

Ugandan oil - a blessing or a curse?

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Key characteristics of Uganda's economy and the oil discovery

1. Uganda is a developing landlocked country in east-central Africa. The GDP in 2011 was \$16.8 billion (throughout, we use \$ to denote USD) at nominal exchange rates with a population of 35 million. This makes for a GDP per capita of \$487. Using a purchasing power parity (PPP) adjustment to take account of a lower domestic price level, income is almost three times as high at a GDP per capita of \$1,345. Compared to its neighbors, Uganda has a GDP per capita that is slightly lower than in Kenya and Tanzania, but substantially higher than in South Sudan and the Democratic Republic of Congo.
2. Like in many other countries in Africa, growth in Uganda in recent decades has been relatively high. The average real per capita growth rate in Uganda over the last 15 years was 3.0% per year, which is substantially higher than in previous decades. Government finances have been in deficits in recent years, but over the last decades, deficits have not been very large and the current (2012) general government gross debt stands at the fairly low level of 36% of GDP. However, the current account has been deteriorating at an alarming rate recently.
3. There is substantial uncertainty about the amounts of recoverable oil in Uganda. Over one billion recoverable barrels have been discovered in the Lake Albert Rift Basin. There is also potential for more discoveries. According to the organization Oil in Uganda, a reasonable estimate is 2.5 billion barrels. After discussion with Tullow oil, we use as a somewhat conservative benchmark the assumption that there are 1.8 billion barrels that can be recovered.

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4. At current prices and the assumed costs of extraction and transportation, the oil resource thus amounts to \$180 billion in revenues and \$144 billion in profits. With a population of 35 million, the latter means \$4,100 per capita, or more than 8 times GDP per capita at market prices. Having a sovereign wealth fund with \$144 billion would yield \$160 per capita in return, i.e., a third of current per capita income, under a standard assumption of 4% real return. Thus, the value of the discovered oil is large but far from being large enough to itself lead to a revolutionary change in the living conditions of the average Ugandan. The oil will not make the average Ugandan a rich oil sheik but if the oil resource is wisely spent, it certainly may make a difference.
6. If the domestic economy is well connected with international markets for borrowing and lending, the optimal trade-off between consuming now and in the future is independent of the investment decisions. However, there are many reasons to suggest that Uganda is not unconstrained in its access to international borrowing, thus creating a tighter link between consumption and investment decisions. Thus, oil revenues might be used for productive investments that would otherwise not have been undertaken but may then imply that consumption has to be held back now in favor of only increasing the consumption in the future. There is risk, though, that the oil revenue creates a domestic pool of money that is “too cheap”. Investments that wouldn’t have been undertaken had Uganda had access to perfectly functioning credit markets should probably not be financed by oil revenues either.
8. For reasons that are still not fully explored, the actual oil price path has historically deviated substantially from the predictions of the standard model. Thus, the value of the oil resource may depend on when it is extracted. Under the somewhat pessimistic assumption that real oil prices are constant, delaying extraction may have substantial costs. Using a flat extraction profile rather than the one proposed by the oil company Tullow, which arguably implies extraction at maximum speed, reduces the value by 25%. Delaying the whole extraction path by one year equals the discount rate times the value of the total oil resource. With an assumed discount rate of 4%, this amounts to about 5 billion dollar per year, i.e., about a third of GDP

Macroeconomic trade-offs

5. A key trade-off facing, in particular, a country that finds valuable natural resources is that between consumption and investment. One aspect of this is the purely intertemporal consumption allocation issue: for any given amount of income, how much should be consumed in Uganda now and how much should be consumed in the future, by future generations? Another aspect is how to invest, in physical domestic capital, private or public, in other domestic assets like human capital, in foreign assets in the form of a sovereign wealth fund or by simply saving the natural resource for later extraction. In this report we address these issues in a principal but quantitative way. More detailed conclusions and specific recommendations require more detailed institutional and business knowledge.
7. The decision on when to extract the oil revenues should be seen as a constrained investment choice. By postponing extraction future revenues are generated at the cost of not having the revenues today. Clearly, the return on such an investment is closely linked to how oil prices develop over time. According to standard economic theory, profit maximizing resource owners will supply oil so that the oil price (net of extraction costs) grows at the rate of return on alternative investments. In such a case, the value of the Ugandan oil resource is independent of when it is extracted.

A formal model and model results

9. A formal analysis, using a calibrated theoretical model, of the role of oil in Uganda’s economy is undertaken in the report. The use of formal methods is beneficial in that these force discipline, both logical and quantitative. A long-run growth model is built where output is produced by labor, private capital and public capital. An important assumption is that there are time-varying inefficiencies in the investment capacity - a share of investment is lost and not turned into productive capital. These inefficiencies are assumed to fall over time, representing a driver of economic development.

i. Given the assumption that Uganda’s economy will be well managed, catching up in the longer run to the OECD countries by gradually eliminating current inefficiencies, there is a strong argument for letting currently living cohorts share in the future prosperity.

ii. With binding constraints on foreign borrowing, oil revenues should partly be used to smooth consumption between current and future cohorts even if this has a negative effect on investments.

iii. Placing the oil revenue in a sovereign wealth fund and, as done in Norway, only withdrawing 4% annually for consumption and investment, reduces consumption relative to the benchmark until 2045 but increases it thereafter.

10. In order to evaluate welfare for this economy, we assume a representative agent that should be thought of as the currently living dynastic father/mother who takes into account the welfare of all coming generations. The important issue of intragenerational conflicts and trade-offs is abstracted from in the formal analysis.
11. To illustrate the importance of access to international capital markets for the analysis, two polar cases are investigated. In one, Uganda can lend and borrow any amount it is able to repay from an international capital markets that charges a real interest of 4% per year. In the opposite case, Uganda is assumed to have no access to the international capital market. Obviously, a truthful description of reality lies in between these two cases. The model produces a number of results.

Other considerations

12. Our model treated each cohort of Ugandans as homogeneous. In reality, there are large welfare disparities between rich and poor. Our model speaks strongly in favor of using a significant part of the oil revenues early to boost the welfare of current Ugandans, since future Ugandans will benefit from economic development. Taking heterogeneity into account, we emphasize that this argument applies only to the current disadvantaged: the extra resources need to be directed toward this group and not to the currently wealthy Ugandans.
13. Our theoretical model abstracted from the historical experience of many countries demonstrating that the discovery of a valuable natural resource may dramatically reduce growth and development. The consensus today is that the largest risks arise in the political arena. The rents from the resources may, and often do, spark or reinforce corruption at various political and social levels and lead to the undermining of democratic institutions, all with the purpose of gaining control over the resource rents. These effects, in turn, trigger economic stagnation, inequality and sometimes even armed conflicts. If this occurs, there is no future prosperity for current Ugandans to share and the results from the formal analysis become irrelevant.
14. One needs to be extremely wary of the possibility of these negative developments and it is important to realize that they are not set in stone: there are measures one can undertake to minimize the risks that they will surface. One problem that can be addressed has to do with transparency. One example of lack of transparency is the sharing agreements of oil revenues in Uganda: they are not public. This clearly limits the ability of media and the citizens of Uganda to scrutinize the agreements and to investigate whether they contain problematic elements and whether they address all the important issues in a proper way.
15. A closely related problem is that large revenues may make spending decisions worse from a social point of view. Adverse partisan influence over these decisions is hard to avoid also in developed countries and call for caution in Uganda as well. To avoid bad spending decisions one possibility would be to set up a sovereign wealth fund with a rule that specifies a path for investments and consumption over time. As shown in the theoretical section, there is a welfare loss relative to the first-best outcome in setting up such a fund, but this cost may be worth taking if it reduces the risk of wasting the oil resource.
16. It is necessary to strengthen the state comptroller and other authorities monitoring the conduct of government, politicians and the bureaucracy. These measures should be undertaken before the resource revenues start flowing. Deciding on how to spend on public investments is a political task that hardly can be delegated to an independent agency, at least when the investment project is large. However, a rule stating that public investments over a certain size need to be evaluated by an independent agency can increase transparency and enhance the quality of decisions without compromising democratic principles. Here, it may be advisable to use international consulting agencies until domestic institutions with sufficient competence and independence are built. It may also be reasonable that, when large infrastructure projects are proposed, the runner-up alternative in terms of social profitability is also presented.
17. One often-raised concern is a detrimental effect that added natural-resource revenues can have on other sectors. This mechanism is the so-called Dutch disease and captures the tendency that oil extraction leads to a currency appreciation, lowering competitiveness in other export sectors. It is important to note that the mechanisms behind a loss of competitiveness in other export sectors following an expansion of oil exporting exist also in economies that function perfectly. After a windfall income gain, domestic demand for non-tradables produced domestically increases. To meet the higher demand, output expands, which requires a resources reallocation from the export sector to the non-tradables sector. This is achieved by a real appreciation that reduces the relative profitability of non-oil exports.

18. In the realistic case when the supply of non-tradables is less than perfectly elastic any distortionary policies that make the non-tradable sector larger than optimally also make the social value of oil revenues smaller. Consequently, the social value of opening up non-traded sectors to foreign competition increases when oil is found. Here, an unreasonably strong appreciation of the currency may be an important indication of distortions. One can easily imagine that the pressure to remove inefficient regulation falls as the economy finds a new source of revenues. This problem needs to be addressed at its roots for Uganda to fully harness the value of the oil resource.

19. Another issue is whether the oil revenues at least partly should be used to reduce taxation. Our impression that current taxes are quite distortionary and growth-hampering leads us to conclude that the reduced financial pressure on the government coming from future oil revenues should partly be used to reduce taxes on the formal sector of the economy. Reductions in profit taxes and capital income taxation should be a key aspect of a tax reform. By using oil revenues to reduce taxes, there is thus a possibility of a “double dividend” from the new oil revenues, since the reductions in tax rates have secondary benefits on Ugandan citizens and are likely to be growth-enhancing.

20. Clearly, a government budget should not be built on using the very fluctuating flow of oil revenues hand-to-mouth. A well-functioning international capital market could in principle be used to smooth stationary short-run fluctuations in oil revenues. However, access to such a market is likely to be constrained for Uganda. This creates a motive of its own to instead build a buffer stock in the form of a sovereign wealth fund which would work as a buffer between the economy and the

oil revenues. Inputs into the fund may fluctuate while withdrawals from the fund can be made smoothly. Initially, however, when the sovereign wealth fund is still small, its buffering capacity is naturally limited.

21. There is substantial evidence that government consumption in developing countries is procyclical. There are reasons to believe that this has negative effects on growth. Oil revenues may be a way out of this. But because oil prices are so unstable, it requires the use of a stabilization fund. Otherwise, oil revenues may worsen the situation and be harmful for growth. We find strong arguments for separating the fund in two, one used for long-term transfer of resources and one for short-term stabilization of government revenues. The investment strategies and evaluation benchmarks of the two funds should differ substantially and so should the rules for how money should be withdrawn.

Conclusions and recommendations

22. We have made relatively optimistic assumptions about the general outlook in Uganda, in particular about the future oil price and about the possibility for Uganda to catch up with the developed world in terms of TFP and investment efficiency. Under such assumptions about the future, the model delivers the conclusion that there is quite a strong argument for letting current generations share in the prosperity promised by the future oil revenues. On the other hand, we have emphasized that future income is not safe manna from heaven: it is uncertain and requires that many challenging choices be made successfully and temptations be avoided systematically. History is full of examples of resource-rich countries that have found themselves in a situation where

optimistic forecasts of future wealth have been replaced by despair-gold turning into sand, or something worse than sand.

23. Significant caution in consuming the expected proceeds from oil revenues must be exercised, probably implying much less consumption in the near future than what our formal model says is optimal. The large current account deficits need to be addressed and government deficits should not be allowed to grow too fast. It is well known, not the least from the recent developments in the Euro area, that large debts can be dangerous and often are destabilizing. Nevertheless, we maintain that substantial amounts of oil revenues should be used for the benefit of current generations. How much exactly is a political decision.

24. The importance of transparency when political decisions about the oil cannot be overestimated. In order to have a well-functioning process for making decisions about how to use oil revenues, information about contracts and forecasts must be made public in a much freer way than currently.

25. The oil revenues can yield a “double dividend” by making it possible to reduce distorting taxation. We do not have sufficient knowledge about the Ugandan tax system to be able to suggest a specific tax reform, but reducing capital and corporate income tax rates may be particularly important for growth while a reduction of value added taxes may be more important for static efficiency and perhaps equality.

26. Another possible double dividend is to use the oil revenues as a stabilization device. Properly employed, they can help the governments overcome the tendency for procyclical fiscal policy that is endemic in the developing world. Uganda is well advised to set up an explicit stabilization fund that can be used for this purpose. The stabilization fund and the wealth fund, moreover, should be set up separately. Since they have different purposes and should be evaluated against different benchmarks, such a separation is important for ensuring accountability. Here, Ghana can provide an important example but lessons can also be drawn from as far away as Norway. In particular, Norway provides a good example when it comes to transparency and clarity of goals, the investment practices, and accountability.
27. A final recommendation is to introduce a law that requires cost-benefit analyses to be undertaken before large public investments are decided on. Such analyses should be made by independent agencies. In the near future, it seems reasonable to use international consulting firms for this. However, independent domestic agencies for the evaluation of how public resources are spent should also be set up. This endeavor should not wait until oil revenues start to arrive.

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