KAPSARC

مركز الملك عبدالله للدراسات والبحوث البترولية

King Abdullah Petroleum Studies and Research Center

Macroeconomic Impacts of Oil and Gas Discoveries in New Producing Countries

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About KAPSARC

The King Abdullah Petroleum Studies and Research Center (KAPSARC) is a non-profit global institution dedicated to independent research into energy economics, policy, technology and the environment across all types of energy. KAPSARC's mandate is to advance the understanding of energy challenges and opportunities facing the world today and tomorrow, through unbiased, independent, and high-caliber research for the benefit of society. KAPSARC is located in Riyadh, Saudi Arabia.

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Key Points

Macroeconomic impacts from developing a country's natural resources can occur much earlier than initially expected. There is evidence that just the announcement of a large oil or gas discovery can affect the economy.

A study by the International Monetary Fund (IMF) found that the surprise news of a natural resource discovery can lead to substantial short-run economic responses including a drop in employment, rise in savings and corresponding fall in investments, and a delay in increases to economic output until production starts.

It is possible to mitigate these risks if expectations of stakeholders are managed early in the discovery process and carried out by organizations with responsibility for dealing with the macroeconomic impacts of natural resource revenues. In Eastern Africa, these are the ministries of finance, central banks and the national planning bodies.

Advancing natural resource revenues through borrowings against expected future revenues is a risky strategy given the lag from discovery to production in Eastern Africa, which will exceed at least 10 years in every case.

Summary

Policymakers in new commodity producing countries are inundated with warnings about the resource curse, Dutch Disease and absorptive capacity constraints. While these are all significant policy issues related to developing natural resources, there is also growing evidence that unexpected macroeconomic impacts can occur almost immediately after the announcement of new oil and gas discoveries. These initial macroeconomic impacts, such as drop in employment, rise in savings and decline in investments, are probably tied to the expectations of government officials, private sector and society at large on what this new resource wealth will mean for their country.

In many new producing countries, there is a collective capacity building process that must occur after commercially viable discoveries are announced. During this period when technocrats and government officials are learning about the natural resources and their responsibilities to manage the sector, there will be political pressure to begin borrowing against expected future revenues. The crucial question for policymakers is the risks of borrowing now against expected future revenue versus the welfare benefits of spending the money immediately or 10-20 years, later once the fields start producing.

The expectations of a country's stakeholders are set in this early period shortly after the discoveries are announced. While the initial focus is rightfully on enabling exploration and production, there is also an early role for the ministries of finance to begin to manage the expectations of these stakeholders.

In many ways, managing these expectations is just as important as assessing the traditional macroeconomic impacts that can be expected when monetizing a finite resource base. As literature from the resource curse shows, many countries that have developed oil and gas reserves have not seen positive growth outcomes, and in some cases have been worse off than they were before the discovery of natural resources.

Background to the Workshop

Several countries in Eastern Africa expect to receive significant revenues from their recently discovered oil and gas reserves. Responsibly extracting and developing these reserves to promote inclusive economic development is the greatest challenge for Eastern African policymakers. Beyond developing the reserves, they will have the additional task of managing the macroeconomic challenges associated with resource development.

The primary stakeholders in this are the executive branch planning authorities, ministries of finance, planning and development and the Central Bank. We recognize that there are additional key stakeholders such as international donors, civil society organizations and regional bodies, but they are excluded in order to focus the discussion.

KAPSARC hosted a workshop on Aug. 14-15, 2015, in Kampala, Uganda, to discuss the macroeconomic impacts of natural resource development. This workshop brought together some of the principal stakeholders from Uganda, Mozambique, Kenya and Tanzania to explore these issues. KAPSARC's research partners from leading economic think tanks in Eastern Africa attended, along with international experts working on issues of local content and development economics.

This workshop, KAPSARC's fourth in a series focused on natural resource-driven development, explored topics that included:

- Macroeconomic challenges of natural resource development.
- Macroeconomic impacts of oil revenues.
- Fiscal impacts of infrastructure investment.
- Macroeconomic management of natural resources.

This workshop brief summarizes the issues and considers the macroeconomic impacts of resource development in Eastern Africa.

Macroeconomic Challenges of Natural Resource Development

The voluminous literature on the challenges of natural resource development in low-income countries generally focuses on three related themes: Dutch disease (the so-called resource curse), natural resource revenue management and absorptive capacity constraints. KAPSARC's own research on energy development in new producing countries has considered and addressed these themes. Our first workshop in Nairobi, Kenya, in 2014 explored these issues (See KAPSARC workshop brief KS-1520-WB18A) and we published a background paper about the macroeconomic challenges for new producing countries (See KAPSARC discussion papers KS-1525-DP019A and KS-1650-DP045A). In this fourth workshop we sought to go beyond these topics to explore non-obvious macroeconomic challenges.

Macroeconomic impacts of news about giant oil and gas discoveries

Macroeconomic issues are not usually considered until after a company makes its final investment decision (FID) to develop the oil or gas reserves. It is at this point that a capital-intensive project becomes "real" for a country. But could there be macroeconomic impacts from just the announcement of these discoveries? Is there evidence of an observable news shock to the macroeconomic performance of an economy? The answers to these questions are very relevant to Eastern Africa, where major discoveries have been announced in four countries in the last eight years. To date, FID has only been made in one state - Uganda.

The IMF was curious about these questions and tested this hypothesis using a set of 130 countries that between 1970 and 2012 experienced more than 370 giant oil and gas discoveries. In each case, the oil and gas discoveries were considered very big. The median estimated net present value of the future revenues was 9 percent of initial gross domestic product (GDP). Using macroeconomic data from the IMF, World Bank and International Labor Organization, the study found a few surprising results. Just the news of a giant oil discovery resulted in significant short-run responses of macroeconomic variables including a drop in employment, a rise in savings and corresponding decline in investment, and a delay in increases of economic output until after production started.

The impact of these findings in Eastern Africa are significant given the economic state of these low-income countries. In some cases, the time from discovery to production can be significant and poor economic performance can exaggerate these timelines. The IMF research suggests that policymakers need to begin managing macroeconomic impacts of oil and gas discoveries sooner than originally thought. The "ramp-up" period for policymakers to learn about these challenges and prepare a country's institutions might be quite short indeed.

Managing national and local expectations

In two years of working in Eastern Africa, KAPSARC's research team has witnessed firsthand the challenge of managing national and local expectations about oil and gas discoveries. When the discoveries are announced, there is usually a state of public euphoria in anticipation of a wealth windfall. In many cases, local communities where the oil and gas are discovered adopt mistaken beliefs about future prosperity, such as that their gasoline will now be free. Over time, when the riches do not come to fruition, there is often a perception that foreigners and domestic elites captured all the benefits. Inevitably, the local communities come to believe that they will not receive their “fair share” as all the benefits will go to the rich in the country’s capital.

Many of these expectations are related to the overall increases in welfare provided by the fiscal revenues to be accrued from resource development. This means that while government departments responsible for energy and natural resource development will have the responsibility to develop the resources, it is the macroeconomic policymakers that have the primary responsibility to manage a country’s expectations.

In Eastern Africa, however, this is not the case. At the “Africa Rising” event in 2014 in Maputo, Mozambique, Uganda’s then Finance Minister, Hon. Maria Kiwanuka, said of natural resource revenue management “When oil is in the ground, it is the responsibility of the Ministry of Energy, but when it comes out, it is the responsibility of the Ministry of Finance.” In Uganda, the discoveries were announced in 2006. Ten years later the oil is still not out of the ground, but expectations already set have not been met.

In new producing countries, the national planning bodies and the ministries of finance and economy should take responsibility for managing expectations during the ramp up period after discoveries are made. They can do this effectively by being transparent about the use and distribution of revenues from the resource development. They can communicate publicly how the expected revenues will be used to meet national development goals for sustainable and inclusive growth. However, it is very difficult to manage these expectations if there is no public confidence in governance and public institutions. When public trust in government is shaken, it may be possible for civic organizations to take up this role.

Macroeconomic Management of Natural Resources

A country should meaningfully prepare once international oil companies have taken FID to develop its reserves. One of the earliest choices is whether to bring forward new natural resource revenues by borrowing in advance against the security of expected future revenues. The question is whether returns from investing immediately, in terms of human development gains, exceed the returns of doing so in the future, minus the interest paid on debt. Should countries such as Mozambique or Uganda, facing significant human development needs, wait for 2020 at the earliest to fully undertake the investment in human and physical capital that they urgently need now?

The African Development Bank released very relevant research findings about these decision points for several countries with the potential to develop oil and gas reserves in Africa. They analysed expected public revenues and government debt to estimate the maximum amount that each country could borrow, given the size of recent sovereign debt operations in Africa and the amount of new debt that a country could take on while maintaining a debt-to-GDP ratio of less than 50 percent. For all countries, it was assumed that the interest rate on capital is 5 percent throughout the repayment period and the repayment agreement includes a five-year grace period from the start of the debt operation, followed by a 10-year repayment plan.

This approach is applied because the size of borrowings, while substantial compared to the existing stock of public debt, is small relative to the scale of projected new natural resource revenue between 2020 and 2050. Through this analysis, AfDB concluded, for example that it is very unlikely that Tanzania would be able to secure a debt operation much larger than the assumed $2.5 billion. The investment required to develop their natural gas reserves is likely to be more than $10 billion. As a result, the main benefit of carrying out such a debt operation would be to bring forward growth-enhancing investments before the onset of gas revenues. This is a risky proposition, however, because there has been no FID decision made in Tanzania and public statements from the operators suggest that such a decision could be delayed until 2025 at the earliest.

Next Steps for KAPSARC

KAPSARC seeks to understand how natural resource extraction can drive inclusive economic growth in new producing countries. This research project will assess local content policies being considered in Eastern Africa. Our approach involves:

- Understanding the human geography of new producing countries.
- Assessing the magnitude of new discoveries and estimating direct fiscal impact.
- Understanding how industry can be localized to create economic growth.
- Estimating spillovers and welfare impacts to society.

The next step in our research project is to sponsor a nationally representative survey of enterprises in Uganda and Mozambique and assess the ability of domestic firms to participate in the oil and gas developments in these countries.

About the Workshop

KAPSARC convened its fourth workshop focused on natural resource-driven development in August 2015, with some 30 international experts to facilitate a dialogue on the expectations of stakeholders in Eastern Africa's oil and gas projects. The workshop was held under a modified version of the Chatham House Rule under which participants consented to be listed below. However, none of the content in this briefing can be attributed to any individual attendee.

Mr. Christopher Adam — Professor of Development Economics, Oxford University

Dr. Amani Abou-Zeid — Advisor, African Natural Resources Center

Mr. Daniel Amanya — Policy Analyst, Petroleum Directorate, Uganda

Dr. Rabah Arezki — Head of the Commodity Research Team, International Monetary Fund

Mr. Paul Bagabo — Economist, Natural Resource Governance Institute, Uganda

Mr. Steven Bainenaama — Ag. Principal Business Analyst, Engineering Petroleum Directorate, Uganda

Dr. Thomas Bwire — Senior Principal Banking Officer, Bank of Uganda

Mr. Edward Furaha — Director of Policy & Advocacy, Tanzania Private Sector Foundation

Dr. Alemayehu Geda — Professor Macro & International Economics, Addis Ababa University, Ethiopia

Dr. Fred Joutz — Professor, George Washington University, USA

Mr. Joseph Kieyah — Principal Analyst, Kenya Institute for Public Policy Research and Analysis (KIPPRA)

Mr. Patrick Kimera — Senior Principal Banking Officer, Bank of Uganda

Ms. Priscilla Kisakye — Economist, Macroeconomics and Policy Department, Uganda

Mr. Paul Lakuma — Research Analyst and Macro Economist, Economic Policy Research Center, Uganda

Mr. Musa Lwanga — Research Associate, Economic Policy Research Center, Uganda

Mr. Joseph Mawejje — Research Analyst and Macro Economist, Economic Policy Research Center, Uganda

Ms. Sauda Msemo — Senior Financial Analyst, Bank of Tanzania

Mr. Joel Muhinda — Head of Modelling, Ministry of Finance Planning and Economic Development, Uganda

Mr. Martin Mungai — Chief Accountant, National Oil Corporation of Kenya

Mr. James Musherure — Petroleum Economist, Petroleum Directorate, Uganda

Mr. Richard Nuwagaba — Petroleum Engineer, Petroleum Directorate, Uganda

Mr. Tim Ohlenburg — Country Economist, International Growth Center (IGC), Uganda

Mr. Lee Robinson — Tanzania Officer, Natural Resource Governance Institute, Tanzania

Mr. Ernest Rubondo — Director, Petroleum Directorate, Uganda

Ms. Olivia Rukundo — Senior Banking Officer, Bank of Uganda

Ms. Faith Sheffer — Economist, Petroleum Directorate, Uganda

Dr. Sarah Ssewanyana — Executive Director, Economic Policy Research Center, Uganda

Mr. Pietro Toigo — Chief Macroeconomist, African Natural Resources Center (ANRC), Cote d'Ivoire

Mr. Mauro Viccaro — PhD Student, University of Basilicata, Italy

Mr. Gituro Wainaina — Director, Social and Political Pillars, Kenya Vision 2030 Delivery Secretariat

Dr. Wilson Wasike — Senior Policy Expert, National Treasury Directorate of Budget, Fiscal and Economic Affairs, Kenya

Mr. Sebastian Wolf — Country Economist, International Growth Center (IGC), Uganda

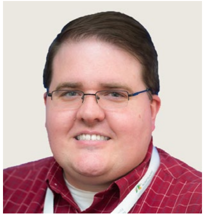
Dr. Tilak Doshi — Former senior research fellow, KAPSARC

Mr. David Hobbs — Head of Research, KAPSARC

Mr. Daniel Mabrey — Research fellow, KAPSARC

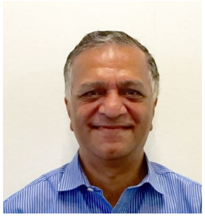
Dr. Baltasar Manzano — Visiting fellow, KAPSARC

About the Team



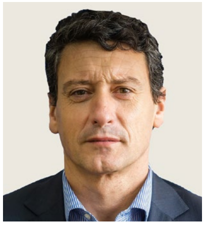
Daniel Mabrey

Daniel is a research fellow and project lead on KAPSARC's Natural Resource-led Development in New Producing Countries project. He is also an associate professor at the University of New Haven in Connecticut, U.S.



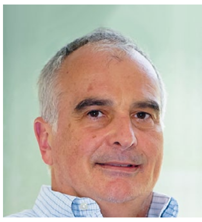
Tilak Doshi

Tilak is a former senior research fellow specializing in oil and gas markets. He holds a PhD in economics from the University of Hawaii/ EastWest Centre, USA.



Baltasar Manzano

Baltasar is a visiting research fellow in the Natural Resource Development in New Producing Countries project at KAPSARC. He holds a PhD in economics.



Fred Joutz

Fred is a visiting research fellow in the Natural Resource Development in New Producing Countries project at KAPSARC. He holds a PhD in economics.

About the Project

Natural Resource-led Development in New Producing Countries

This project seeks to understand how natural resource extraction can drive inclusive economic growth in new producing countries. We are engaged in a multi-year multidisciplinary study with four objectives:

- Understand the human geography of new producing countries.
- Assess the magnitude of new discoveries and estimate direct fiscal impact.
- Understand how industry can be localized to create economic growth.
- Estimate spillovers and welfare impacts to society.

Recognizing that policymaking in new producing countries is a complex process, this project also seeks to understand the interactions of actors' interests that drive energy sector policies.

Our initial focus is on four countries – Kenya, Mozambique, Tanzania and Uganda – that expect to develop significant oil and gas reserves in the next 5-7 years. Through natural resource development, these countries hope to achieve middle-income economic status by 2030-2040. This project is conducted through close collaboration with leading think tanks and NGOs in Africa.

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