



## Macroeconomics & Fiscal Management

# MFM PRACTICE NOTES

## HOW SHOULD DONORS RESPOND TO RESOURCE WINDFALLS IN POOR COUNTRIES?

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**Introduction:** Natural resources are being discovered in more countries, both rich and poor. Many of the new and aspiring resource exporters are low-income countries that are still receiving substantial levels of foreign aid. Resource discoveries open up enormous opportunities, but also expose producing countries to huge trade and fiscal shocks from volatile commodity markets if their exports are highly concentrated. A large literature on the “resource curse” shows that these are damaging unless countries manage to cushion the effects through countercyclical policy. It also shows that the countries least likely to do so successfully are those with weaker institutions, and these are most likely to remain as clients of the aid system. This brief considers the question of how donors should respond to their clients’ potential windfalls. It discusses several ways in which the focus and nature of foreign aid programs will need to change, including the level of financial assistance. It also presents some ideas on how a donor like the International Development Association might structure its program of financial transfers to mitigate volatility. The brief outlines ways in which the International Development Association could use hedging instruments to vary disbursements while still working within a framework of country allocations that are not

contingent on oil prices. Simulations suggest that the International Development Association lending products could be structured to provide a larger degree of insurance if they are calibrated to hedge against large declines in resource prices. These suggestions are intended to complement other mechanisms, including self-insurance using Sovereign Wealth Funds (where possible) and the facilities of the International Monetary Fund.

### The Problem

Oil, gas and minerals are being discovered in more countries, both rich and poor. Tanzania, Mozambique, Kenya and Uganda, traditionally regarded as energy-poor, are poised for resource booms and Ghana has already experienced the initial phases. Some agriculture-based countries like Zimbabwe are evolving into hard-mineral exporters with investments in diamond and platinum mining. Other established mineral exporters such as Zambia have begun to see a dramatic increase in mining tax revenues as investments are fully depreciated and new agreements negotiated and some, like Mongolia, have seen large increases in estimates of proven reserves. Many of the new and aspiring resource exporters are low-income countries that are still receiving substantial levels of aid. In 1995 Sub-Saharan Africa had only four fuels exporters; depending on world market scenarios, the

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<sup>1</sup> This MFM Practice Note was cleared by Albert G. Zeufack, Practice Manager (GMFDR).

outlook is for as many as 19 (Ross 2012) and virtually all of the additional countries are currently IDA-eligible. Some, like Tanzania, are politically stable and well managed. Others, like South Sudan, are beset by severe political instability and civil conflict, and with a very problematic record on fiscal management.

In our recent paper (Dobronogov, Gelb, and Saldanha 2014) we consider the question of how donors should respond to their clients' potential windfalls. One important challenge, and the main focus of the paper, is the potential role of donors in helping the new resource exporters to deal with increased risk. Resource discoveries open up enormous opportunities but also expose producing countries to huge trade and fiscal shocks from volatile commodity markets if their exports are highly concentrated. A large literature on the "resource curse" shows that these are very damaging unless countries manage to cushion the effects through countercyclical policy. It also shows that the countries least likely to be able to do this are those with weaker institutions, and these are most likely to remain as clients of the aid system. Developing countries have a wide array of potential instruments to help manage risk. They can implement fiscal rules to help stabilize spending, save and dis-save abroad using Sovereign Wealth Funds (SWFs) and can also use the IMF, in particular the Exogenous Shocks Facility (ESF) within the PRGF. Donors, in particular, the Multilateral Development Banks, can play a role in several of the more market-based approaches (Perry 2009), but some mechanisms, such as developing local currency bond markets or index-linked bonds, may be more applicable to middle income countries, or at least to countries emerging from aid dependence towards market-based financing.

The specific topic considered here is how donors might reshape their flows of concessional development assistance to provide some insurance against resource booms and busts. In some cases, insurance could be provided to the country at the macroeconomic level. Alternatively, insurance could be provided to the development program itself to reduce its

vulnerability to fiscal shocks. While the arrangements for the latter might be more complex, in some situations it might be a more acceptable approach for a donor especially if there are concerns that providing macroeconomic or budget support will not necessarily insulate "good" development programs from changes in counterpart funding. Either way, the question is how best to design a program that is able to respond to shocks from volatile commodity markets and how to finance such a program within the often rigid funding constraints faced by the donor.

### Ideas for the Solution

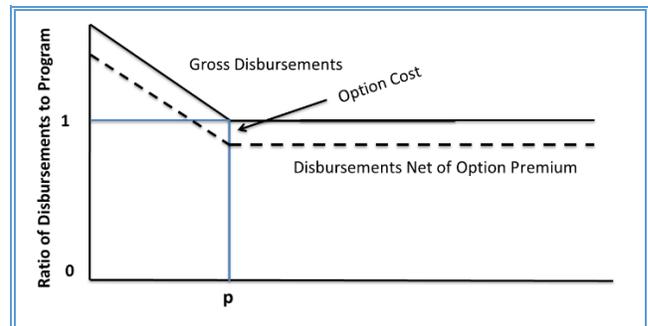
How a donor like IDA might structure its program of financial transfers to mitigate volatility? One approach is to adjust the level of program disbursements in response to resource shocks - increasing them when resource prices fall and/or decreasing when the prices rise - so that countercyclical aid flows provide a degree of insurance to the development program. The question then is how a donor like IDA can vary disbursements in response to resource shocks even though the country envelope, which covers all project commitments, is determined by other factors. One appealing possibility is to make the allocation formula sensitive to terms of trade shocks. However, this would not be a simple change to a formula reached through a lengthy process of political negotiation. The approach would also be subject to long data lags, including the time needed to scale the country program up or down in response to a changing allocation. Another possibility is the Deferred Drawdown Option (DDO) that provides a credit line available to be drawn down in case of need. This however would be very unattractive for an IDA borrower as it requires maintaining headroom in the country program in case the drawdown is needed, meaning that highly concessional financial resources needed to provide the headroom will not be utilized. Given the realities of periodic IDA replenishments and the way of process of determining country envelopes, there is no secure way for a client country to trade low commitments in one year for a larger program at some indefinite time in the future.

Considering these difficulties, we outline some possible ways in which IDA could use hedging instruments to vary disbursements while still working within a framework of country allocations that are not contingent on oil prices. Put differently, we consider approaches towards hedging the IDA program to enable disbursements to vary in response to oil prices in the face of fixed commitment levels, offering some ideas on how an IDA program could help to cushion funding volatility while still keeping its own risk within manageable bounds<sup>2</sup>. The arrangements could be set up to provide a graduated response to oil price changes or be tailored towards more “catastrophic” coverage in the event that oil prices collapse, as indeed they did during the global crisis in 2008 and again in 2014-15. We start from a discussion of two aid instruments which introduce some elements of insurance into policy-based lending, and then extrapolate the same idea to other types of IDA lending instruments.

In the first aid instrument we propose, a country borrows a given amount  $X$  which is not immediately disbursed. Conditional on the implementation of certain prior actions and refraining from their reversal during the project period, IDA commits to disburse for the next  $Y$  years amounts equal to 0 if the average price of oil exports during a year does not fall below a certain level, and some positive amounts if it does, with these amounts being larger the lower is the average price of oil. To achieve its objective to help maintain macroeconomic stability, the program needs to cover a sufficiently long time period and a sufficiently large portion of oil revenues. This product could be financed through a string of hedging instruments called puts. The most important trade-off is that

between the time horizon  $Y$  and the portion of the country’s oil revenues it helps to hedge. The longer is the former the smaller will be the latter. Figure 1 provides a graphical representation, distinguishing disbursements received by Uganda from total disbursements; the difference is the cost of the put options.

**Figure 1. Disbursement relative to Program for Put Option Only**



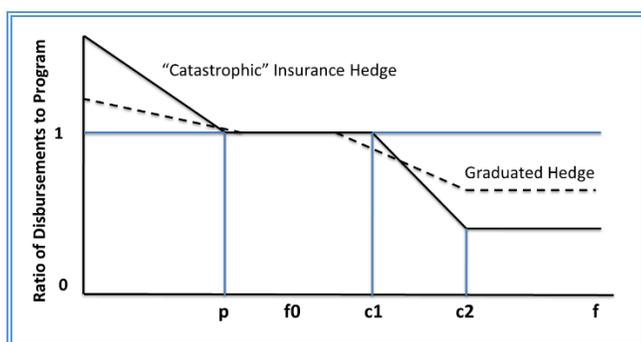
In the second instrument, at the beginning of a fiscal year, a country program is agreed, with disbursements at the end of the fiscal year conditional on the implementation of agreed policies and actions by the government IDA agrees to disburse the program amount if the average benchmark price of oil remains in a pre-agreed range, a larger amount if the price falls below it and less if it exceeds the range (Figure 2). Some minimum level of disbursement might also be necessary to maintain continuous engagement, even if oil prices are very high. The counterpart financing for this approach would involve a hedging instrument called risk reversal (consisting of a put option and two call options). It might be designed in a way ensuring zero upfront costs of hedging.

<sup>2</sup> IDA cannot of course insure against all risks. It cannot cover output risk, since the level of production can be affected by country policy. Neither can it cover basis risk, the changing margin between the price received for Uganda’s (low-quality) crude and a benchmark price such as that of Brent Light for which futures markets exist. Basis risk can be considerable for oil of different quality trading on widely separated markets but still leaves a larger component of market price risk that can be cushioned. There are also practical limits on the ability to hedge against medium-

longer-run price cycles. Nevertheless, simulations suggest that it would be possible to hedge against sharp declines in oil prices over a horizon of a few years at little or no net cost if the government agrees to forego part of IDA’s disbursements when oil prices are high. For this to work in an automatic and countercyclical way, it would be important not to subject the program to additional conditionality, but to see the upward and downward revisions in disbursements as simply scaling the agreed program.

Simulations using typical distributions of futures prices provide some indication of the range of hedging possibilities open to IDA. If the country is willing to give up a substantial part of disbursements when oil prices are very high and “insurance is provided only against very large price declines IDA disbursements can be more than doubled. This is not an unrealistic price scenario; indeed, price declines larger than those simulated have actually taken place since the middle of 2014.

**Figure 2. Disbursement relative to Program for Risk-Reversal Hedges**



With the stress on “country ownership”, many have advocated the use of budget support as an essential component of assistance if the legitimacy and capacity of the government is not to be undermined by fragmented project aid. However, as resource taxes cause fiscal revenues to balloon, donors can respond by changing the mix of financing instruments, and programs for resource-rich countries might shift away from budget support towards investment projects, especially if they provide technical assistance or create incentives to help the country improve the management of its own funds. Another promising approach is the development of results-based assistance, such as the Program-for-Results (PforR) approach recently approved by the World Bank. Most of the PforR operations have been quite highly leveraged, with the World Bank providing less than half the total

program, raising the hope that combining domestic and external funds can improve the use of at least part of the resource revenues. In especially difficult cases donors might seek to channel much of their funding through non-government channels.

The IDA program therefore could combine policy-based lending, project support and results-based loans, the latter two with variable co-financing. If the oil prices rise, government contributes more; if the prices fall, IDA contributes more. This approach could enable a more tailored approach than that possible through policy-based lending alone. It could help to insulate specific development programs from shifts in spending priorities that could accompany large swings in the availability of financial resources.

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