The Case for Direct Transfers of Resource Revenues in Africa

Shantayanan Devarajan and Marcelo Giugale with Hélène Ehrhart, Tuan Minh Le, and Huong Mai Nguyen

Abstract

Noting that Africa's resource-rich countries have not translated their wealth into sustained economic growth and poverty reduction, this paper shows that by transferring a portion of resource-related government revenues uniformly and universally as direct payments to the population, some countries could increase both private consumption and the provision of public goods, and thereby reduce poverty and enhance social welfare. We make the case based on theoretical considerations and explore how these direct dividend payments would look in practice in a group of selected African countries.

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Foreword

The discovery of oil in a developing country is potentially beneficial and, simultaneously, potentially calamitous. While countries could put oil revenues toward building much-needed schools and roads, fixing and staffing health systems, and policing the streets, many resource-rich states fare little better—and often much worse—than their resource-poor counterparts. Too often public money is misallocated and funds meant to be saved are raided, and those living in poor resource-rich countries pay the price. While this so-called resource curse is well established in the literature, solutions to counteract its corrosive effects remain highly elusive.

CGD's Oil-to-Cash initiative is exploring one policy option that may address the root mechanism of the resource curse: using cash transfers to hand the money directly to citizens and thereby protect the social contract between the government and its people. Under this proposal, a government would transfer some or all of the revenue from natural resource extraction to citizens in universal, transparent, and regular payments. The state would treat these payments as normal income and tax it accordingly—thus forcing the state to collect taxes, and adding additional pressure for public accountability and more responsible resource management.

This paper by Shanta Devarajan and Marcelo Giugale, commissioned by CGD as part of Oil-to-Cash, develops a model for why direct distribution of oil revenues can improve social welfare even in countries with a strong need for public goods and infrastructure. Their model suggests that direct distribution schemes can increase both the provision of public goods and private consumption and, thus, can enhance social welfare, and that it would be particularly effective in countries where: (i) large natural-resource revenues mean governments face decreasing returns in turning them into public goods; (ii) the size of the transfer would be significant enough to enhance citizen scrutiny, and (iii) politics is sufficiently contestable for leaders to care about citizens' welfare. Devarajan and Giugale conclude with illustrative calculations of what these direct dividend transfers would look like in practice in selected African countries. They find that given the magnitudes of the oil revenues, some countries (particularly small ones) could close the poverty gap by transferring a modest 10 percent of oil revenues to their citizens. By strengthening the theoretical economic rationale for direct distribution, Devarajan and Giugale's paper makes an important contribution to the literature, and perhaps most importantly, advances the policy dialogue by providing concrete guidelines for which oil rich developing countries could most benefit from direct oil dividends.

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I. Introduction and Rationale

The recent discoveries of oil, gas and minerals in, among others, Ghana, Uganda, Kenya, Tanzania and Mozambique represent a once-in-a-lifetime opportunity for the citizens of these countries to escape poverty and enjoy sustained economic growth. Inasmuch as the discoveries were triggered by a rise in international prices, Africa's traditional resource-rich countries such as Angola, Gabon and Nigeria also have a chance to launch their economies to a higher level of development. Unfortunately, their track record has been disappointing. With the exception of Botswana, none of them has turned higher income from commodity extraction into sustained poverty reduction. While the reasons are many—the collapse of other tradable sectors, especially agriculture (Sachs and Warner [1995, 2001]), unfavorable exploitation contracts, and so on—the most striking fact is that fiscal revenues have not translated into effective public spending. By and large, Africa's hydrocarbon and mineral exporters have overspent during commodity booms, misallocated between poverty-reducing and other expenditures, and obtained very little value-for-money in terms of human development—leading many to see resource wealth as a "curse"[1]. For example, Gabon, with a per-capita income just under $10,000, has one of the lowest child immunization rates in the world.

In light of this experience, how can Africa's new, hydrocarbon and mineral exporters avoid the resource curse? And how can its traditional commodity exporters turn their development performance around? Is there anything that these countries can do differently in the way they use their natural resource wealth? In this paper, we argue that the answer lies in the special nature of fiscal revenues from extractive industries: in contrast to other forms of fiscal revenue, they go directly from the extracting company—usually a multinational—to the government, without passing through the citizens. As a result, citizens rarely know how much money reaches the public coffers. And even when they do know, they have little incentive to scrutinize the ensuing spending, because it is not funded by their taxes. With less scrutiny, it is less likely that public spending reflects citizens' preferences—much less the preferences of the poor—and more likely that it is plagued by inefficiency and, worse, corruption[2].

Given this syndrome, and in a break from past practice, we propose that African governments consider transferring a portion of their resource revenues as direct dividends to their citizens. Specifically, we explore the possibility of distributing a fixed proportion of those revenues uniformly and universally. The idea is not new. The U.S. state of Alaska and the Canadian province of Alberta have introduced such schemes; Sala-i-Martin and Subramanian [2012] suggested them for Nigeria. But no African—or, for that matter, developing—country has ever implemented it. Three main reasons are usually cited to

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[1] Devarajan and Singh [2012] document public expenditure misallocation for the oil-rich Central African Countries.

[2] The government may also lack the administrative capacity to spend the windfall in an efficient manner (Arezki, Dupuy and Gelb [2012]).

explain why developing countries have refrained or should refrain from direct dividend payments (DDPs): (i) identifying people and transferring money to them is technically difficult and costly; (ii) the political economy of non-democratic systems works against DDPs because incumbent rulers have no incentives to give up control over state resources; and (iii) governments need additional revenue to fund the provision of public goods—they can ill-afford to give away cash to individuals for private consumption when they still face unmet needs in vaccinations, primary education or basic infrastructure.

Today, these reasons may no longer apply. First, thanks to technological advances, it is now simple and inexpensive to biometrically identify every citizen in a country (Gelb and Decker [2012]). India is one-third of the way towards issuing "unique ID" cards to its 1.2 billion nationals. Some 35 African countries already identify and make cash transfers to some of their citizens as part of their social assistance programs—transfers that in many cases are *de facto* funded by revenues from extractive industries.

Second, with the rise of competitive elections in Africa, parties in opposition may find DDPs a powerful tool to gather political support ("vote for me and the oil is yours"), especially if the incumbent ruler is reluctant to introduce them, as was the case in the 2006 presidential elections in Venezuela (Rodriguez et. al. [2012]).

Third, recent theoretical research, which we review in section II, shows that DDPs may *increase* the total amount of public goods that a government provides, even though it may be left with less revenue under its control. This is because DDPs may preempt inefficient public spending or prompt greater scrutiny. Both effects would be very welcome in the average, resource-rich African country, whose government has effectively failed as a public-goods provider.

Not only are DDPs theoretically desirable in Africa but, as we show in section III, the orders of magnitude are such that, for small countries especially, they are empirically attractive. A transfer of about 10 percent of oil revenues in Angola, Equatorial Guinea and Gabon, distributed universally, would be sufficient to close the poverty gap in these countries. For larger countries such as Mozambique and Nigeria, the transfer would cover about half the poverty gap.

We conclude the paper with some operational implications.

II. An Heuristic Explanation of How DDPs Can Increase the Provision of Public Goods

In the past year, three different papers (Arezki et al. [2012], Devarajan et al. [2012], and Ehrhart [2012]) have arrived at the same conclusion: even in a world where there is a marginal need for public goods, DDPs can improve social welfare. In this section, we summarize the arguments underlying that conclusion, and build a simple, heuristic model to illustrate it.

In an ideal world, where governments perfectly reflect the preferences of citizens and face no constraints in providing public goods, there is no need for DDPs or, indeed, for any type of cash transfer. The government will choose the correct mix of public investment and consumption, and implement it costlessly. Unfortunately, the real world is very different. In this section, we consider two alternatives to the idealized scenario. In the first, the government still reflects citizens' preferences, but faces constraints in implementing a public investment program. In the second, we relax the assumption that governments and citizens have the same objective function, and explore the role of cash transfers in a "game" between the two.

Implementation Constraints

Arezki et al. (2012) relax the assumption of costless implementation in regards to public investment. Noting that many governments lack administrative capacity, they introduce the notion of "adjustment costs" to reflect ways in which investments outlays do not translate *pari-passu* into increases in the stock of public capital. These adjustment costs, which may reflect weak administrative capacity as well as corruption, increase with the size of the resource windfall (for example, because there are more opportunities for rent-seeking and capture). On that basis, Arezki et. al. derive an important result: the larger the resource windfall, the less governments should spend on public investment relative to direct transfers. The intuition is that, with higher adjustment costs, the optimal level of public capital accumulation falls (Figure 1).

Figure 1: Optimal public capital stock in a simulation
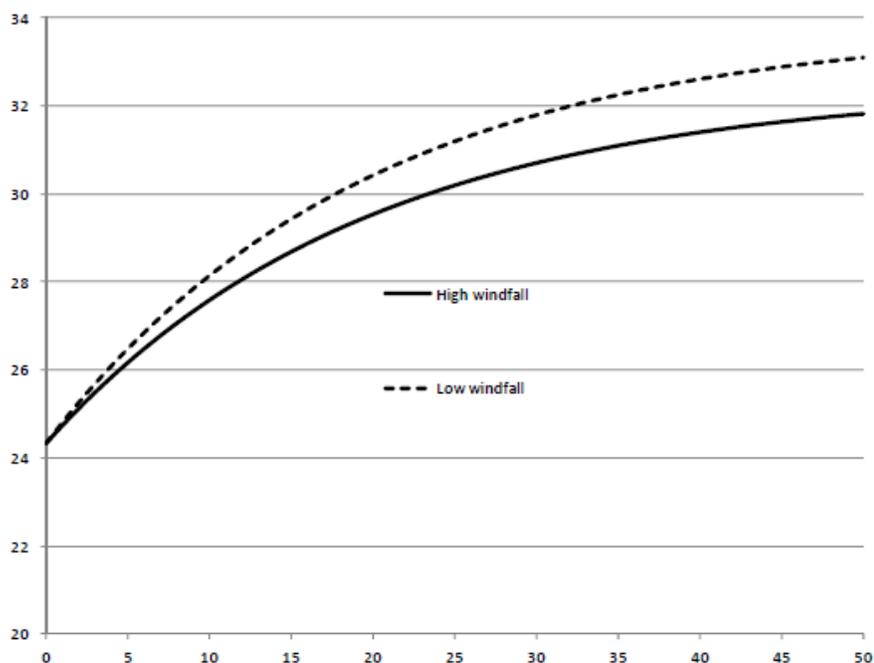
Source: Arezki, Dupuy and Gelb (2012)

In other words, government and society (who have the same preferences) are better off if the former transfers more of the windfall directly to the latter, rather than attempting to invest it. As in all models, the result follows from the assumption that adjustment costs are increasing in the size of the windfall. However, the finding stands in stark contrast to the rhetoric of policymakers in many of the newly-resource-rich countries, who anticipate using revenues for, say, infrastructure on grounds that that is in the public's interest.

Government and Citizens Have Different Objective Functions

Devarajan et al. [2012] relax the assumption that governments and citizens have the same preferences. For example, they may attach different values to public goods, "public consumption" (the consumption of political elites), and private consumption. Furthermore, citizens have imperfect knowledge of the level of extractive-industry revenue the government receives. They can invest in scrutinizing government spending, but this is costly. At the same time, increased scrutiny makes it more difficult for the government to divert resources from public goods to its own consumption. The citizen's decision of how much to invest in scrutiny depends on the expected benefit which, in turn, is a function of the citizen's perception of how large the resource revenues are. The less knowledge citizens have about fiscal revenues, the lower the probability they perceive of enjoying public goods, and the less they will invest in scrutiny.

The Devarajan et al. model thus leads to a non-cooperative game between citizens and government, where the former choose the level of scrutiny they will exercise and the latter chooses the level of public goods it will provide. In such a game, DDPs can lead to a higher level of public goods. Specifically, government transfers some of its extractive-industry income to the citizens and then recovers part of the transfer through normal direct taxation. As the rate of taxation increases, citizens have a better idea of the resources that could be devoted to public goods (the share of "known" to unknown resources increases), so their incentive to invest in scrutiny increases. But higher taxation means that citizens have less money to spend on scrutiny and on consumption. Devarajan et al. show that there is a level of taxation (varying between 10 and 30 percent depending on the efficiency of scrutiny) when the level of scrutiny, and therefore the level of public goods, is highest (Figure 2).

Figure 2: The Relationship between Tax Rate and Scrutiny Effort for Different Levels of Scrutiny Efficiency (Y)
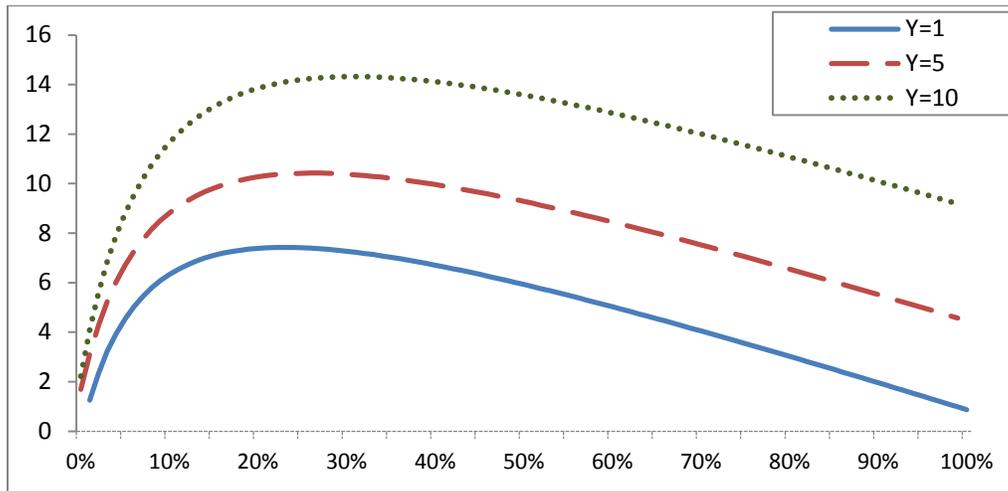
What if direct taxation of citizens is not possible or widespread, a feature of many African countries? Could DDPs still increase the level of public goods? Ehrhart [2012] proposes a variant on the Devarajan et al. model where the citizen chooses to scrutinize all government spending only if she thinks that the level of public consumption (the amount that is captured by political elites) relative to public goods is above a certain threshold. The government then has an incentive to provide enough public goods to keep the citizen from scrutinizing. When part of the resource revenue is transferred to the citizen as a DDP, she may suspect that public consumption exceeds her acceptable threshold and merits scrutiny, because she now knows that revenues are at least as high as the level of the transfer. This forces the government to offer a higher level of public goods to avoid scrutiny. Note that this result is in contrast to the more traditional argument that rentier governments use handouts to buy off opponents and reduce scrutiny. The difference is that these traditional models assume that the size of the handout determines whether the individual engages in scrutiny or not. In the two previous models, scrutiny is a function of the expected return which, in turn, is a function of the perceived size of public revenues. In the Ehrhart model, the handout is therefore a signal of the level of public revenues.

The papers described above suggest that larger fiscal revenues may not lead to proportionally larger public goods (due to "adjustment costs" as in Arezki et al.) and that DDPs may lead to closer citizen scrutiny of public finance (due to their informational content as in Devarajan et al. and in Ehrhart). These insights can be used to construct a simple, illustrative model and graphical representation of how DDPs can increase both the provision of public goods *and* private consumption and, thus, enhance social welfare. Below we present one such a model while, in the next section, we turn to what DDPs could actually look like in selected, resource-rich African countries.

Assume a government that has a single source of exogenous revenue, R, coming from the extraction of a commodity and that turns its revenue into public goods through a function $p(R - D, S)$, $p_{R-D} > 0$, $p_S > 0$. D is a non-negative DDP to citizens ($R > D > 0$), and S is a non-negative level of scrutiny those citizens exercise given by the function $S = S(D)$. The more they scrutinize the production of public goods by the government, the more public goods are produced per unit of revenue.

Citizens maximize a utility function $U(p, c)$, $U'_p > 0$, $U'_c > 0$, where c stands for private consumption, subject to a budget constraint $y + D = c$, where y is a fixed level of non-commodity income. Assume for the moment that scrutiny is costless and takes only two values: $S = 0$ when $D = 0$, and $S = S_D > 0$ when $D = D_T$, $R > D_T > 0$. In other words, only when people receive a *portion* of the government's revenues, do they care to scrutinize what it does with the money it does not distribute (this is similar to Devarajan et. al.'s awareness through taxation, and to Ehrhart's "threshold").

The graphical representation of the model is shown in Figure 3. If the government chooses not issue DDPs ($D = 0$), the level of public goods and citizens' utility at a relatively low level of revenue $R = R_L$ are p_L and $U(p_L, y)$, respectively. The corresponding values at a higher level of revenue $R = R_H$ are $p = p_H$ and $U = U(p_H, y)$. The logistic-curve shape of the public goods production function could be explained, for example, by the existence of bundling effects at initial levels of public service provision (e.g., the combination of schooling and nutrition) and overlap of services at higher levels of revenue (e.g., price subsidies for residential electricity and affordable housing programs).
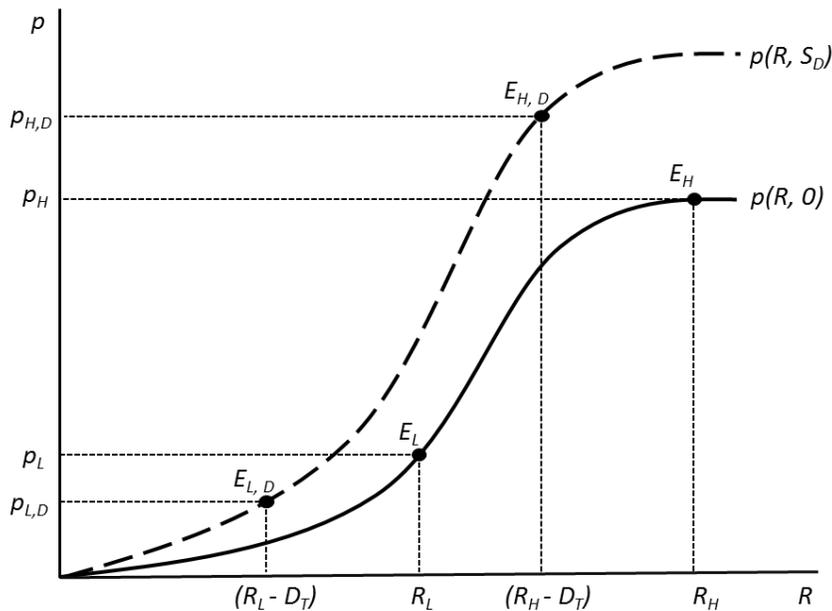
FIGURE 3
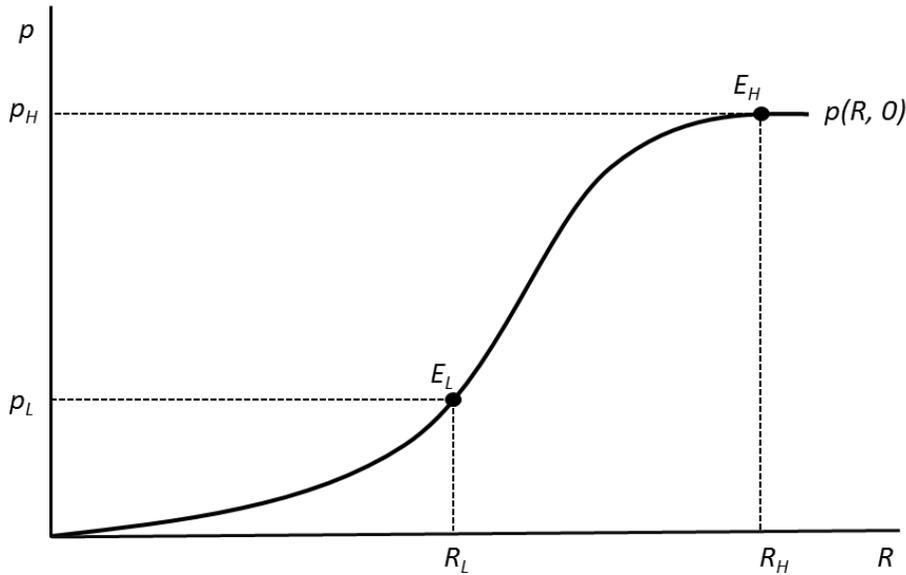
Now say that the government decides to issue DDPs ($D = D_T$). Then, there can exist values of R at which $p(R\text{-}D_T, S_D) > p(R, 0)$. In Figure 4, that happens, for example, at R_H. Intuitively, decreasing returns to scale in the production of public goods mean that, from a high level of revenue, the loss of public goods due to the DDP is relatively small and is more than compensated for by the closer scrutiny—the government now does more with less. Will this make people happier? It will, because more public goods are supplied *and* more private consumption is possible: $U = U(p_{H, D}, y+D_T) > U(p_H, y)$[3]. (The decreasing returns to scale in public-good production can be seen as a variant of Arezki et. al.'s "adjustment costs").

On the other hand, at a low initial level of revenue R_L, granting a DDP equal to D_T would cause a loss in public-goods production so large that the associated increase in scrutiny would not be able to offset it. Citizens' welfare may or may not fall as a consequence—if the marginal utility of another unit of public good U'_p is less than the marginal utility of another unit of private consumption U'_c, the DDP would still be welfare-enhancing.[4]

FIGURE 4

III. DDPs in Africa: What Would They Look Like?

The illustrative model articulated above and its related literature suggest that, in practice, DDPs would be more effective in raising social welfare in countries where: (i) the government already receives large natural-resource revenues and faces decreasing returns in turning them into public goods; (ii) the size of the transfer would be significant enough to enhance citizens' interest in scrutinizing the production of public goods; and (iii) politics is sufficiently contestable for the incumbent leadership to care about citizens' welfare.

Table 1 explores how DDPs would look in selected African countries that either already enjoy or are about to enjoy large inflows of fiscal revenue from the extraction of natural resources. Not all necessary data are available for the same year across or, in a few cases even within, countries. For example, not all countries in the sample conduct household surveys in the same year, and some have recent GDP figures but relatively old poverty headcounts. Table 1 takes 2010 as the target year and, when required, presents estimates of missing data. The objective is to establish orders of magnitude, rather than achieve precision. These estimates are meant to be conservative with respect to the potential significance of DDPs; for instance, poverty headcounts older than 2010 are not adjusted down for the impact that economic growth may have had on them.

Calculations are presented for DDPs as US dollars per capita, proportion of GDP per capita, US dollars per household, proportion of the average poverty gap, proportion of the average poverty depth, and proportion of oversees development assistance, under the assumption that governments costlessly transfer to their citizens, uniformly and universally, 10 percent of their yearly, natural-resource fiscal revenues.

As expected, population size matters. A country with a relatively small population like Equatorial Guinea could make DDPs of over 600 dollars per person by distributing just 10 percent of natural-resource fiscal revenues. This would be twice the size of the average poverty gap, that is, of the presumptive tax that every member of society would have to pay to end poverty (Foster, Greer and Thorbecke [1984]). Perhaps more telling, the 10-percent DDP would be one and a half times larger than the average poverty depth, that is, the money the average poor person needs to climb over the poverty line. That would be no minor achievement as, at the moment, three quarters of Equatorial Guineans live below that line. Recall that DDPs are assumed to be uniform and universal, in that they are given in the same amount to all citizens, poor or not poor (more on this below).

A similar situation applies to Angola and Gabon: a 10-percent DDP suffices to "close" the poverty gap, and to account for at least 40 percent of the poverty depth. By comparison, countries with larger populations and/or relatively less natural-resource income like Tanzania would cover only a small fraction of both gap and depth—single-digit percentages of the latter indicator. But being a populous country does not mean that DDPs can have no impact: a 10-percent DDP in Nigeria (population: 158 million) would account for about 40 percent and one fifth of the poverty gap and depth, respectively. The reason is that the

poverty line is particularly low (less than $300 per person per year). Mozambique, a future recipient of vast revenues from gas, is a similar case.

TABLE 1*

Indicator/Country	Angola	Equatorial Guinea	Gabon	Mozambique	Nigeria	Republic of Congo	Tanzania	Uganda
Type of Resource	Oil	Oil	Oil	Natural gas	Oil	Oil	Natural gas	Oil
Year of Discovery or of Expected Start of Exploitation	1955	1995	1970s	2018	1956	1957	2012	2007
GDP (current US$ billion; 2010)	82.47	14.5	13.2	9.2	196.83	12.0	22.91	17.2
Population (2010)	19,081,912	700,401	1,505,463	23,390,765	158,423,182	4,042,899	44,841,226	33,424,683
GDP per capita (current US$; 2010)	4,322	20,703	8,768	394	1,242	2,970	527	515
Estimated Yearly Natural-Resource Fiscal Revenue (US$ billion) (a)	27.2	4.50	1.89	9.2	32.1	3.5	1.37	0.6
Natural-Resource Fiscal Revenue (% of GDP) (2010) (b)	33	31	14	100	16	30	6	3.4
DDP per capita per year at 10% distribution (US$)	143	642	123	39	20	88	3	2
DDP as % of GDP per capita at 10% distribution	3	3	1	10	2	3	1	0
Average Households Size (c)	4.99	5.1	4.57	5	4.74	5.4	4.95	4.8
DDP per household per year at 10% distribution (US$)	712	3273	564	197	96	475	15	8
Poverty headcount ratio at national poverty line (% of population) (d)	36.6	76.8	32.7	54.7	54.7	50.1	33.4	24.5
National poverty line (US$) (e)	637	707	773	276	232	552	118	176
Average poverty gap, US$ (f)	119	320	77	59	52	104	12	12
Average poverty depth, US$ (g)	325	417	236	107	95	208	35	49
DDP as % of average poverty gap at 10% distribution	120	200	160	67	39	84	26	15
DDP as % of	44	154	52	37	21	42	9	4

average poverty depth at 10% distribution								
Poverty Depth as % of Natural Resource Fiscal Revenue	8	5	6	15	26	12	38	68
Net ODA received per capita (current US$, 2010) (h)	12	121	69	83	13	325	66	52
DDP as % of Net ODA at 10% distribution	1,142	531	179	47	156	27	5	3
Poverty Depth as % of Net ODA	954	265	112	70	401	32	18	23

Now suppose that, instead of making the DDPs a fixed percentage of revenues distributed universally and uniformly among all citizens, these countries' governments gave DDPs only to the poor and could calibrate the amount of the individual transfer to bring each poor person up to the poverty line (a case of "perfect targeting"). What percentage of the natural-resource fiscal revenue would that absorb? For Angola, Equatorial Guinea, and Gabon, the answer is eight percent or less. At the other end, Tanzania would have to distribute about forty percent of its natural resource fiscal revenues. Presumably, the larger the percentage the more politically difficult it would be to focus the DDPs exclusively on the poor.

Useful comparisons can be made between DDPs and another major source of income for most governments in Africa—net official development assistance (net ODA). In half of the countries in the sample (Mozambique, Republic of Congo, Tanzania and Uganda), net ODA would be more than sufficient to pay for a universal DDP equivalent to ten percent of natural-resource fiscal revenue. Moreover, in those countries, net ODA is much larger than the poverty depth, that is, donor funding is more than sufficient to make individualized cash transfers that would raise every poor person over the poverty line.

Would DDPs move citizens to scrutinize more closely the use of public resources? Household data may be useful in answering that question. As shown in Table 1, a 10-percent DDP would put five hundred dollars or more in the hands of the average family in Angola and Gabon, and over three thousand in Equatorial Guinea. This implies that the natural-resource revenue that is not being distributed ("the other 90 percent") may be large enough for that family unit to care about it, and to strengthen its individual members' efforts in demanding public accountability.

IV. Conclusions and Operational Implications.

No African country has yet implemented a system of DDPs out of its natural resources. Technological difficulties, political incentives and pending needs for public goods were formidable obstacles to making the people of the region actual shareholders in their national wealth. Instead, governments were supposed to collect all the revenue from the exploitation of oil, gas and minerals and turn it into development. At that, their record is mixed at best.

Today, the technological and political obstacles to DDPs have weakened, and may soon cease to exist. At the same time, it is no longer clear that, for many African governments, the solution to the marginal need for public goods is more public revenues—more efficiency and greater transparency in the use of *existing* revenues may play a bigger role.

This opens the door for DDPs to become a reality, not in every African country but in some. Preliminary estimates suggest that countries with large natural-resource bases relative to their population size, and with a long history of ineffective public administration, would benefit most from sharing a portion of their commodity-driven fiscal revenues with citizens. That portion need not be major: in most cases, distributing ten percent of those revenues would have a significant impact on poverty. As the possibility of targeting the DDPs exclusively on the poor increases, governments would need to give up even smaller percentages (six percent or less in cases like Equatorial Guinea and Gabon).

Interestingly, having a large population is no reason to dismiss DDPs outright. While the absolute value of the DDP may be small, the poverty line may be so low that the transfer could still fill a significant part of the distance between that line and the income of the average poor person, that is, the poverty depth. Nigeria is a case in point.

In implementing DDPs, three considerations come into play. First, their macroeconomic impact. It can be argued that transferring funds from public goods to private consumption may cause short-term external imbalances—much of the enhanced consumption may be satisfied by imports. That would be true if the resources used for DDPs were previously spent in the local economy, rather than on imports or misappropriated and transferred abroad by public officials. Whether that is the case remains an empirical question.

Second, DDPs in Africa would operate in a political-economy context where the common citizen may not currently feel that she benefits enough from her country's natural wealth. Calls for "nationalization" and state management of that wealth are not uncommon,

sometimes at the cost of weakening incentives for private investment and productive efficiency. DDPs would go a long ways to meeting those calls, for they give each citizen a direct, explicit, individual stake in national resources without distorting market incentives for their exploration and exploitation.

Third, while their costs are falling rapidly, biometric identification and the tools for financial transfers will take time to be put in place, even in the most institutionally advanced African countries. None has at the moment a database and a payment system that could, without further adjustment, be used to implement universal DDPs. But as public discontent with the use of commodity windfalls mounts, and the appeal of DDPs spreads, political pressure will expedite the process of setting up the necessary logistics. Peer-to-peer incentives will add momentum: countries that lead the way in DDPs will make it more difficult for others not to follow suit. A similar dynamics played out starting in the mid-1990s across the developing world with the introduction of social assistance programs based on conditional cash transfers (Fiszbein and Shady [2009]).

Finally, it goes without saying that DDPs are not meant to by-pass or weaken the role of the state. They are not a substitute for continuing and enhanced efforts at developing the institutional capacity of governments. On the contrary, they complement those efforts, because they trigger additional demands for public accountability. When citizens know that they are getting only a portion of what belongs to them, they care to scrutinize how the total is being managed.

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