developing Countries
2. IMF Blog: Countries That Close Gender Gaps See Substantial Growth Returns

External presentations

1. Presentation of “A Monetary Policy Framework for Low Income Countries” at the Annual Conference of the Banco Central do Brasil on May 18, 2023.
2. Part of the work “A Monetary Policy Framework for Low Income Countries” was presented as the analytical corner “Distributional Impacts of External Food Price Shocks to Low-Income Countries” in the October 2023 Annual Meetings of the IMF and the World Bank.
3. Presentation of "Monetary Policy Frameworks-An Index and New Evidence" in a special session of the Royal Economic Society annual conference in Glasgow about "New monetary policy databases" on April 3, 2023.
4. Presentation of “A Monetary Policy Framework for Low Income Countries” at Society of Economics Dynamics in June 2023.
5. Presentation of “Macroeconomic Framework of Climate Adaptation" at the 2023 Annual Meeting of the Society for Economic Dynamics in June 2023.
6. Presentation of “Macroeconomic Framework of Climate Adaptation" at the International Economic Association 2024 World Congress in December 2023.
7. Presentation of “Divided We Fall: Differential Exposure to Geoeconomic Fragmentation in Trade” at the ASSA Meetings in January 2024.
8. Presentation of “Monetary Policy Frameworks and Communication in the Caucasus and Central Asia” at the CCAMTAC Seminar Series in February 2024.
9. Workshop on the IMF book ‘Promoting Inclusive Growth in the Middle East and North Africa: Challenges and Opportunities in a Post-Pandemic World’ at the October 2023 Annual Meetings of the IMF and the World Bank.
10. Presentation on work developed on mining revenues and sustainable growth at a mini-conference attended by representatives from the World Bank, IMF's Inclusion and Gender Unit, and the mining industry on August 2, 2023.

11. Presentation of “Natural Disasters and the Cost of Public Debt: An Empirical Assessment” at 1st Women in Macroeconomics, Law, and Economics Workshop in June 2023.
12. Presentation of “Natural Disasters and the Cost of Public Debt: An Empirical Assessment” at the 29th Ulvön Conference on Environmental Economics.
13. Presentation of “Natural Disasters and the Cost of Public Debt: An Empirical Assessment” at the Macro Development Workshop 2023 in July 2023.
14. Presentation of “Climate Change Impacts in Guinea” at a Research Therapy Workshop organized by the African Department of the IMF in December 2024.
15. Presentation of IMF's role in assisting low-income countries in optimizing the collection and allocation of revenues derived from extractive industries to key stakeholders, including the Inter-American Development Bank, World Bank, US Department of Commerce, representatives from the lithium mining industry, and Argentine mining authorities on July 18, 2023.