Type of Review: Annual Review

Project Title: Macroeconomic Research in Low Income Countries

Date started: March 2012 Date review undertaken: April-June 2014

Instructions to help complete this template:

Before commencing the annual review you should have to hand:

- *the Business Case or earlier project documentation.*
- *the Logframe*
- *the detailed guidance (How to Note)- Reviewing and Scoring Projects*
- *the most recent annual review (where appropriate) and other related monitoring reports*
- *key data from ARIES, including the risk rating*
- *the separate project scoring calculation sheet (pending access to ARIES)*

You should assess and rate the individual outputs using the following rating scale and description. ARIES and the separate project scoring calculation sheet will calculate the overall output score taking account of the weightings and individual outputs scores:

Description	Scale
Outputs substantially exceeded expectation	A++
Outputs moderately exceeded expectation	A+
Outputs met expectation	A
Outputs moderately did not meet expectation	B
Outputs substantially did not meet expectation	C

Introduction and Context

What support is the UK providing?

“Macroeconomic Research in Low Income Countries” represents a strategic partnership in research between DFID and the IMF, with the intention of (a) enhancing the generation of high-quality research on key macroeconomic issues in low-income countries (LICs); (b) ensuring research uptake through the design of the research and its execution in close collaboration with policymakers within and outside the IMF; (c) using the IMF’s pulling power to expand the network of macroeconomic researchers working on LICs; and (d) achieving this as cost-effectively as possible. The project began in March, 2012 and will conclude in June, 2015.

DFID will provide £4.14 million or US$ 6.585 million over three years.

What are the expected results?

The outcome of the project is better macroeconomic policy making in LICs leads to faster economic growth, job creation and poverty reduction in LICs. The impact is: a deeper understanding of, and better engagement by IMF policy makers on LIC-specific macroeconomic issues based on robust analysis and evidence, and the development of toolkits to enable LICs to benefit from development in six key thematic areas.

The outcomes of the project are anticipated to encompass the following;

(i) *Produce high quality research*. Some of the research is aimed at high quality journals, but a large proportion is aimed at operational research, to build and pilot useful applied frameworks.

(ii) *Strongly encourage the uptake of research by IMF country teams*. IMF country teams will use many of the frameworks developed under the project to inform discussion with authorities. For example the Fund expects at least 3 country teams to use the public investment/debt sustainability analysis tool in the year of completion and reference such analysis in Article IV and other staff reports.

(iii) *Encourage the uptake of research by country authorities*. The Fund expect that under this project, that at least two central banks will make use of the monetary policy models developed, as evidenced through interactions with IMF staff and noted in IMF staff reports. The uptake of research will be supported by workshops and conferences by bringing together key academics, policymakers and technocrats to discuss the outputs of research. Through the feedback such forums provide they increase the quality and relevance of such research

(iv) *Strengthen engagement by IMF senior policymakers on issues affecting LICs*. Research under the project is expected to provide direct inputs and influence Fund Board papers on LICs. For example under topic 3 the project research helped provide an analytical basis for the Board paper on natural resource rich LICs. The close collaboration between the research and policy teams on this project greatly facilitated this outcome.

(v) *Expand the network of researchers working on macroeconomic issues affecting LICs*. The IMF plan to establish a process similar to the annual research conference that will commission up to ten research papers on LICs related to topics covered under the proposal, with the aim to publish papers as a conference volume. This is proposed to support the goal of broadening the base of LIC macroeconomic researchers, bringing in new talent into close contact with policy makers.

What is the context in which UK support is provided?

The Growth Report of the Commission on Growth and Development (2008)[1] concluded that 'it is impossible for poor countries to lift large populations out of poverty without growth'. Furthermore the commission noted that while we have an understanding of the basic ingredients that make up a successful growth strategy, and, importantly, we have an understanding of what makes a bad strategy we need to deepen our understanding, in particular on how to apply strategies to economic and political context.

A large share of policy research on economic issues (including on macroeconomic issues) is focused on developed economies – a trend that has accentuated more recently with the onset of financial and euro crisis. Research on developing countries tends to focus on higher income/high population developing countries, such as Brazil, China, India, and Indonesia while research in Low Income Countries (LICs) has received less attention from the research community. Part of the explanation for this lack of empirical work is grounded in a lack of quality data on LICs making it difficult to undertake applied research.

The Commission on Growth states that no economy can flourish in the midst of macroeconomic instability. Wild fluctuations in the price level, the exchange rate, the interest rate, serve as a major deterrent to private investment, the proximate driver of growth. Empirical studies by Bleaney (1996) and Fischer (1991, 1993) concluded that macroeconomic stability matters for sustained growth. Economists and policy makers, however, disagree about the precise definition of stability and the best way to preserve it particularly in developing countries, giving rise to an important research agenda. For example, very high inflation is clearly damaging to investment and growth. Bringing inflation down is also very costly in terms of lost output and employment. These issues are even more complex in a developing country context where there is greater volatility in macroeconomic variables and yet considerable desire to grow fast and integrate into world markets.

An important question is to ask why DFID should commission growth research. There are several key ways in which DFID commissioned research on growth will add value to international efforts in this area. Firstly, DFID has resources and incentives to deliver research that has a focus on policy and is used, as opposed to research that is of general interest. While, there is an active academic community in growth research financed by multiple sources, including core government funding to the research councils, such as, in the UK, the Economic and Social Research Council (ESRC), this research delivers high quality and independent research, but it has been less good at ensuring research has impact on economic policies. Secondly, in comparison to other institutions, DFID has strong incentives to focus research on the least developed countries, an area that is under-resourced. Finally, DFID growth research establishes greater diversity and competition in provision of research and advice on growth to developing country policy-makers that is independent and not 'message or ideologically driven'.

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[1] Commission on Growth and Development (2008),' The Growth Report: Strategies for Sustained Growth and Inclusive Development', World Bank, Washington, D.C.

DFID growth research directly supports DFID's strategic priorities including the 'Wealth Creation', 'Gender' and 'Private Sector Development', pillars of UK government's structural reform plan. The Research Strategy 2008-2013 also commits DFID to 'improve our understanding of processes and policies to support economic growth'. It contributes to the delivery of Research and Evidence Division's (RED) three strategic objectives, namely: (1) capacity to do and use; (2) new knowledge to help shape policy; and 3) evidence and new research are used for better decision-making.

There are a number of reasons why DFID is intervening in macroeconomic research. Firstly, the capacity to do macroeconomic research and use the evidence is very small. Secondly, the current global crisis in the macro-economy is creating new challenges for LICs which need to be addressed whilst diverting scarce resources to solving macroeconomic problems primarily of the developed and emerging world. A key rationale for DFID investment in macroeconomic research is to protect and promote the LIC agenda.

Section A: Detailed Output Scoring

Output 1: High quality, policy relevant research on macroeconomic issues affecting LICs Produced

Output 1 score and performance description: A++

The project continues to produce an impressive number of high quality, policy relevant research outputs during its second year of operation. For example against sub output 1.1 (number of working papers produced) the project delivered 30 papers against a cumulative mid-target of 20 papers and a high target of 30; in the case of output 1.2 published papers in peer reviewed journals, the project published 7 papers by the end of the second year against a mid-target of 1 and a high target of 3. The papers covered five of the six broad topics identified in the original research specification, namely: macroeconomic management of natural resource wealth; the role of financial deepening in fostering macroeconomic stability and growth monetary and exchange rate policies in LICs; macroeconomic management of natural resource wealth; and growth through economic diversification.

This is a remarkable achievement given the project has been in operation for only 2 years. In addition to achieving/surpassing the quantity of outputs, the quality has not been compromised, as evidenced by several papers already being published in leading development and macroeconomic journals so early in project's life. For this reason the review team scored this output an A++ as the programme has again substantially exceeded project expectations.

Progress Against Expected Results

1.1 – Working papers

This year, the IMF completed 17 working papers, bringing the total to 30 over the two years. The papers cover five of the six broad topics for this research project: Monetary and exchange rate policies; Public investment, growth, and debt sustainability; Macroeconomic management of natural resource wealth; Role of financial deepening in fostering macroeconomic stability and sustained growth; and Growth through diversification.

a) Monetary and Exchange Rate Policy in Low-Income Countries

The goal of the research on monetary and exchange rate policies in LICs is to advance the understanding of existing regimes as well as the macroeconomic environment in which monetary policy operates. This year, the IMF have completed three working papers.

1. Berg, Charry, Portillo, and Vlcek (2013) look at four members of the East African Community--Kenya, Uganda, Tanzania and Rwanda. The authors find clear evidence of a monetary transmission mechanism in most of the countries, and argue that deviations can be explained by differences in the policy regime in place.
2. Andrle, Berg, Berkes, Portillo, Vlcek, and Morales (2013) incorporate an explicit role for money targets and target misses in the analysis of monetary policy in low-income countries (LICs), with an application to Kenya. The findings highlight the benefits of a model-based approach to monetary policy analysis in LICs, including in countries with money-targeting frameworks.
3. Berg, Portillo, and Zanna (2014) study the role of the exchange rate regime, reserve accumulation, and sterilization policies in the macroeconomics of aid surges. Regardless of the regime, policies that limit absorption—and result in large accumulation of reserves—are welfare reducing.

b) Public Investment, Growth, and Debt Sustainability

On the topic of public investment, growth, and debt sustainability, many LICs are working to deliver on an ambitious promise to scale up public investment to meet huge needs in infrastructure, energy, and other critical sectors. This scaling up however, is often funded by non-concessional loans that can threaten macroeconomic stability. To examine these issues, the IMF team has completed seven working papers this year.

4. Aslam, Berkes, Fukac, Menkulasi, and Shimmelpfenning (2013) look at Afghanistan. The dual prospect of declining donor support and high ongoing security spending over the medium term keeps the government budget tight. This paper uses a general equilibrium model to capture the security-development tradeoff facing the government in its effort to rehabilitate macroeconomic stability and welfare.

5. Clark and Arnason (2014) use the model of public investment, growth, and debt sustainability in Buffie et al. (2012) to evaluate the macroeconomic consequences of a possible scaling-down of investment in Rwanda.

6. Issoufou, Buffie, Diop, and Thiaw (2014) apply a two-sector, open-economy, dynamic general equilibrium model to Senegal to investigate the effects of varying fiscal policy instruments one at a time and of policy packages that increase public investment in energy and infrastructure in scenarios with varying degrees of debt finance and with different types of supporting fiscal adjustment.

7. Clark and Rosales (2013) present an estimate of the nexus between public investment, financing, and growth in Liberia using an inter-temporal macroeconomic model. It highlights the trade-offs and potential risks associated with different financing options and the required changes in fiscal policy to ensure macroeconomic stability.

8. Berg, Berkes, Pattillo, Presbitero, and Yakhshilikov (2014) look at the debt sustainability framework used by the IMF and World Bank and empirically test the debt threshold approach (DTA) and worst-case aggregator (WCA). They find that: (1) the DTA loses information relative to a simple proposed alternative; (2) the WCA is too conservative (predicting crises too often) in terms of the loss function used in the debt sustainability framework (DSF); and (3) the WCA is less accurate than some simple proposed alternative aggregators as a predictor of debt distress.

9. Eberhardt and Presbitero (2013) study the long-run relationship between public debt and growth in a large panel of countries and find some support for a nonlinear relationship between debt and long-run growth across countries, but no evidence for common debt thresholds within countries over time.

10. Bettin, Presbitero, and Spatafora (2014) examine how international remittances are affected by structural characteristics, macroeconomic conditions, and adverse shocks in both source and recipient economies.

b) Macroeconomic Management of Natural Resources

The third topic of research focuses on the management of natural resources in LICs. The work in this area will assist country authorities in LICs to manage natural resource revenues by examining the macroeconomic consequences of different savings and investment strategies. Research on this topic also examines the current account norm; that is, when a country receives a resource windfall, the appropriate current account deficit depends on the balance between investment at home and abroad (saving in a sovereign wealth fund). The research looks at efficient government investment and the role that the private sector can play even when externalities are present.

11. Melina and Xiong (2014) present the DIGNAR (Debt, Investment, Growth, and Natural Resources) model, which can be used to analyse the debt sustainability and macroeconomic effects of public investment plans in resource-abundant developing countries. DIGNAR is a dynamic, stochastic model of a small open economy. The paper illustrates how the model can be particularly useful to assess debt sustainability in countries that borrow against future resource revenues to scale up public investment.

12. Richmond, Yackovlev, and Yang (2013) apply to Angola the fiscal framework developed in Berg et al. (2013) that incorporates investment inefficiency and absorptive capacity constraints, often encountered in developing countries. An overly aggressive investment scaling-up path could result in insufficient fiscal buffers when faced with negative oil price shocks.

13. Melina and Xiong (2013) apply the DIGNAR model to Mozambique to simulate alternative public investment scaling-up plans in alternative LNG market scenarios. Results show that while a conservative approach, which simply awaits LNG revenues,

would miss significant current growth opportunities, an aggressive approach would likely meet absorptive capacity constraints and imply a much bigger (and, in an adverse scenario, unsustainable) build-up of public debt.

14. Bi, Shen, and Yang (2014) study the fiscal policy effects in developing countries with external debt and sovereign default risks. State-dependent distributions of fiscal limits are simulated based on macroeconomic uncertainty and fiscal policy specifications.

d) Financial Deepening and Macroeconomic Stability and Sustained Growth

Financial deepening and macro-stability has been identified as a priority area in the years ahead for the Fund, and the team has produced another working paper on this important topic this
year.

15. Barajas, Chami, and Yoesfei (2013) use a rich dataset for 150 countries for the period
1975–2005. Dynamic panel estimation results suggest that the beneficial effect of financial deepening on economic growth in fact displays measurable heterogeneity

e) Growth through Diversification

LICs have historically been heavily dependent on a narrow range of traditional primary products and relatively few export markets for the bulk of their export earnings. Such limited diversification may result in narrowly based and unsustainable growth. Further, lack of diversification may increase exposure to adverse external shocks and vulnerability to macroeconomic instability. The team looks at broad trends and case studies to inform the policy debate on how diversification could help LICs enhance both macro stability and promote a transition to higher and more sustained growth. The team has completed two working papers and one IMF Board paper on this topic.

16. Henn, Papageorgiou, and Spatafora (2013) develops new, extensive estimates of export quality, covering 178 countries and hundreds of products over 1962–2010. The evidence suggests that quality upgrading is best encouraged through a broadly conducive domestic environment, rather than sector-specific policies. Diversification is important to create new upgrading opportunities.

17. Dabla-Norris, Thomas, Garcia-Verdu, and Chen (2013) documents stylized facts on the
process of structural transformation around the world and empirically analyzes its determinants using data on real value added by sector of economic activity (agriculture, manufacturing and services) for a panel of 168 countries over the period 1970-2010.

1.2 Published Papers:

During the second year, the IMF published six papers bringing the total to 7 published papers:

1. "Policy Responses to Aid Surges in Countries with Limited International Capital Mobility: The Role of the Exchange Rate Regime," by A. Berg, R. Portillo and L.F Zanna, forthcoming in *World Development.*
2. "Afghanistan: Balancing Social and Security Spending in the Context of Shrinking Resource Envelope" by A. Aslam, E. Berkes, M. Fukac, J. Menkulasi, and A.

Schimmelpfennig, forthcoming in *Asian Development Review*.
3. “Modeling African Economies: A DSGE Approach,” by A. Berg, S. Yang, and L.F. Zanna, forthcoming in the *Oxford Handbook of Africa and Economics: Context and Concepts.*
4. *“ Monetary Policy Issues in Sub-Saharan Africa,”* by A. Berg, S. O’Connell, C. Pattillo, R. Portillo, and F. Unsal, forthcoming in the *Oxford Handbook of Africa and Economics: Context and Concepts.*
5. “*The Future of African Monetary Geography,”* by P. Masson, C. Pattillo, and X. Debrun, forthcoming in the *Oxford Handbook of Africa and Economics: Context and Concepts.*
10
6. “Modeling Sterilized Interventions and Balance Sheet Effects of Monetary Policy in a New-Keynesian Framework,” by J. Benes, A. Berg, R. Portillo, and D. Vavra, forthcoming in *Open Economies Review.*

Recommendations:

The review team notes the continued impressive performance of the programme during the second year of operation. The collaboration between the Research, African, andStrategy, Policy, and Review Departments remains successful and productive, clearly contributing to the relevance, dissemination and use of the research by country teams and partner authorities.

We note the team has published several papers in high quality peer reviewed journals already, surpassing expectations against this output.

In light of the continued success of the programme, we recommend the IMF consider a Phase 2 programme of work, to meet growing demands from country teams and partner authorities. A process of consultation with key stakeholders should be considered to scope out relevant research topics under a Phase 2 programme, to ensure continued relevance and the uptake by country programmes.

We encourage the IMF to consider the production of policy briefs to broaden the readership and reach of the outputs. The IMF may want to consider producing ‘technical’ notes or briefs to accompany the working papers, to improve understanding of the technical modelling and frameworks contained within the papers. It is noted some technical information is contained in annexes to papers, however these could usefully be converted into technical notes and available as separate documents on the website.

Impact Weighting (%): 30%
Revised since last Annual Review? *Y/N*

Risk: Low/Medium/High. LOW
Revised since last Annual Review? *Y/N*

Output 2: IMF Research Products used by IMF country teams and partner authorities.

Output 2 score and performance description: A++

The IMF continues to collaborate closely with country teams and partner authorities during the second year of the programme. These efforts have resulted in the continued widespread use of the frameworks by country teams and partner authorities. The project was expected to deliver between 4 and 14 instances of uptake by IMF country teams by the second year, and between 1 and 3 instances of uptake by partner authorities. The project actually achieved 21 instances of research uptake by IMF teams and 3 instances of uptake by country authorities. As the output exceeded expected performance the review team scored the output an A++ exceeding expectations.

	Type of Output	Year 1 Outputs	Year 2 Outputs	Total	Output Targets for End of Year 2	
2.1	Uptake by IMF Teams	9	12	21	H	14
					M	7
					L	4
2.2	Uptake by Authorities	1	2	3	H	3
					M	2
					L	1

Progress against expected results:

The project team have been collaborating closely with country teams and partner authorities over the second year. These efforts have resulted in 12 different country applications of the models, 14 missions, and uptake of the work by country authorities in Kenya and Ghana. In addition, the team has offered workshops, training, and courses to IMF staff and country partner authorities.

Output 2.1 - Country Applications with IMF Country Teams:

The IMF completed 12 applications of covering three broad topics: 1) Public investment, growth, and debt sustainability; 2) Macroeconomic management of natural resources; and 3) Current account norm.

a) Public investment, growth, and debt sustainability

1. Ghana: 2013 Article IV Consultation

The Buffie et al. (2012) model has been applied to Ghana. Assuming a gradual improvement of investment efficiency and user fees of a magnitude attainable over the medium term, the debt ratios of the baseline and an alternative ambitious investment scenario could be reduced to about 40 and 50 percent of GDP, respectively. The model illustrates how a successful scaling up of public investment would require both fiscal consolidation and improved investment efficiency.

2. Yemen

The model described in Buffie et al. (2013) was used to simulate public investment scenarios and provide input for the presentation at a technical meeting of the Deauville Partnership on December 5, 2013 in Brussels.

3. Rwanda

The Rwandan authorities have ambitious investment scaling-up goals in the face of declining grant aid, and the team assessed the possibilities for further scaling-up without sacrificing debt sustainability. The paper recommends a moderate scaling-up to continue lessening dependence on foreign aid.

4. Senegal

Senegal's fiscal deficit and public debt have been on the rise in recent years owing partly to an ailing and inefficient oil-based energy sector. Using a two-sector, open economy, dynamic general equilibrium model, the Fund investigated the effects of varying fiscal policy instruments one at a time and of policy packages that increase public investment in energy and infrastructure in scenarios with varying degrees of debt finance and with different types of supporting fiscal adjustment.

b) Macroeconomic Management of Natural Resources:

5. Azerbaijan (See Box 2, page 10)

The IMF Sustainable Investing tool, developed in Berg et al. (2013), was applied to Azerbaijan to analyse fiscal strategies that could better support the transformation of oil windfalls into long-term sustainable economic growth. The model—part of the IMF recent guidance for resource-rich developing countries (RRDC)—mainly captures two channels to induce higher non-oil GDP with higher public capital.

6. Mozambique (See Appendix IV)

The team analysed Mozambique's liquid natural gas (LNG) market using the DIGNAR model for the Article IV Consultation and concluded that gradual public investment scaling-up anticipating some but not all future LNG revenue would be appropriate given Mozambique's infrastructure investment needs and the uncertainty regarding LNG production/revenue.

7. Republic of Kazakhstan: Selected Issues

The team applied the Melina et al. (2013) framework to analyse oil wealth management in Kazakhstan. Ambitious public investment may help to boost growth, but the cost may be high in terms of lower private consumption and therefore household welfare. With a prudent approach, on the other hand, public investment can give a boost to non-oil growth with a much smaller cost.

8. Turkmenistan

For the Article IV consultation on Turkmenistan, two natural resource revenue investment approaches were analysed using Berg et al. (2013).

c) Current Account Norm

9. Ghana (See Box 2 on page 13)
For the Article IV consultation, the IMF-DFID team conducted an external sustainability assessment using the model developed in Araujo et al. (2012). This dynamic neoclassical model incorporates the recent discovery of offshore oil and gas into the current account assessment.

10. CEMAC (See Box 2 on page 46)
Using the model developed in Araujo et al. (2013), IMF staff completed an assessment of the current account norm and real effective exchange rate.

11. Turkmenistan
For the Article IV consultation on Turkmenistan the current account norm was analysed using the model in Araujo et al. (2013).

12. Azerbaijan (See Box 5, page 14)
The current account norm was estimated using the external assessment framework.

d) Ongoing Work with Country Teams:

1. Financial deepening has been identified as a priority area in the years ahead for the Fund, as reflected in the Financial Surveillance Strategy paper. In this context, Professor Robert M. Townsend (MIT) has been working with the IMF-DFID team to help strengthen the analytical underpinnings of the Fund's analysis and policy advice in 12 developing countries. A model-based approach was developed and implemented in a few LICs (Kenya, Uganda, and Mozambique) using micro data to examine the relationships between financial deepening and inclusion, growth and inequality and to provide policy recommendations (working paper will be issued by June). The team has been collaborating with country teams to use the framework in financial sector surveillance. Professor Townsend also attended the Fund's Financial Surveillance Group meeting in December, 2013 to discuss follow-up work to the 2012 IMF Board paper "Enhancing Financial Sector Surveillance in Low-Income Countries: Financial Deepening and Macro-Stability."

2. The export quality and diversification dataset developed for this project has been used for case studies on Malaysia, Bangladesh, Angola, Vietnam, and Tanzania for an IMF Board paper. The datasets used in the Board paper on structural transformation and diversification have been made available to IMF staff.

Output 2.2 - Uptake by Country Authorities:

The IMF collaboration had two successful country authority engagements this year:

1. Kenya:

The team held several workshops for Central Bank of Kenya (CBK) staff in Nairobi (October, 2013; June, 2013; August, 2013) and in Washington (March, 2013). These workshops help the IMF and the CBK develop and maintain a forecasting and policy analysis system (FPAS) at the central bank. During the workshop, CBK staff prepared a forecast presentation for the analytical session of the monetary policy committee (MPC). (The session serves as a preliminary meeting between staff and senior management.) MPC members in attendance highlighted the usefulness of the approach for policy decisions and requested alternative risk scenarios, which were finalized during the second half of the workshop.

2. Ghana:

Staff visited the Bank of Ghana from September 11-October 2, 2013 to provide assistance and training for the Bank's FPAS. This was the third trip from the IMF/DFID project, with two more planned. The team worked to strengthen: 1) the understanding of how the Ghanaian economy functions; 2) the analytical capacity supporting the MPC; and 3) macroeconomic data intelligence. The team worked with 12 Research Department staff on four monetary policy research topics; in addition, the team provided over 30 hours of training and person-to-person consultations. They gave an introductory course on how to use general equilibrium models to analyse tactical policy questions, and focused on the use of Matlab, IRIS (macro-modelling toolbox), and Econometrics toolbox in the Bank's environment. An on-line course was launched via the IMF Institute's website to provide offsite training.

The IMF/DFID team provided valuable input during the Bank of Ghana's key policy rate deliberations, and ultimately, the Bank of Ghana increased its key policy rate in an emergency meeting in February. In addition, the Bank changed the way the MPC decisions are delivered to the public to be more succinct and focus only on the relevant facts. This mimics the Bank of New Zealand's delivery, and this was one of the outcomes of the Bank of Ghana staff trip to the Bank of New Zealand.

Mrs. Akofa Vorkliyah, Head of the Governor's Department at the Bank of Ghana, expressed her appreciation for the team's "expert advice and guidance on modelling and monetary policy issues." The work helped "strengthen [Bank of Ghana's] modelling and forecasting capabilities" and "the institution benefitted tremendously from the training."

Staff conducted a fourth visit to the Bank of Ghana in March, 2014. The mission assisted with the inflation and economic outlook for the March/April MPC meeting. The team also spent time teaching how to operate the model and updating him on new forecasting techniques. Since the last visit in October, 2013, the Bank of Ghana staff had made progress on its database consolidation efforts.

Ongoing Work with Country Authorities:

The team visited Chad in December, 2013 and gave a presentation titled "Public Investment, Natural Resources, and Debt Sustainability: A DSGE Model for Chad." The presentation was well-received, and the authorities offered helpful feedback and are interested in working on a paper with the IMF-DFID team to incorporate the changes suggested.

Courses and Workshops:

While not a separate output in the logframe, courses and workshops offered by the IMF-DFID team offer a unique opportunity to engage with country authorities and IMF country teams. During the second year, the team held a three-day course on debt sustainability analysis and a workshop with authorities from Liberia.

1. Debt sustainability course at the IMF

   The Fund's Board has acknowledged the need for strengthening analysis of the investment/growth nexus in debt sustainability analyses for low-income countries (LICs), including through development of operational models to provide a consistent way to assess the complex linkages. To address this need, the project team offered a course to IMF economists that presented a dynamic LIC-specific macro-economic model that complements the IMF-World Bank debt sustainability framework (IMF-WB DSF) by helping to study the macroeconomic effects of public investment surges in LICs (see Buffie et al. 2012). The model has been applied to over a dozen countries in the context of Article IVs and program reviews at the Fund.

2. Workshop on debt sustainability modelling with Liberian authorities

   Five staff members from the Liberian Ministry of Finance attended a workshop on debt sustainability modelling in August, 2013. During the workshop, the team and country authorities discussed modifying the Buffie et al. (2012) to capture some specificities of the Liberian economy to inform policy analysis.

Recommendations:

The review team notes the excellent progress against this output during year two.

We note the ongoing capacity building efforts with partner county authorities and officials. To capture this activity more systematically we recommend the IMF consider incorporating this output and related indicators, under a phase 2 programme of work.

Impact Weighting (%): 30% (25% for 2nd and 3rd years)
Revised since last Annual Review? *Y/N YES*

Risk: Low/Medium/High: LOW
Revised since last Annual Review? *Y/N NO*

Output 3: IMF strengthens engagement by senior IMF policy makers on macroeconomic issues affecting LICs

Output 3 score and performance description: A++

The objective of this output is to strengthen the engagement by senior IMF policy makers on macroeconomic issues affecting LICs through three mechanisms: attendance by senior policy makers at high level policy conferences where findings of the research are presented, for the findings of the

research to be reflected in IMF policy related outputs, and for the findings to be reflected in IMF Board papers and discussions.

The programme has exceeded expectations against all 3 indicators as reflected in the table below. For example IMF senior staffs were actively involved in four policy conferences organised by the IMF-DFID team. This gives rise to a cumulative total of 10 high level policy conferences compared to a high target of 5 for the second year. Similar performance was achieved against the other two targets. On the basis such performance the review team scored this output an - A++ - outputs substantially exceeded expectations.

	Type of Output	Year 1 Outputs	Year 2 Outputs	Total	Cumulative Output Targets for End of Year 2	
3.1	High-Level Policy Conferences attended by senior IMF staff	6	4	10	H M L	5 3 2
3.2	Results of papers reflected in IMF board discussions and policy papers	4	4	8	H M L	4 3 2
3.2.1	Results of papers reflected in IMF board papers	3	3	6	H M L	4 2 1

Progress against expected results:

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

IMF senior staff were actively involved in four conferences organized by the IMF-DFID team this year.

1. Transition to Modern Monetary Policy Frameworks in Low-Income Countries Conference
March 17-19,2014

Conference topics included monetary policy implementation in Uganda, the design of monetary policy frameworks, conditionality in evolving monetary policy regimes, and monetary communication strategies in Africa. The focus was on the implementation and operational aspects required for a successful transition and therefore was aimed at the upper and mid-level managers of central banks of countries in Sub-Saharan Africa (SSA) that have adopted or are considering adopting modern monetary policy frameworks. Antoinette Sayeh, the director of the IMF African Department, provided opening and closing remarks at the conference.

2. Macroeconomic Challenges Facing Low-Income Countries Conference
January 30-31, 2014

Conference topics include monetary policy, fiscal policy, natural resource management, investment and growth, economic diversification and structural transformation, and financial sector development. Olivier Blanchard (IMF) delivered the Opening Remarks, and a panel discussion chaired by Min Zhu (IMF) featured Stefan Dercon (DFID), Philip Lane (Trinity College), Chris Otrok (University of Missouri), and Eswar Prasad (Cornell University).

3. IMF Spring Meetings, Africa Rising: Building to the Future—Session on Structural Transformation and Economic Diversification

Chair: Sharmini Coorey (IMF)

Panelists: Sean Nolan (IMF), Bartholomew Armah (UNECA), and Douglas Gollin (Oxford)
Despite sustained high growth, structural transformation remains limited in many African countries. Manufacturing sectors remain small in most of SSA; agriculture is characterized by low productivity and little use of technology; and mining sectors are typically foreign-owned enclaves with limited job opportunities and little integration into the overall economy. Limited diversification has resulted in less broad-based growth, with exports often concentrated in sectors with little scope for sustained productivity increases.

4. IMF Spring Meetings, Africa Rising: Building to the Future—Session on Scaling Up Public Investment: Opportunities and Challenges

Chair: Sanjeev Gupta (IMF)

Panelists: Andrew Berg (IMF), Christopher Adam (University of Oxford), and Eric Werker (Harvard University)

Many SSA countries face dire development gaps in infrastructure, health, and education. For the first time in decades, many also have substantial growth momentum, low debt levels, access to external non-concessional borrowing, and substantial revenues from extractive industries—e.g., oil, forestry, and mining. Since the weight of the empirical evidence points to a high average return on public capital, particularly infrastructure, the development and growth prospects of scaling up public investment seem promising. However, several questions and challenges remain. Given that aid resources are not scaling up as promised, how much borrowing for investment should countries do, and how much is sustainable? And even for countries with natural resources and pressing development needs, how should they manage these resources and allocate them between foreign saving, domestic investment, and consumption? What factors should be considered when assessing public investment programs (e.g., rate of return, efficiency, institutional capacity)? What can be the role of the private sector?

Output 3.2 – Results of papers reflected in IMF Board discussions and papers

During the second year, the results of this research have been reflected in three IMF Board papers and one
Staff Guidance Note.

IMF Board Papers:

1. *Sustaining Long-Run Growth and Macrostability in Low-Income Countries: The Role of Structural Transformation and Diversification*

The IMF Board paper *Sustaining Long-Run Growth and Macrostability in Low-Income Countries: The Role of Structural Transformation and Diversification* received universal praise during the informal Board meeting. Work and outreach on this project will continue during this upcoming year, and the paper was featured in the Africa Rising: Building to the Future conference during the April, 2014 IMF Spring Meetings. IMF Deputy Managing Director Min Zhu gave the opening remarks. The diversification panel was chaired by Sharmini Coorey (IMF) and panellists included Sean Nolan (IMF), Bartholomew Armah (UNECA), Douglas Gollin (University of Oxford). The conference also included a session on "Scaling Up Public Investment: Opportunities and Challenges" chaired by Sanjeev Gupta (IMF), and featured Andrew Berg (IMF), Christopher Adam (University of Oxford), and Eric Werker (Harvard University) as panellists. Two members of the IMF-DFID team coorganized the conference. The conference held during the IMF-World Bank Spring Meetings was a kick off event for the high-level conference in May 2014 in Mozambique.

2. *Conditionality in Evolving Monetary Policy Regimes*

The IMF Board paper *Conditionality in Evolving Monetary Policy Regimes* draws heavily on the team's research on the monetary transmission mechanism and on the FPAS model. Importantly, the paper proposes that FPAS-type analysis can be used for monetary policy analysis to support the new conditionality option—monetary policy consultation clauses. In addition, the paper argues for the importance of capacity building to support countries moving to modern monetary policy frameworks and spotlights the IMF-DFID collaboration. An informal Board meeting was held to hear the Directors' views, and then, at a subsequent meeting, the Directors formally supported the new conditionality option. In addition, Chapter 3 of the IMF's *Regional Economic Outlook: Sub-Saharan Africa* is closely aligned with this IMF Board paper. Professor Steve O'Connell contributed to and advised on this paper.

3. *The Fund's Capacity Development Strategy-Better Policies Through Stronger Institutions*

The IMF-DFID project was recognized in the IMF Board paper, *The Fund's Capacity Development Strategy-Better Policies Through Stronger Institutions.* Box 6 on page 28 highlights the IMF-DFID project's research and collaboration with policymakers in sub-Saharan Africa. The synergies between technical assistance and training in the region due to the IMF-DFID monetary policy project are also noted. The paper discusses joint Research/Institute for Capacity Development/African Department training and technical assistance to country authorities and mentions specifically the IMF-DFID project for its support of these efforts. Examples include training seminars for IMF country teams and country authorities, online sites aimed at increasing and improving peer-to-peer learning, and internal training and support for country desks. This paper was quite important in that it was the Fund's first comprehensive strategy for capacity development.

IMF Staff Guidance Notes:

1. Staff Guidance Note on the Application of the Joint Bank-Fund Debt Sustainability Framework foLow-Income Countries

The note discusses the importance of how "full DSA write-ups should include, at a minimum, a discussion of the determinants of growth, including public investment... In countries where a scaling-up of public investment is ongoing or anticipated, more complex and resource intensive analytical techniques could be used to inform the discussion. To assist in this effort, IMF and World Bank staff have developed models that examine the nexus between public investment and growth." The IMF model referenced in this note is the Buffie et al. (2012) model developed by the IMF-DFID team. Annex 2 in this note again highlights the team's model and provides further information on how to analyse public investment and growth.

Recommendations:

There are no recommendations against this output.

Impact Weighting (%): 30% (25% for 2nd and 3rd years)
Revised since last Annual Review? ***Y/N Yes***

Risk: Low/Medium/High. LOW
Revised since last Annual Review? ***Y/N No***

Output 4: IMF strengthens research capacity by expanding the network of LIC researchers

Output 4 score and performance description: A++

The objective of this output is to strengthen the research capacity by expanding the network of LIC researchers working in the field of LIC macroeconomic issues. This is to be achieved through 3 channels: commissioned papers; attendance of external researchers at high level policy conferences; outputs disseminated in e newsletter updated public webpages. The IMF have delivered 13 commissioned papers against a second year (cumulative) target of 8, have delivered 10 high level policy conferences, attended by external researchers, against a second year (cumulative target) of 5, and have produced 4 newsletters during the reporting year, and updated the website on a quarterly basis. As performance has exceeded the high target against all 3 indicators the review team scores this output an A++ - substantially exceeded expectations.

	Type of Output	Year 1 Outputs	Year 2 Outputs	Total	Output Targets for End of Year 2	
4.1	Commissioned Papers	0	13	13	H	8
					M	6
					L	4
4.2	Attendance of External Researchers	6	5	10	H	5
					M	3

	at High-Level Policy Conferences				L	2
4.3	Outputs disseminated in e-newsletter and updated public web page	2	4	8	H M L	6 4 3

Progress against expected results:

4.1 Commissioned papers

As part of the effort to bring in new researchers to the area of macro/LIC research, the team commissioned 13 papers. Authors were invited to a pre-conference workshop in July, 2013. The following papers were presented at the Macroeconomic Challenges Facing Low-Income Countries Conference in January, 2014.

1. Distributional effects of monetary policy in developing countries
Eswar Prasad* (Cornell University) and Boyang Zhang (Cornell University)
2. Income inequality, trade, and financial openness
Guay C. Lim (University of Melbourne) and Paul D. McNelis* (Fordham University)
3. Rail revival in Africa? The impact of privatization
Matt Lowe* (MIT)
4. Why do so many oil exporters peg their currency? Foreign reserves as a de-facto sovereign wealth fund
Samuel Wills* (University of Oxford) and Rick van der Ploeg (University of Oxford)
5. Deindustrialization and economic diversification
Tiago Berriel* (PUC-Rio), Marco Bonomo (Insper Institute of Education and Research), and Carlos Carvalho (PUC-Rio)
6. Imported intermediate inputs and export diversification in low-income countries
Felipe Benguria* (University of Virginia)
7. Does uncertainty reduce growth? Using disasters as natural experiments
Scott Baker (Stanford University) and Nick Bloom* (Stanford University)
8. Developing macroeconomic stabilization policies for low-income countries
Romain Houssa* (University of Namur), Jolan Mohimont (University of Namur), and Chris Otrok (University of Missouri)
9. Capital flows in low-income countries
Philip Lane* (Trinity College Dublin)
10. Output data revisions in low-income countries
Eduardo Ley (World Bank) and Florian Misch* (ZEW Mannheim)
11. Liquidity crisis: Are Islamic banking institutions more resilient?
Sajjad Zaheer (University of Amsterdam) and Moazzam Farooq* (Central Bank of Oman)
12. Banking market structure and macroeconomic stability: Are low-income countries special?
Franziska Bremus* (DIW Berlin) and Claudia Buch (Halle Institute for Economic Research)
13. Financial sector reforms, competition, and banking system stability in sub-Saharan Africa
Jennifer Moyo (AfDB), Boaz Nandwa* (Dubai Economic Council), Jacob Oduor (AfDB), and Anthony Simpasa (AfDB

4.2 - Attendance of External Researchers at High-Level Policy Conferences

To expand the network of researchers working on macroeconomic issues in LICs, the team were involved with six high-level policy conferences. Four of these have already been discussed in output 3.1. The two additional conferences did not involve IMF senior staff.

1. Annual Meeting of the Society for Economic Dynamics, in Seoul, Korea in June 2013
2. Ten papers from the IMF-DFIF project were presented at this CSAE conference, and two members of the IMF-DFID team chaired sessions at this high-profile conference. The papers presented were:
    i. Benchmarking Structural Transformation Across the World
    ii. Infrastructure and Income Inequality in a Structural Transformation Framework
    iii. Remittances and Vulnerability in Developing Countries
    18
    iv. Bias and Accuracy in the IMF/WB Debt Sustainability Framework for Low-Income Countries
    v. Inflation Targeting and Exchange Rate Management in Less Developed Countries
    vi. Forecasting and Monetary Policy Analysis in Low-Income Countries: The Role of Money Targeting in Kenya
    vii. On the First–Round Effects of Food Price Shocks: the Role of the International Asset Market Structure
    viii. Government Spending Effects in Low-Income Countries
    ix. Natural Gas, Public Investment and Debt Sustainability in Mozambique
    x. Financial Deepening, Growth, and Inequality: A Structural Framework for Developing Countries

4.3 - Results disseminated in e-newsletters

Each quarter, the team send out an e-newsletter that spotlights working papers, conferences, and other activities they have completed over the last three months. The IMF website is also updated on a quarterly basis.

1. May 2013 Newsletter
2. August 2013 Newsletter
3. November 2013 Newsletter
4. February 2014 Newsletter

Recommendations:

There are no recommendations against this output.

Impact Weighting (%): 10% (first year) 20% (second and third years).
Revised since last Annual Review? ***Y/N YES.***

Risk: Low/Medium/High. LOW
Revised since last Annual Review? ***Y/N NO.***

If the project involves more than 4 Outputs please copy the box above and paste below.

Section B: Results and Value for Money.

1. Progress and results

1.1 Has the logframe been updated since last review? **Yes**

1.2 Overall Output Score and Description: **A++ outputs exceeded expectation**

1.3 Direct feedback from beneficiaries

Stephen O'Connell, Chief Economist of USAID and the Gil and Fran Mustin Professor of Economics at Swarthmore College noted that "Andy Berg and Cathy Pattillo have leveraged DFID funding many times over in creating a true centre of excellence in macroeconomic research on low-income countries.

The Macro Research for Development project is pushing the research frontier out rapidly and in ways that are often immediately relevant for policy. This is an extraordinarily effective project."

Further comments were provided by the IMF Deputy Managing Director Min Zhu who made the following remarks about the project at the Africa

> "We have put a lot of effort into studying the factors that support long term sustainable and inclusive growth in LICs. For example, monetary transmission mechanisms, financial deepening, and structural transformation/diversification all play an important role in encouraging growth and stability in LICs. This body of research has culminated in important policy papers on all three issues and, for the diversification research, a toolkit that provides access to the underlying datasets."

The team's efforts have also been praised by the IMF Board as well as by central bank authorities. For example, there was universal praise for the team's work from the Executive Directors at the informal Board meeting on the diversification paper in March. Furthermore, Mrs. Akofa Vorkliyah, Head of the Governor's Department at the Bank of Ghana, expressed her appreciation for the "expert advice and guidance on modelling and monetary policy issues," and noted that "the institution benefitted tremendously from the training" provided by the IMF-DFID team during a mission to Ghana.

Demand for country applications of the team's work exceeds current staff capacity, and Berg et al. (2013) was the top-viewed paper of 2013 for the *IMF Economic Review,* the IMF's premier refereed journal. As further evidence of the project's impact at the Fund, the project managers, Andrew Berg and Catherine Pattillo, were honoured with one of only two Fund wide awards for excellence in Leadership all suggesting considerable demand and value attached to this programme by beneficiaries both within and outside the Fund.

1.4 Summary of overall progress

The second year of the project continues to be highly productive, and the IMF has again exceeded each target outlined in the log frame. We continue to see evidence that the working papers, IMF Board papers, country applications, and conferences are being well received by senior IMF staff, IMF Executive Board members, policymakers in LICs, and a wide array of researchers interested in macroeconomic issues in LICs.

IMF Deputy Managing Director Min Zhu called attention to three of the IMF Board papers produced under this project at the Africa Rising: Building to the Future conference at the 2014 IMF-World Bank Spring Meetings – as expanded above.

Work in each of the main topic areas of the project continues to reap the benefits of the tight coordination of research and uptake that is built into the design of the project. One of the strengths of this project is the integration of research and Fund operations, and leveraging contacts with academia.

Some examples include:

- Staff continue to offer outstanding technical assistance, and to further encourage uptake of the project's work, the team taught a course for IMF staff on public investment, growth, and debt sustainability that was over-subscribed. Table 2 below provides a breakdown of course attendance by IMF Department.

Table 2
Course Attendees by IMF Department

Department	Attendees
Africa	17
Asia and Pacific	3
Finance	2
Fiscal Affairs	1
Institute for Capacity	1
Office of Executive	6
Research	1
Strategy, Policy, and	2
Western Hemisphere	2

- After the diversification and structural transformation presentation to the IMF Board, the novel and extensive datasets on trade diversification and product quality were made available to IMF staff. Prior to the release to IMF staff, the data had been requested by around ten teams. The datasets cover 178 countries from 1962-2010, and provide researchers interested in cross-country or case study work with access to export diversification and quality measures at the 1, 2, 3, and 4 digit SITC sectoral levels.

- Five staff members from the Liberian Ministry of Finance, including the Chief Economist, attended a workshop on debt sustainability modeling held in Washington, DC in August, 2013. The authorities discussed the possibility of modifying the model-based framework of Buffie et al. (2012) to capture some specificities of the Liberian economy so that they can use it as a tool to inform policy analysis. Ms. Antoinette Sayeh, the director of the IMF African Department, visited with the authorities and IMF staff during the course. The IMF mission chief for Liberia supported the training and expressed his intention to "use the model to inform our fiscal policy commencing fiscal year 14/15 budget and subsequent budgets." He further noted that IMF senior management have endorsed this position.

- A goal of the IMF-DFID project is to expand the network of researchers working on macroeconomic issues in LICs. The IMF hosted a conference on January 30-31, 2014 after commissioning 13 papers from more than 220 submissions. The authors, most of whom were new to the field of macro LIC research, participated in a pre-conference held at the IMF headquarters in July, 2013. Topics included capital flows to LICs, distributional impacts of fiscal policy, monetary policy in resource rich economies, financial market structure and stability, economic diversification, growth and economic uncertainty, and output measurement. IMF Deputy Managing Director Min Zhu chaired the closing panel, which featured DFID Chief Economist Stefan Dercon. Links to the papers presented can be found on the conference website. These conferences and others similar to them are achieving the desired objective of attracting 'new blood' into this area of work.

- Staff continue to provide technical assistance to central banks. In the case of the project's links with the Central Bank of Kenya (CBK), the macroeconomic analysis based on the model they jointly developed (IMF and CBK, with DFID support) has become the key input of the central bank staff into monetary policy formulation. This is done with a bi-monthly presentation by the staff to the bank's monetary policy committee (MPC), for which the team have also provided extensive training. This model-based approach has allowed policy to be sufficiently forward looking and the CBK to adopt a medium-term perspective for its policy decisions. The MPC members (the senior management of the bank) are very pleased with the improved analysis and are determined to entrench this input in the policy cycle of the bank.

1.5 Key challenges

After the first year, the project has progressed smoothly overall. The main challenge for the Fund remains attracting high-quality researchers to work on LICs, particularly when the IMF can only offer one-to-two-year contracts. In recent months, departures by DFID-financed visiting scholars lured away by permanent jobs at the Fund have continued. With less than a year now left in the arrangement these departing economists are becoming increasingly difficult to replace. The positive is that, these economists move to work on LICs at the Fund, e.g. in the African department. This is another sense in which the project has provided a source of "new blood" for economists working on LICs. Looking forward such departure will to some extent be mitigated given the expectation to extend the programme, enabling one year and two year contracts to be offered.

Another challenge has been balancing research and country applications. To develop new tools, the IMF needs to keep IMF economist resources available to engage in and support innovative lines of research. At the same time though, these economists have also worked to maintain the current stock of research through extensive country applications, training missions, etc.

Finally, the IMF has faced a challenge in mainstreaming the work that has been done within the overall work of the Fund. To address this, in the area of monetary policy they are using funding from the African Regional Technical Assistance Centers (AFRITACs) to support the more standard follow-on applications of forecasting and policy analysis system models. On debt sustainability, they have worked with the IMF's Institute for Capacity Development (ICD) to offer a training course for economists. The IMF is also developing a simple user interface for IMF country teams to make the model more accessible. However, in other areas such as the IMF's work on current account issues, they still have work to do to encourage further uptake of the research and frameworks.

1.6 Annual Outcome Assessment

The project is on track to deliver the outcome anticipated, namely, better engagement by IMF policy-makers on LIC-specific macroeconomic issues, leading to improved policy-making in specific project thematic areas. The project is already delivering at impact level by influencing policy making in low income developing countries. The project has convincingly had the intended effects of generating high-quality research that directly influences policy-makers within the establishment of the Fund.

Last year, several IMF Board's discussions benefited from inputs arising from the project – with analysis feeding directly into high level discussion on several topics. It many instances elaborated above, the analysis has helped secure a change in thinking towards macroeconomic policy in LICs in a manner with potential to secure higher and more sustainable growth paths for these economies.

The bulk of IMF analysis, papers, missions, and country applications in the first year focused on monetary and exchange rate policy; public investment, growth, and debt sustainability; macroeconomic management of natural resources; and financial deepening for macroeconomic stability and sustained growth. This year, the Fund has expanded its portfolio of working papers and IMF Board papers on growth through diversification, and has made progress on the topic of macroeconomic policies and income distribution - the latter subject commanding growing policy interest at international level.

The project has achieved the following policy outcomes and impacts:

With improvements in the past few years, the monetary policy agenda in LICs is about moving to forward-looking monetary policy. Research has focused on the existence of the monetary transmission mechanism (see Berg, Charry, Portillo, and Vlcek (2013)), analysis of food inflation, and alternative regimes, notably the use of money. This has translated directly into a more flexible IMF conditionality framework (see IMF (2014)). Also, major efforts to improve policy regimes have been driven by TA based on this research and ongoing engagement with four IMF country teams and six central banks. This research and TA work were the centrepieces of the conference held in Uganda in March, 2014. In the coming year, the IMF will continue their research on forward-looking monetary policy.

The balancing of the goals of debt sustainability with new opportunities to scale up public investment in support of growth and poverty reduction is a critical task of LICs, the IMF, and the development community more broadly. The project aims to take a two-handed approach. The IMF have emphasized the growth impact of public investment and the need to take that impact into account in considering debt sustainability. But they have also emphasized the fiscal challenges associated with scaling up public investment: the risks that debt will turn out to be unsustainable, the challenge of managing recurrent costs, and the risks of low efficiency and absorptive capacity. The country applications and policy work within the Fund have tried to lead towards an avoidance of either extreme, and there are some indications of success. Firstly, the Fund policy frameworks have become more flexible to accommodate public investment/growth linkages (see IMF *Staff Guidance Note on the Application of the Joint Bank-Fund Debt Sustainability Framework for Low-Income Countries*). Secondly, in a number of public fora and country applications, the IMF have emphasized the need for careful analysis of scaling up plans and, in many cases, some moderation in view of the risks. Of course, it takes years or decades to see if borrowing decisions were wise, and the analyses resulting from this project are only one factor among many that determine policies and outcomes, but the IMF are encouraged to observe that, so far, debt increases in SSA LICs have been quite moderate (see for example the 2013 IMF Regional Economic Outlook--Sub-Saharan Africa: Building Momentum in a Multi-Speed World).

This work on debt sustainability and public investment has become closely related to the IMF's research work on managing natural resource wealth, with its similar focus on the goal of converting this wealth into public capital at an appropriate and sustainable rate. In particular, many countries in SSA have come to expect moderate-sized increases in natural resource wealth to be realized in the medium term, creating both the opportunity to borrow against these future resource streams and the risk that things may not go as hoped and that macroeconomic volatility and fiscal/debt crises may result. Here again, the IMF team helped make IMF policy more flexible (e.g. IMF Board paper *Macroeconomic Frameworks for Resource-Rich Developing Countries*) while encouraging member countries to be careful.

It is hard to prove the counterfactual, and the political economy challenges are great, but feedback from project stakeholders so far is overwhelmingly positive. Angola is one example. An IMF Survey article on managing natural resource wealth and public investment notes how "Angola had learned lessons from the global financial crisis and adjusted its fiscal policies to create buffers to protect its economy from volatility in the price of oil." The article also mentions Minister Manuel's comments on how Angola "established the Angolan Sovereign Fund to ensure savings for future generations encourage the diversification of the economy and also provide instruments for greater stability in the country." The team's work was also noted in the Angolan newspaper Expansao. The article discusses the authorities' announcement on the latest investment policy of Angola's sovereign wealth fund and the suggestions in Richmond et al. (2013) to adopt measures to prevent a crisis of public investment in the case of lower oil revenues.

Diversification and structural transformation play important roles in influencing the macroeconomic performance of LICs and are associated with faster economic growth, lower output volatility, and greater macroeconomic stability. Empirical analysis using a newly-constructed cross-country dataset, complemented by country case studies, is utilized to examine the patterns of diversification and transformation in LICs since the mid-1960s. In a well-received IMF Board paper on this topic, the team argues that the heterogeneity in country experiences and constraints calls for a flexible, country-specific policy approach. In addition, development policy should not neglect agriculture, given the scope for significant productivity and quality gains within this sector and the importance of agriculture as a source of employment in LICs. The toolkit accompanying this paper will allow researchers to explore the topic further and to conduct cross-country or case study analysis using the rich dataset.

The team's research outputs, TA missions, course offerings, and connections with policymakers, country authorities, and IMF country teams have allowed the team to develop the foundations of an innovative and respected hub for LIC macro research. Stephen O'Connell, Chief Economist of USAID and the Gil and Frank Mustin Professor of Economics at Swarthmore College noted that "Andy Berg and Cathy Pattillo have leveraged DFID funding many times over in creating a true centre of excellence in macroeconomic research on low-income countries. The Macro Research for Development project is pushing the research frontier out rapidly and in ways that are often immediately relevant for policy. This is an extraordinarily effective project."

As the project enters its third year, the IMF will continue to push forward on the research agenda. Further, the team continually operate with the mind-set of trying to mainstream and institutionalize the work at every opportunity. The team are also discussing new projects and topics for a potential extension of this project. The team have taken an important further step in promoting the sustainability and broadening the uptake of the research on practical monetary policy frameworks. Their pilot work under the DFID project with the Central Banks of Rwanda, Tanzania, Kenya, and Uganda, and a similar new project with Mozambique, is now going to be financially supported over the next year by the IMF's regional technical assistance centres AFRITAC South and AFRITAC East. This has greatly leveraged remaining DFID resources in this area.

2. Costs and timescale

2.1 Is the project on-track against financial forecasts: Y/N Yes

The project's spending is on track against the revised payment schedule.

2.2 Key cost drivers

The biggest costs envisaged in the budget were for additional staff on short-term contracts, and visiting scholars. As detailed in Section 1.5, the project found that it was more effective to hire staff for one year or more contracts, rather than to hire them for one paper at a time, hence the budget line for 'Visiting Scholars' is substantially underspent.

This change in procurement approach caused delays, leading to a re-profiling of the budget, pushing $1m back into a third year.

We do not foresee any changes in cost structures due to exchange rates as these were set at a conservative level.

2.3 Is the project on-track against original timescale: Y/N No

The project was re-profiled early in the first year to deliver 34 papers in 3 years rather than 2 years. This revised profile was assessed to be more realistic but remain ambitious. The original timescale was unrealistic in light of the time to taken to mobilise staff during the first 6 months of the programme.

3. Evidence and Evaluation

3.1 Assess any changes in evidence and implications for the project

There are no changes to the evidence that challenge the original justification for the project. The project continues to fill gaps in the research agenda.

3.2 Where an evaluation is planned what progress has been made?

N/A

4. Risk

4.1 Output Risk Rating: Low/Medium/High

The project is judged to be Low risk. This rating is justified on the basis of the progress made during the first two years of the programme, and the fact the project is surpassing log frame expectations.

4.2 Assessment of the risk level

The overall risk for this project remains low. The project is delivering high quality outputs consistent with log frame, and in many cases surpassed expectations. The programme continues to gather momentum, profile and impact both within the Fund and among country Authorities, and has successfully leveraged resources for technical assistance from regional institutions.

While some of the contractual staff hired by the programme have been offered permanent positions at the IMF or central banks, and left the programme earlier than anticipated, this has not detrimentally impacted on programme delivery principally due to the attraction of working at the IMF. The expectation is for the programme to be extended by two years. This will help to mitigate this risk of short contract tenure and allow replacement of staff who have left for other jobs within the Fund.

4.3 Risk of funds not being used as intended

The risks of funds not being used as intended remain LOW. There is only one milestone payment

4.4 Climate and Environment Risk

Climate and environment risks remain unchanged from those described in detail within the business case for the project.

5. Value for Money

5.1 Performance on VfM measure

We believe the project is demonstrating very good value for money and delivering value for money as anticipated in the original business case. Tables below show the expected number of papers over the project first two years as originally envisaged.

OUTPUTS		Year 1 Papers	Year 2 Papers	Papers Total
Research Topics	1	4	6	10
	2	3	3	6
	3	4	4	8
	4	1	1	2
	5	4	1	5
	6	2	1	3
	Total	18	16	34

Benchmark	Input (£ 000s)	Expected Output (Published Papers)	Unit Cost £ per paper (000s)
IMF Project	4115	34	121
GRT Benchmark	4000	26	150

The project represents very good value for money when evaluated against the benchmark of cost per paper published or cost per journal published paper. The average unit cost per published paper (based on total budget and papers), is below the average for other GRT programmes. In the addition to the production of high quality published papers, the project is achieving considerable impact for this unit cost. This partly derives from the unique position of the Fund - as the premier institution for the provision of macroeconomic advice for developed and developing economies alike, it mandate to lend resource, and concurrently provide macroeconomic advice, and therefore is extensive and direct policy links to country authorities.

As the project budget remains as originally planned, the cost per research paper is estimated at £121 k consistent with the business case. This compares to GRT's composite 'benchmark rate' of £ 150 k per published paper. The unit cost figure therefore compares very favourably against this benchmark, particularly if we factor in the uptake and policy influencing work already achieved.

It is potentially too early to make a statement regarding the cost per journal article published. This is partly related to the time lags associate with the publication of papers in refereed journals. To provide some indication of costs the number of journal articles published so far is divided by expenditure incurred in the first year to capture the lagged effect. This produces a unit cost figure within the acceptable range based on GRT's comparators. The figure could however be much lower than this, when the project completes. Furthermore, given the focus of the programme on applied and operational research as distinct from scientific or pure theoretical work, this implies a much greater propensity for impact, as distinct from publication in the top economic journals. This indicator can only realistically be assessed at least one year after completion of the programme, so that time-lagged effects have time to work through the system.

5.2 Commercial Improvement and Value for Money

We believe that this project is cost effective for several reasons. The IMF strictly follows all Fund guidelines for hiring, travel, and conferences. All contractual hires undergo a competitive process, and the project manager position was put up for a competitive bid process in January, 2014. Outputs are produced under firm timeframes and must meet Fund requirements for publication. The quality of the papers is further evaluated when they are submitted to peer-reviewed publications. To date, the team have achieved 7 publications which indicates the quality of the work.

Direct project management costs represent less than 2 percent of the total first year budget; if we include the Trust Fund management fee, program management costs are still below nine percent. This means that the vast majority of the funds available to this project were spent on producing high quality research rather than on project management.

As noted in the annual report last year, the IMF plan to move towards hiring longer-term visiting scholars. By hiring visiting scholars for longer-term contracts, the Fund can more fully engage with scholars on the research papers, country applications, and missions; spend less time searching for and interviewing new candidates; and spend less time completing the paperwork and administrative details associated with new hires.

5.3 Role of project partners

There is good and effective collaboration between the Strategy, Policy, and Review Department and Research Departmentwith the Fund on the programme, but also country teams and country authorities. The IMF Board, and senior staff at the IMF including the Deputy Director and Chief Economist, have effectively provided a form of oversight for the programme through their active engagement on the issues under investigation.

5.4 Does the project still represent Value for Money : Y/N

Yes. The project represents very good value for money. The unit cost per working paper compares favourably to other commissioned research papers within the growth research portfolio, and the project is having a strong impact on policy.

5.5 If not, what action will you take?

6. Conditionality

6.1 Update on specific conditions

There are no specific conditions attached to the programme, over and above those specified in the business case.

7. Conclusions and actions

The programme continues to exceed expectations on all fronts and on this basis it was scored an A++ project score.

The second year of the project continues to remain highly productive, with the team managing to more than double the outputs produced compared to the first year, while also achieving considerable uptake and impact.

We continue to observe very material changes to policy at the IMF with far reaching implications for the policy advice provided to authorities as part of Article IV consultation exercise and/or staff funded stabilisation programmes. The team in DFID and at the IMF, continue to see the working papers, IMF Board papers, country applications and conference being extremely well received by staff across the organisation, including Senior IMF Staff, country level staff, operational staff, IMF Executive Board members and importantly policy makers in developing countries.

The most senior of IMF staff have commented on how extremely valuable the programme is becoming, and its contribution in helping to develop a robust body of evidence to guide and inform IMF policy. And all this has been achieved in just over 2 years from project start.

The programme has also successfully expanded the pool of researchers working on macroeconomics in LICs through commissioning and presentation of papers and built the capacity of southern policy makers in the use of tools and frameworks by hosting several regional workshops. Many of these outreach activities have been extremely well received and attended. For example the Head of the Governor's Department at the Bank of Ghana noted that 'the institution benefitted tremendously from the training provided by the IMF-DFID team during the mission to Ghana'.

To increase further the impacts of the programme we recommend the IMF consider developing shorter policy briefs and technical notes to accompany the excellent working papers, to reach an even broader audience, given the growing interest in the subject matter by the policy making community who sit outside of macroeconomic policy making.

As further evidence of the project's impact the project team leaders were awarded with one of only two Fund wide awards for excellence in Leadership.

Due to the overwhelming success and response of the project, the team are not always able to meet demand for technical support from partner country authorities. In response to growing requests the programme successfully leveraged additional support from regional technical assistance centres for which the team should be highly commended.

In the light of the continued demonstrable success of the programme and the demands for policy work both, the DFID project team recommend a Phase 2 programme be actively scoped and considered. A specification sent in outline to DFID is a good starting point. We recommend the IMF build on this, consulting with a broad range of research and policy stakeholders to develop a fuller specification for DFID's consideration.

8. Review Process

The review process was carried out over a period of 3 months, by members of DFID's Growth Research Team, namely the Deputy Programme Manager for the programme and lead economic advisor, consulting with relevant colleagues in policy and country offices. Further conversations have been held with IMF staff, to strengthen understanding of use and impact of frameworks. The report was quality assured by Growth Research Team's Senior Economic Advisor, and approved by DFID's Chief Economist.

Several documents were reviewed as part of the annual reporting assessment:

- Second Year IMF Annual Report to DFID (April 2013-March 2014)
- IMF Quarterly Newsletters (various issues, May 2014, Vol 1.1. (5), Feb 2014, Vol 1.1 (4), November 2014, Vol 1.1 (3))
- Various working papers produced by the research programme and posted on the IMF website
- Various IMF Board Discussion Papers against each topic posted on the IMF website
- IMF Article IV discussions using project outputs, and posted on the IMF project webpages
- Last Year's IMF Annual Review document