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October 2012

WORKINGPAPER SERIES

Number 290

POLITICAL ECONOMY RESEARCH INSTITUTE

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September 2012

Introduction

The financial crisis of the late 2000s generated a global recession one aspect of which was declines in international private capital flows, including those from developed to underdeveloped countries. The fiscal stress in developed countries generated by the recession provoked speculation that the fall in private flows might be accompanied by reduction in official development assistance. These changes in the tempo and pattern of capital flows could have major implications for growth in the sub-Saharan region. They also raise the issue of capital account management to high on the policy agenda.

In mainstream ("neoclassical") economic analysis an international regime of unregulated currency movements facilitates capital inflow, which can contribute to funding investment and faster growth. In practice the absence of regulation also allows for the unrequited outflow of foreign exchange, capital flight. The focus of this paper is the probable impact of capital flows, including capital flight, on the macroeconomic performance of sub-Saharan countries over several decades leading up to the global financial crisis.

The empirical evidence is on 31 countries included in the Boyce and Ndikumana database (Ndikumana and Boyce 2010). Inspection of the statistics strongly suggests that in the absence of effective regulation of the external account, as is the case in most of the sub-Saharan countries, capital flight is quite substantial, absolutely and compared to other types of resource flows. Capital flight plus official debt service outweigh positive flows in many countries, development assistance and direct foreign investment. The comparison of inflows and outflows leads to the conclusion that the impact of capital flows on sub-Saharan countries has been exaggerated.

[1] The author thanks James Boyce and Léonce Ndikumana of the University of Massachusetts for their comments and for providing the data on capital flight.

The evidence suggests that loss of foreign exchange through debt service and capital flight may in part explain the relatively weak growth of the countries of the sub-Saharan region. In the 2000s the outflows from debt service declined for most countries as a consequence of long-delayed debt relief, which contributed to improved growth performances in the years before the global financial crisis. National measures to limit capital flight would result in further improvement in economic performance.

Analytical Framework

The analysis of the impact of capital flows on economic performance requires an explicit theoretical framework in which to assess the various components. With very few exceptions, investment goods are not produced in sub-Saharan countries, and must be imported. Therefore, foreign exchange flows from all sources represent an essential element in growth performance. Following the Harrod-Domar tradition, the investment rate is considered the most important economic determinant of growth of capacity in the medium term.

With this framework, the growth rate identity can be transformed into a behavioral relationship. If Y is national income and K is the capital stock, then the potential rate of growth can be expressed as follows:

$$g = \Delta Y/Y = [\Delta Y/Y][\Delta K/\Delta K] = [\Delta K/Y]/[\Delta K/\Delta Y] \quad (1)$$

$$g = [I/Y]/k = \beta/k,\ 0<\beta<1,\ 0<k<1 \quad (2)$$

The term k is the incremental capital and β is the investment share in national income. For example, if net investment is twenty percent of national income and the output-capital ratio is four, the potential rate of growth is five percent. Whether that rate is achieved depends on the sum of the components of exogenous demand, investment itself, public expenditure and the external (export) component. The import-dependency of investment is specified as a simple linear relationship, with z the capacity to import, defined as the ex-post import share ($z = Z/Y$):

$$\beta = az \quad (3)$$

The capacity to import is the sum of export revenue and other foreign exchange flows. As shown in the empirical discussion, in many sub-Saharan countries the most

important components of the other flows are official development assistance and direct foreign investment on the positive side, and debt service and capital flight on the negative. There are a few exceptions to this generalization, the most obvious being the large but declining workers' remittances into Swaziland. Because of poor quality of the data for a majority of the countries in this study, remittances are not included as a separate item. For the thirty-one countries the capital flight variable includes unrecorded remittances (Ndikumana and Boyce 2011, 42-45, 52-53).

Each major component of the capacity to import has its own behavioral characteristics. Development assistance reflects an administrative decision strongly influenced by the political interests of donors and lenders, while for the current period loan agreements in previous years determine debt service obligations. Foreign direct investment in the region is overwhelmingly focused on extraction, especially petroleum. When one excludes foreign investment in mining and petroleum, FDI was about two percent of national income during 1980-2010. To place this statistic in perspective, for a capital-output ratio of four, *net* investment of two percent of GDP implies a capacity increasing effect of one-half of one percent per annum ($\beta/k = 2/4 = 0.5$ increase in potential growth). The relatively low share for foreign investment places the burden for growth enhancing investment on the domestic private sector or the public sector.

These capital flow components plus exports imply that the capacity to import can be written as follows:

$$z = px + a_1(FDI) + a_2(ODA) - [(DbSr] + (CpF)], \qquad (4)$$

where a_1 & a_2 are both less than one. p = unit dollar value of exports, x = export volume, FDI = foreign direct investment, ODA = official development assistance, DbSr = debt service, and CpF = capital flight, all as shares of national income.

By definition all revenue from exports can be used to import. Part of direct investment is replacement and maintenance, with the net component indicated by the parameter a_1. The balance of payments flow associated with direct investment consists almost entirely of imports used in those investments. With adjustment for depreciation, the entire flow contributes to capacity expansion, but very little of it is non-committed

foreign exchange. Direct investment is, in effect, the private sector equivalent of "tied aid", though it should be entirely growth enhancing which development assistance is not.

Development assistance contains components of current and capital expenditure, with the latter directly enhancing of productive capacity. The proportion of development assistance that can serve as uncommitted foreign exchange for discretionary investment by the public or private sector can be astoundingly low (UNCTAD 2000, Chapter 6). This derives from the explicit tying of aid, the share of assistance budgeted for technical assistance, and the non-tied import content of projects and programs that are not investment. The coefficient a_2 adjusts development assistance to include only foreign exchange flows that in practice enter the recipient country.

It is unfortunately the case that in our empirical work it was not possible to obtain data to estimate the two coefficients that was not arbitrary. The implicit treatment of the coefficients as equal to unity involves a substantial overestimate of capital inflow. An important research task for the future is to estimate these coefficients at the country level, especially for development assistance whose actual inflow is frequently substantially less than the nominal.

The asymmetry between the two major inflows and outflows are extremely important. For national growth and development, capital flight and debt service are dead-weight losses. They are unrequited transfers with no benefit direct or indirect on consumption or investment. In contrast, most of direct investment enhances growth in the primary sector with few spread effects, with its net balance of payments contribution close to zero. Development assistance may fund essential goods and services, though its net balance of payments contribution may be low, except when explicitly designed otherwise.

In post-conflict circumstances development assistance carries a large component of uncommitted foreign exchange, in order to fund basic imports until the war-affected export economy revives. Sierra Leone in the 2000s provides a clear example, with a trade deficit of over fifteen percent of GDP during 2001-2003, and a even larger fiscal deficit. During these years development assistance was larger than the sum of the two deficits, covering import requirements and public expenditure until the economy began to recover. A substantial portion of this development assistance must have funded capital

flight, which accounted for an additional annual outflow of twenty percent of GDP in these years.[2]

With these comments, foreign exchange availability (equation 4) can be defined in terms of exports, inflows and outflows:

$$\text{non-export inflow (NXI)} = [a_1(\text{FDI}) + a_2(\text{ODA})] \quad (5)$$

$$\text{non-import outflow (NZI)} = [(\text{DbSr}] + (\text{CpF})] \quad (6)$$

$$z = x + [\text{NZI}] + [\text{NXI}] \quad (7)$$

This treatment ignores the possibility of interaction between inflows and outflows. Interaction between development assistance and capital flight is a likely possibility, especially if, as in a number of countries in the region, donors deposit their assistance into commercial banks rather than directly into the central bank. This practice by donors substantially facilitates the corruption they frequently condemn. The non-trade elements can also be treated as "private" and "official". Capital flight is perpetrated by individuals, including public officials (Ndikumana and Boyce 2011, Chapter 3, "The revolving Door"). Therefore, capital flight plus foreign direct investment can be designated as "net private flows".

In the sub-Saharan region most of the public foreign debt is owed to official lenders (governments, Bretton Woods institutions and regional development banks), if not initially converted into official debt subsequently.[3] For this reason government debt service payments can be combined with official development assistance to yield "net official flows". The latter concept is especially appropriate because a substantial portion of "development assistance" involved explicit recycling of funds to official donors and lenders to cover debt payments.

In the 1990s and into the 2000s prior to general debt relief, this recycling amounted to *de facto* debt rescheduling when lenders, most notably the IMF and the World Bank, formally refused to rescheduling or reduction of government debt. The de facto recycling of "assistance" into debt service involved the international financial institutions in a process analogous to private bank replenishing of reserves in face of non-

[2] For an analytical discussion of capital flight and development assistance, see Ndikumana and Boyce (2011, 66-67).
[3] The Zambian public debt is an example of this conversion (Weeks, *et. al*., Chapters 2 and 6).

performing loans. The governments of several countries, including ones with absolutely large debts such as Zambia, found themselves on the verge of default. First, the international financial institutions facilitated the conversion of private debts to multilateral ones, then postponed default by the assistance-to-debt-service mechanism. This recycling culminated in the long and drawn out Highly Indebted Poor Countries (HIPC) scheme, and the generalized debt forgiveness just before the financial crisis.

The calculation of net private flows measures the extent to which capital flight quantitatively offsets foreign direct investment, and net public flows measures the extent to which debt service offsets development assistance. These calculations make a step towards assessing the contribution of external flows to development. The flow equations can be re-written as follows:

$$\text{net private flow (NPF)} = [a_1(\text{FDI}) + (\text{CpF})] \quad (8)$$

$$\text{net official flow (NOF)} = [(\text{DbSr}] + + a_2(\text{ODA})] \quad (9)$$

And, by definition,

$$\text{NPF} + \text{NOF} = \text{NZI} + \text{NXI} \quad (10)$$

In the next section the available statistics are inspected to assess the relative importance of the four categories of financial flows, development assistance, direct investment, debt service and capital flight.

Macroeconomic Performance and Financial Flows

Overview of Capital Flows, 1980-2011

The sub-Saharan countries receive substantially less private capital flow than the other developing regions. This is the case for portfolio flows because no country except South Africa has a developed capital market. South Africa also has the only substantial domestic market, implying limited opportunities in the other countries for direct investment except for resource extraction (which is also important in South Africa).

Figure 1 provides statistics on private capital flows to all countries of the region, divided among direct investment, portfolio and other flows. In contrast to direct investment, portfolio and other flows show extreme volatility. In addition, these two types of flows were severely effected by the global recession. During the 1990s, the

aggregate non-FDI inflow to the region was US$ 19 billion at prices of 2008,[4] falling to a negative 49 billion for 2000-2007, and that negative flow almost doubled to 94 billion for the next four years. Direct investment was a positive US$ 118 during 2000-2007, hardly changed for the next four years (US$ 116 billion). The dramatic difference in behavior between FDI and non-FDI flows makes a strong circumstantial argument for regulation of short term capital flows.

The pattern of official flows is quite different for official development assistance as such and net official flows (Figure 2). The former, taken from the World Bank (*World Development Indicators*) and using the OECD definition of official assistance, increased continuously in constant prices from its low point in 2000 (US$ 15 billion in prices of 2008, lowest total since 1984). The movement of net official flows, which includes debt servicing, was a negative US$ 42 billion over the eight years 2000-2007. The cancelling of most sub-Saharan official debt, especially that due to the IMF and World Bank, led to a dramatic shift to a positive net flow of US$ 80 billion during 2008-2011.

The rest of this paper seeks to disaggregate the private flows at the national level for thirty-one sub-Saharan countries. As noted the financial structure in most countries of the region is underdeveloped and in some cases non-existent. As a result, non-FDI flows fall overwhelmingly into the category of capital flight, in the sense that they are unrelated to any domestic financial asset at any stage of their life cycle.

Categorizing Countries

Table 1 provides the statistics with the countries divided into three groups: oil exporters, post-conflict, and others. The list of the countries is provided in Table 2 and Table 3. The tables report growth rates, investment shares and capital flows during twenty-nine years, 1980-2008, which are covered by the Ndikumana and Boyce statistics on capital flight. The country level statistics are provided for reference, because the analysis will refer to groups of countries. This is to avoid an excessively detailed discussion, while providing the disaggregated data for those who might be interested in further exploration of the categorization of the countries into groups.

[4] The 2008 base year is chosen because it corresponds to that used by Ndikumana and Boyce.

The thirty-one countries are divided into three groups, those exporting petroleum, those conflict-affected, and those that neither export petroleum nor suffer from conflict, which is designated the "other" group. A consensus exists that an export sector dominated by petroleum and conflict affect macroeconomic performance. The difficulty arises in assigning countries to these categories in an exclusive and non-arbitrary manner. For the petroleum exporting group arbitrariness arises if a country qualifies for the group for only a part of the time period, either because of recent discovery or substantial decline in production. Among the thirty-one countries in our data set this is not a major problem. More serious might be the objection that some mineral producers, Botswana for example, have macroeconomic characteristics similar to petroleum exporters. We have taken a "minimalist" approach, adhering strictly to the petroleum category and including only those whose exports have been oil dominated for over a decade: Angola, Cameroon, Chad, Republic of Congo, Gabon, Nigeria and Sudan.

The "conflict-affected" category presents substantially greater problems both analytically and practically. Because few countries of the world are free from conflict, distinctions must be made on the basis of degree. Applying this criterion to the thirty-one countries over the years 1980-2008, few would object to the inclusion of Burundi, Democratic Republic of Congo, Rwanda and Sierra Leone. We also include Ethiopia, whose internal conflict lasted throughout the 1980s, formally ending with Eritrean independence and a new government in Addis Ababa in 1991. In subsequent years the ebb and flow of tensions between the two countries resulted in armed hostilities during 1998-2000. We also include Zimbabwe, which might be questioned because unlike the other four, its conflicts have not involved war by usual definitions.

A more serious categorical objection is that at least two of the petroleum exporting countries unambiguously qualify as conflict-affected by any rational definition, Angola and Sudan. We judge that for the analysis of capital flows, petroleum exporting status takes priority over conflict status. Finally, arguments could be made to include at least three other countries, Cote d'Ivoire (civil war during 2002-2007, rekindled in 2011), South Africa (anti-apartheid conflict until the early 1990s), and Uganda (civil war until about 1985, conflict in the north since the late 1980s). We omit Cote d'Ivoire because its conflict affects less than a third of the years we cover. We judge the economic effects of

the conflict in South Africa were not sufficiently substantial for inclusion, though the human cost of apartheid was enormous beyond measurement. We exclude Uganda for the same reason as Cote d'Ivoire, as the substantial economic impact of its conflict lasted less than a third of the time period under review.

Growth and Investment

We can now inspect the indicators in Table 1a. As one would expect, the group of conflict-affected countries had the lowest rate of economic growth in every decade, twenty years of declining per capita income followed by weak recovery slightly above population increase. The growth rates for the petrol exporters and the group of other countries were very close on average for the three decades as a whole, but the former more variable than the latter. Much of the greater variation results from the swings in world petroleum prices. Also as should be expected, the share of gross investment in GDP is greatest for the petroleum exporting countries and least for the conflict affected group. The most important inference from the investment statistics is how low they are. If the typical aggregate net capital-out ratio for sub-Saharan countries is about four, the gross would be close to five, yielding a potential growth rate of slightly above four percent for petroleum exporters and slightly below for the group of other countries. These rates, close to the actual ones for the three decades, imply quite modest per capita growth, requiring fifty years to double.

The three-year moving average growth rates for the countries groups are shown in Figure 3, and this highlights the greater variability among the petroleum exporting countries. The chart clearly demonstrates that while petroleum prices and conflict account for poor growth performance in the first half of the 1990s, this was a period of slow growth for the entire region. Figure 4 supports our working hypothesis that the share of investment in GDP is the major driver of the potential rate of growth in the region. The simple regression of growth and the investment rate proves significant and of the predicted sign.[5] A full specification of the interaction would require variables to capture aggregate demand effects that drag the actual rate of growth below the potential

[5] In a simple regression, the R-square, the F and the standard error of the variable are strictly related. The first two are both provided for the readers' convenience.

rate. Support for this hypothesis becomes relevant below, when we link the investment rate to capital flows.

Capital Flows

Figure 5 provides a closer look at capital flight, again applying a three-year moving average. The variable is negative for each group and every observation except one (for the "other" country category is marginally positive at 0.1 for 2001). From the end of the 1980s to 2000-2001, capital flight shows a declining trend for the seventeen "other" countries, and also for the petroleum exporters, though for that group the tendency is weaker. This trend was sharply reversed after the early 2000s for each group, a reversal that pre-dated the Global Financial Crisis by at least five years. The increase in capital flight is all the more striking when we inspect the variable for the conflict affected group. The conflicts in five of the seven countries in the group ended or became less intense as the 2000s proceeded (Burundi, Ethiopia, Mozambique, Rwanda and Sierra Leone) and in a fifth was no worse (Democratic Republic of Congo). Despite this, capital flight across the seven countries in the mid-to-late 2000s was the greatest throughout the three decades both absolutely and as a portion of GDP (also the case for the petroleum exporters).

The other major non-trade element of external outflow, debt service, is reported in Figure 6. The absolute and relative burden of debt service increased into the early 1990s, then began an almost continuously positive trend. When the two major outflows are combined (Figure 7), there appears to be an improvement for the 2000s in total outflow for the 17 "other" countries. No improvement occurs for the conflict-affected countries compared to the level of the early 1980s, though the upward trend since the mid-2000s may continue. The pattern for the petroleum producers is much the same as for the conflict group, though the level of capital outflow is higher (less negative) for every year. The overall impression given by Figure 7 is the similarity of the patterns for the three country groups. As suggested above, this similarity suggests underlying forces common to the three groups, with the intra-group characteristics determining level rather than pattern of capital outflows.

Having reviewed the outflows, we turn to the inflows, foreign direct investment (Figure 8) and official development assistance (Figure 9). The statistics on direct investment indicate a positive trend since the 1980s in all three groups of countries, though the petroleum exporters, recipients of the largest amounts, suffered a sharp decline in the second half of the 2000s. Direct investment is far less than capital flight for all three groups. This is especially the case for the petroleum exporters, who received the largest inflows and the largest outflows (plus 3.4 percent of GDP and minus 6.0 percent, respectively). As noted above, it is not possible to assess what part of the upper trend in direct investment is mergers and acquisitions.

The upward trend in direct investment contrasts with the results for official development assistance (Figure 9). For the average share of ODA in GDP across all thirty-one countries for the three decades we find no significant trend, nor for any group. If we split the time series at the mid-point, the means for the two periods for the two non-conflict groups are not significantly different, slightly lower since 1995 for the group of 17 other countries and slightly higher for the petroleum exporters. The pattern for the conflict countries is one of extremes, reflecting the large inflows that come after the end of hostilities.

The last time series chart, Figure 10, combines inflow and outflow to obtain net flow. The sum across direct investment, development assistance, debt service and capital flight produces positive values for all years but one for the group of seventeen non-conflict countries that do not export petroleum. From that negative value for 1978, one finds an almost continuously upward movement. However, a statistically significant positive trend depends entirely on the inclusion of 1987-1995. From 1995 onwards the pattern appears as cyclical. The pattern for conflict countries also appears cyclical, with only the petroleum exporters claiming a relatively long, unambiguously upward tendency, for 1982-2004, followed by a sharp decline.

In assessing the net capital flow statistics we must recall that only part of development assistance enters the recipient country. Leakage occurs due to the fore-mentioned recycling of ODA into debt service and payments directly to donor country suppliers that involve no material input, such as technical assistance and consultancy fees. If over the three decades across countries leakages had averaged a modest twenty-

five percent of gross aid, the net capital flow as portion of GDP for the thirty-one countries would have been zero. While ODA, FDI and net debt flows are well measured, capital flight is likely to be underestimated. Therefore, it is probable that net flows were considerably less than estimated in this study.

This review of the major flows of funds produces the following conclusions for the twenty-nine years 1980-2008:

1. capital flight appears strongly cyclical for all three country groups, with a striking reduction in the early 2000s that was reversed during the following years;
2. debt service declined continuously from the mid-1990s, though prior to debt relief in the 2000s the measured decline may overstate the actual because of debt recycling through development assistance;
3. direct foreign investment exhibits an upward trend for all three country groups, though for all of them it is substantially less than capital flight;
4. official development assistance shows much the same pattern for the petroleum exporters and the group of 17 countries, upward movement until the mid-1990s, then stagnation or decline, while for the conflict group development assistance has extreme peaks and troughs.

To summarize succinctly, on average across all thirty-one countries, over 1970-2008, total capital flight was greater than total ODA. This left the relatively small direct investment, contributing a bit over two percent of GDP as a positive element in external flows.

Capital Flows and Investment

The focus on capital flows is prompted by their probable impact on investment and via investment on growth. Figure 4 suggests that the link between investment and growth is valid. In this section we consider the apparent impact of net capital flow on investment rates for the three groups of countries.

Prior to presenting the simple hypothesis test in Figures 11-13 it should be noted that the relationship between capital flows and investment shares is mediated by several mechanisms. During the 1980s the growth rates of most sub-Saharan countries were below potential rates, including those covered in this study. This was especially the case

for the petroleum exporters and conflict affected countries (see Figure 5). Private investment is made to increase capacity in anticipation of growth approaching potential output levels. When growth rates are low, the growth and investment link is weakened by excess capacity. It follows that private investment rates were also low in the 1980s. Public investment rates in the sub-Saharan region were also low, in direct consequence of stabilization and structural adjustment programs that placed emphasis on reductions in fiscal deficits.

The differences in results for the 1980s and the following two decades are manifested in three scatter diagrams showing the relationship between net capital flow and gross investment rates by country group. For the petroleum exporters there is no apparent relationship between the two variables for the 1980s, which closely approximates a vertical line (Figure 11). From 1990 onwards the apparent interaction is quite clear and statistically significant, with the investment rate rising with net capital flow. For the conflict affected countries the interaction is considerably weaker, though significant statistically for 1993-2008 (Figure 12). For these countries the link between capital flows and investment is *via* development assistance funding public expenditures. In the case of the group of seventeen other countries, the investment and net capital flow hypothesis is not rejected for the period as a whole (Figure 13).

While more formal and rigorous statistical analysis is required, we conclude that the evidence is consistent with the analytical inference that capital flow has a substantial impact on investment and, therefore, growth. This conclusion highlights the pernicious effect of capital flight, which for every group was greater than direct investment. Capital flight exceed direct investment in twenty-nine of the thirty-one countries, the exceptions being Botswana and Swaziland.

Conclusion and Policy Measures

Reduction of capital flight is essential to increase the resources available in sub-Saharan countries for both consumption and investment, public and private. With development assistance apparently in decline as a proportion of recipient national income, stemming capital flight may be the most important growth generating policy available to governments of sub-Saharan countries.

Part of the task of reducing of capital flight lies with the governments of developed countries (Ndikumana and Boyce 2011, Chapter 5). Governments in the sub-Saharan region can hope for but not rely on the implementation of effective measures by developed country governments. Even if several major countries introduced effective measures, there would for the foreseeable future remain "off-shore" money centers beyond the reach of regulation.

Therefore, while pressing for effective action by external actors, sub-Saharan governments should individually and collectively pursue their own solutions. The minimalist step is the existing practice of sub-Saharan governments to require all foreign exchange transactions be registered with the central bank in order to be legal. Second and less minimalist, all businesses, donors and non-governmental organizations could be required to channel their foreign exchange through the central bank. While this measure need not in itself involve currency controls, it lays the basis for such controls if necessary. Third, the governments could legally require their citizens to provide details of foreign bank accounts they hold, a policy practiced in several European countries into the 1970s and reinforced in the United States recently.

Finally, sub-Saharan governments could consider a measure implemented in Argentina in recent years with great effectiveness. In Argentina, any person, company or institution wishing to send abroad funds more than a specified minimum must provide the central bank with proof that the appropriate taxes have been paid on the income generating the funds to be remitted. The burden of proof falls on the person or company seeking to export funds, to demonstrate either that the funds were exempt from tax or that the tax was paid. This removes the administrative burden from governments. In addition to its other virtues, this policy conforms to the global fight against the laundering of drug money.

Capital flight is a blight that has seriously undermined growth and development in the sub-Saharan region. Though never eliminated, it is a blight that can be substantially reduced. While governments in the sub-Saharan region await the uncertain process of reform in the developed world, there are effective measures they can take to reassert control over their external capital flows.

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Table 1a: GDP Growth Rate and the Gross Investment Share of GDP by Decade and Groups, 31 sub-Saharan Countries, 1980-2008

	GDP growth rate				GInv/GDP			
	All	Petrol	Conflict	Other	All	Petrol	Conflict	Other
1980-89	3.2	3.7	2.6	3.2	18.7	22.2	14.2	19.2
1990-99	2.4	2.0	-0.2	3.5	18.1	19.5	13.1	19.2
2000-08	4.5	5.6	3.7	4.4	19.7	22.5	13.2	20.8
Average	3.4	3.9	2.1	3.7	18.9	21.4	13.6	19.8

Table 1b: Inflows and Outflows by Decade and Groups, 31 sub-Saharan Countries, 1980-2088 (percent of GDP)

Variable:	Foreign direct investment			Official Development Assistance			Debt Service			Capital Flight			Net flows		
Countries/dates	1980-9	1990-9	2000-8	1980-9	1990-9	2000-8	1980-9	1990-9	2000-8	1980-9	1990-9	2000-8	1980-9	1990-9	2000-8
Petrol Exporters	1.4	2.7	6.5	4.6	6.8	4.6	-6.2	-5.7	-7.1	-6.8	-5.3	-6.7	-7.1	-1.5	-2.6
Conflict-affected	-0.3	0.6	2.5	8.9	14.5	22.7	-3.3	-3.1	-3.8	-11.3	-10.0	-10.4	-6.0	2.0	11.0
Other	1.0	2.3	4.0	12.2	15.4	10.7	-5.3	-2.9	-5.1	-4.7	-4.9	-3.2	3.2	9.9	6.3
Average	0.8	2.0	4.3	9.9	13.3	11.6	-5.1	-3.6	-5.3	-6.5	-6.0	-5.4	-0.9	5.8	5.2
							Net private:	[FDI +	CpF]	Net official:	[ODA +	DbSr]			
					Petrol	exporters	-5.5	-2.6	-.2	-1.7	1.1	-2.5			
					Conflict	affected	-11.6	-9.4	-7.9	5.6	11.4	18.9			
						Other	-3.7	-2.6	.8	6.9	12.5	5.5			
						Average	-5.6	-3.9	-1.1	4.7	9.7	6.3			

Notes to Table 1:

Notes:
Period averages for 1980-2008 except for Angola (from 1988), Burundi (1985), Cape Verde (from 1982), Ethiopia (from 1981), Guinea (from 1986), Mozambique (from 1982), Tanzania (1988), and Uganda (1982). Earliest data in all cases set by capital fight estimates.
GDP % is the annual growth rate of GDP. GInv/GDP is the ratio of gross investment to GDP. FDI is foreign direct investment, ODA is official development assistance, DbtSr is debt service, CpF is capital flight.
InF/GDP = [FDI + ODA]GDP and OutF/GDP = [DbtSr + CpF], and Net flows = NtF/GDP = [InF - OutF]/GDP. See data appendix for details.
Country groups:
Petrol exporters (7): Angola, Cameroon, Chad, Republic of Congo, Gabon, Nigeria, Sudan.
Conflict-affected (7): Burundi, Congo DR, Ethiopia, Mozambique, Rwanda, Sierra Leone, Zimbabwe.
Non-conflict (17): Botswana, Burkina Faso, Cape Verde, Central African Republic, Cote d'Ivoire, Ghana, Guinea, Kenya, Lesotho, Madagascar, Mauritania, Malawi, South Africa, Swaziland, Tanzania, Uganda, Zambia.

Table 2: National Accounts and Balance of Payments Statistics, 31 sub-Saharan Countries, 1980-2008

	National accounts		Balance of payments (% of GDP)						
Country	GDP %	GInv/GDP	FDI	ODA	DbtSr	CpFlight	InFlow	OutFlow	NetFlow
Angola	5.5	15.2	7.7	5.7	-13.2	-8.4	13.4	-21.6	-8.1
Botswana	7.2	29.2	3.5	4.1	-1.9	0.7	7.6	-1.2	6.4
Burkina Faso	4.5	19.4	0.5	13.7	-1.4	-1.9	14.3	-3.4	10.9
Burundi	1.0	12.1	0.1	26.1	-3.5	-23.5	26.3	-27.0	-0.7
Cameroon	2.5	19.0	1.0	4.5	-4.7	-9.7	5.5	-14.4	-8.9
Cape Verde	6.0	29.9	4.5	23.7	-2.6	-17.2	28.2	-19.9	8.4
Cen Afr Rep.	1.0	10.4	0.9	12.4	-2.0	-4.8	13.3	-6.7	6.6
Chad	5.5	16.9	4.8	12.2	-1.1	-1.8	17.0	-2.9	14.1
Congo, DR	-0.2	10.6	2.0	11.7	-3.4	-5.9	13.8	-9.3	4.4
Congo, Rep.	4.0	27.6	6.1	8.0	-11.4	-9.6	14.0	-21.0	-7.0
Cote d'Ivoire	0.9	12.7	1.3	4.8	-11.6	-6.6	6.0	-18.2	-12.1
Ethiopia	4.4	18.2	2.4	9.9	-1.6	-6.6	12.3	-8.2	4.1
Gabon	2.0	28.4	0.3	1.7	-7.8	-4.6	2.1	-12.4	-10.3
Ghana	3.9	16.9	1.4	8.7	-4.9	-2.5	10.1	-7.4	2.7
Guinea	3.9	19.0	1.8	9.9	-4.6	-2.5	11.7	-7.2	4.6
Kenya	3.4	19.8	0.5	6.9	-6.8	-0.7	7.4	-7.5	-0.1
Lesotho	3.3	19.0	7.8	10.4	-3.5	-3.6	18.2	-7.2	11.0
Madagascar	1.9	15.2	1.5	11.7	-3.8	-4.1	13.2	-7.9	5.2
Malawi	3.2	19.0	1.2	22.5	-5.7	-2.9	23.8	-8.6	15.1
Mauritania	3.0	23.1	4.4	20.3	-8.1	-3.6	24.6	-11.7	12.9
Mozambique	4.5	17.9	2.4	29.3	-2.8	-7.8	31.7	-10.7	21.0
Nigeria	3.3	22.6	3.0	1.1	-6.8	-7.2	4.0	-14.0	-10.0
Rwanda	4.3	15.8	0.6	20.3	-1.0	-4.4	20.9	-5.4	15.5
Sierra Leone	2.1	10.4	0.5	20.1	-4.7	-12.3	20.5	-17.0	3.5
South Africa	2.6	19.4	0.8	0.2	-2.7	-0.8	1.0	-3.4	-2.4
Sudan	4.9	17.2	2.2	5.3	-1.2	-2.1	7.4	-3.3	4.1
Swaziland	5.3	20.6	4.0	2.5	-1.8	-1.2	6.4	-2.9	3.5
Tanzania	4.9	21.7	2.3	16.5	-2.6	-2.1	18.8	-4.7	14.1
Uganda	5.9	15.0	2.3	12.2	-2.8	-5.6	14.4	-8.4	6.0
Zambia	2.2	17.5	4.0	19.2	-11.2	-5.9	23.2	-17.1	6.1
Zimbabwe	0.6	14.7	0.6	4.4	-5.8	-11.4	5.0	-17.3	-12.3
Averages	3.5	18.5	2.5	11.6	-4.7	-5.9	14.1	-10.4	3.4

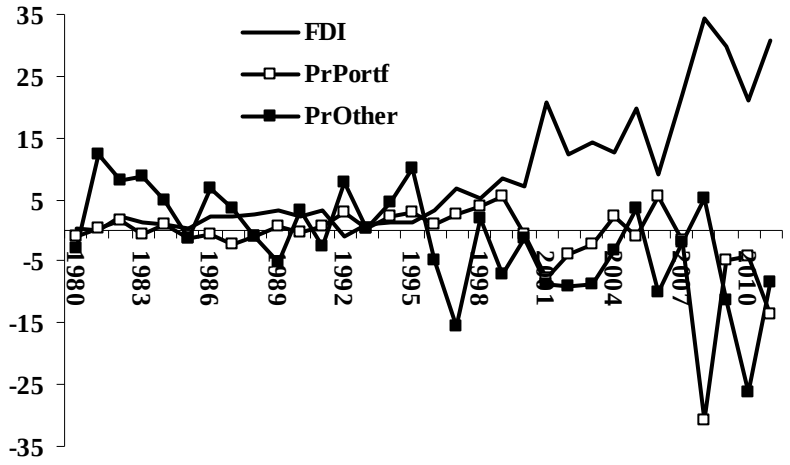
Notes:
GDP% is the annual percentage rate of GDP growth. See Table 1 for other notes.

Table 3: Inflows and Outflows by Decade for 31 sub-Saharan Countries, 1980-2008 (percentage of GDP)

Variable:	Foreign direct investment			Official development assistance			Debt service			Capital flight			Net flows		
Countries	1980-9	1990-9	2000-8	1980-9	1990-9	2000-8	1980-9	1990-9	2000-8	1980-9	1990-9	2000-8	1980-9	1990-9	2000-8
Angola	2.3	9.2	8.5	2.1	7.7	4.4	-3.4	-16.7	-15.7	-10.2	-9.4	-6.9	-9.3	-9.3	-9.7
Botswana	4.6	0.2	5.8	8.5	2.4	1.2	-2.7	-0.8	-2.0	5.3	0.4	-4.1	15.7	2.2	0.9
B'kina Faso	0.1	0.3	1.3	11.7	16.6	12.7	-1.4	-1.2	-1.9	-4.2	-5.1	4.1	6.2	10.6	16.2
Burundi	0.1	0.1	0.2	16.8	19.7	38.5	-2.4	-4.6	-3.6	-18.7	-15.1	-35.5	-4.3	0.0	-0.4
Cameroon	1.2	0.3	1.5	2.7	5.3	5.7	-5.5	-4.0	-4.9	-13.9	-14.7	0.5	-15.4	-13.1	2.7
Cape Verde	0.5	2.6	7.8	34.7	26.8	15.5	-2.7	-3.0	-2.6	-17.8	-19.8	-13.8	14.6	6.7	6.9
CAR	0.6	0.1	2.2	14.7	13.9	8.2	-2.4	-1.8	-1.6	-5.0	-7.6	-1.3	7.8	4.6	7.4
Chad	1.1	1.5	12.6	12.5	15.0	8.8	-0.7	-1.4	-1.4	-2.2	-2.1	-1.1	10.7	13.0	19.0
Congo, DR	-0.1	0.1	6.5	5.1	4.2	27.6	-4.8	-4.0	-0.7	-6.3	-2.7	-9.0	-6.1	-2.5	24.4
Congo, Rp	1.4	5.4	12.0	4.9	12.0	6.9	-16.6	-2.8	-11.9	-8.2	-4.0	-17.4	-18.6	10.6	-10.3
Cote d'Iv	0.6	1.3	1.9	2.6	8.8	2.7	-16.7	-5.5	-12.3	-7.6	-7.7	-4.2	-21.2	-3.1	-11.9
Ethiopia	0.1	1.3	3.0	5.5	9.7	14.5	-1.8	-1.3	-1.7	-10.2	-4.0	-5.9	-6.4	5.8	10.0
Gabon	1.8	-2.3	1.6	2.2	2.3	0.5	-7.1	-9.3	-8.4	-2.1	-2.6	-9.5	-5.2	-11.9	-15.7
Ghana	0.2	1.7	2.4	6.3	9.9	10.2	-5.1	-3.9	-6.1	-3.4	-2.0	-2.2	-2.0	5.6	4.3
Guinea	0.6	0.6	3.7	12.1	11.0	7.8	-5.8	-4.6	-3.9	-9.4	-4.2	2.3	-2.6	2.8	9.9
Kenya	0.4	0.6	0.6	7.8	8.6	4.0	-8.7	-3.4	-8.0	-0.8	-0.1	-1.3	-1.3	5.8	-4.7
Lesotho	1.6	16.5	5.0	14.7	10.2	5.8	-2.2	-5.4	-3.9	-10.0	0.2	-0.9	4.1	21.5	6.0
Mdgscar	0.2	0.6	4.0	8.8	13.2	13.2	-5.8	-1.8	-3.6	-1.0	-8.6	-2.6	2.2	3.3	11.0
Malawi	0.6	0.8	2.3	18.0	27.0	21.6	-9.0	-2.5	-5.2	-2.4	-20.8	-8.4	7.2	4.4	10.3
Mauritania	1.1	0.4	12.4	25.4	18.8	16.1	-10.7	-5.2	-8.4	-7.8	-0.8	1.3	8.1	13.3	21.4
Moz'bique	0.1	2.5	4.9	13.4	46.1	26.5	-2.3	-1.6	-4.4	-3.1	-2.8	-1.4	8.0	44.2	25.7
Nigeria	1.7	4.1	3.2	0.3	0.8	2.1	-8.4	-4.0	-7.2	-6.7	-5.4	-9.6	-13.0	-4.5	-11.5
Rwanda	1.0	0.2	0.7	10.7	29.7	20.3	-0.8	-1.2	-1.3	-7.3	-3.9	-1.8	3.6	24.8	17.9
Srr Leone	-2.6	0.5	3.8	9.2	19.7	32.6	-4.4	-3.8	-6.7	-8.3	-20.6	-7.6	-6.2	-4.2	22.2
S Africa	0.0	0.6	1.9	0.0	0.2	0.4	-0.2	-2.5	-3.1	-0.5	-0.6	-1.2	-0.7	-2.4	-2.0
Sudan	0.1	0.8	6.1	7.2	4.4	4.1	-2.0	-1.4	-0.6	-4.5	0.9	-2.6	0.8	4.7	6.9
Swaziland	4.5	4.6	2.6	0.6	3.2	1.7	-1.5	-1.7	-1.7	4.3	-2.5	-5.8	7.9	3.6	-3.1
Tanzania	0.1	1.6	3.5	20.9	19.0	12.8	-3.7	-1.1	-3.6	-7.2	-2.0	-1.0	10.1	17.5	11.7
Uganda	0.1	1.6	4.2	6.6	15.9	14.2	-3.8	-1.3	-3.0	-4.7	-2.4	-10.0	-1.9	13.9	5.3
Zambia	1.7	4.2	6.3	13.6	26.5	17.4	-10.6	-5.8	-16.9	-8.9	-1.0	-8.0	-4.2	23.9	-1.2
Zimbabwe	-0.1	1.3	0.7	6.0	4.1	2.9	-5.3	-3.7	-9.1	-17.2	-13.7	-2.5	-16.6	-12.0	-8.0
Averages	0.8	2.0	4.3	9.9	13.3	11.6	-5.1	-3.6	-5.3	-6.5	-6.0	-5.4	-0.9	5.8	5.2
							no. of	countries	< zero:	29	28	27	17	9	11

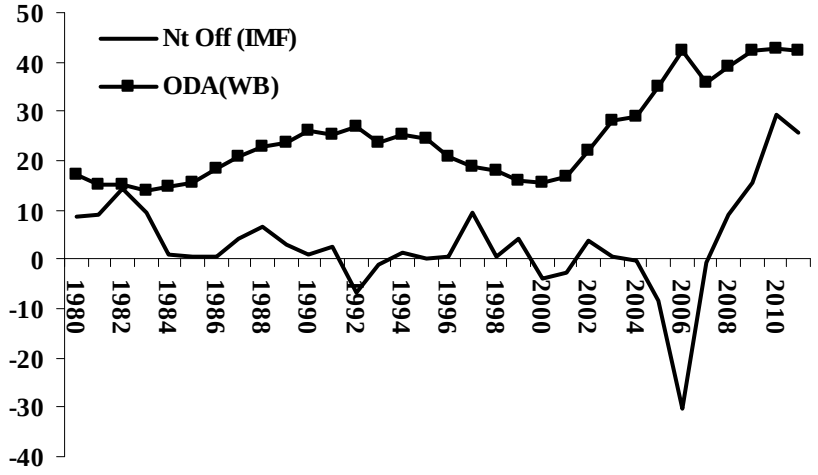
Notes: See Table 1.

Figure 1: Net private capital flows to all sub-Saharan countries, 1980-2011 (billions of constant 2008 US dollars)



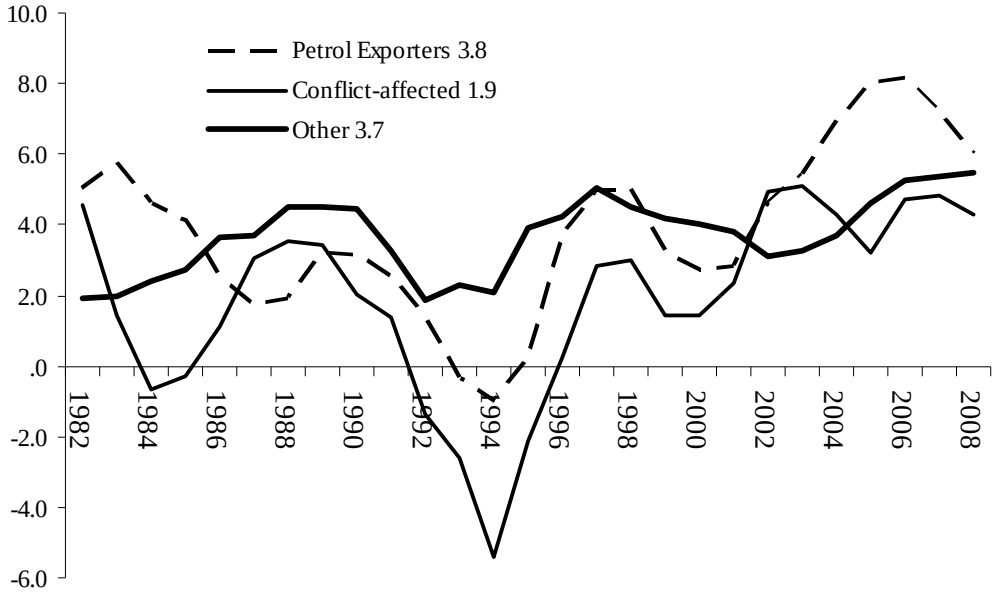
Notes: FDI is direct foreign investment, PrPortf is private portfolio flows, and PrOther is other private flows. The deflator is the US GDP price index.
Source: IMF, *World Economic Outlook 2012*, data tables.

Figure 2: Official flows to all sub-Saharan countries, 1980-2011 (billions of constant 2008 US dollars)



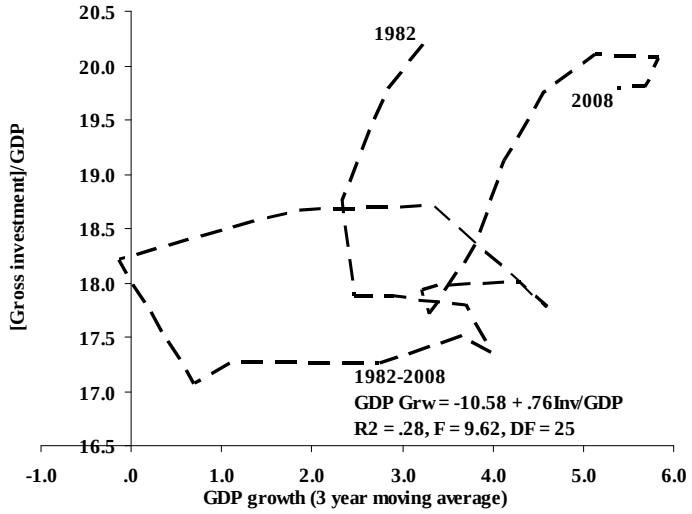
Notes: Nt Off(IMF) is net official flows, and ODA(WB) is official development assistance.
Sources: Net official flows is from IMF, *World Economic Outlook 2012*, data tables; and ODA is from World Bank, *World Development Indicators*.

Figure 3: GDP growth rates, 31 sub-Saharan Countries, 1980-2008 (3 year moving average)



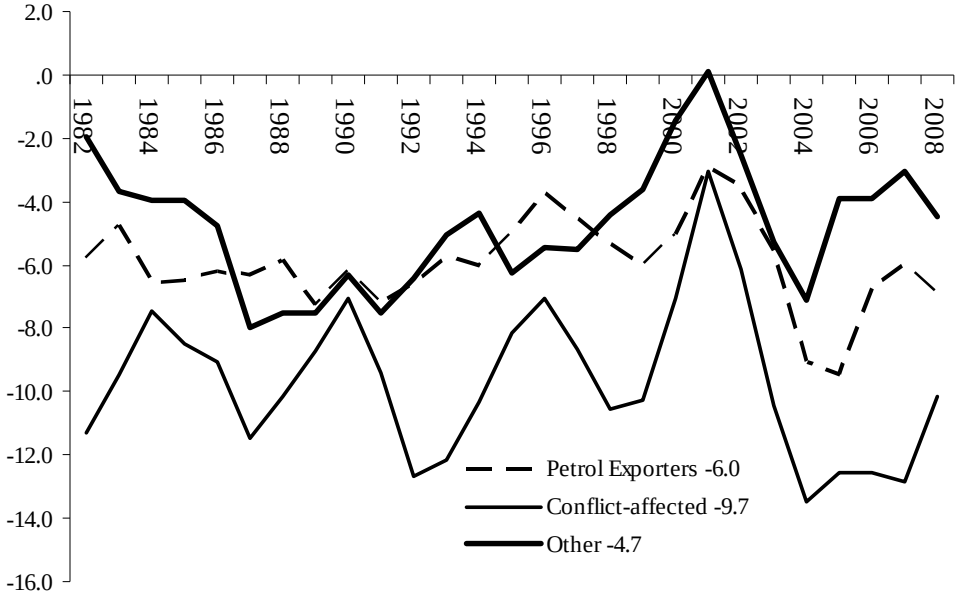
Notes:
Petrol exporters (7): Angola, Cameroon, Chad, Republic of Congo, Gabon, Nigeria, Sudan.
Conflict-affected (7): Burundi, Congo DR, Ethiopia, Mozambique, Rwanda, Sierra Leone, Zimbabwe.
Non-conflict (17): Botswana, Burkina Faso, Cape Verde, Central African Republic, Cote d'Ivoire, Ghana, Guinea, Kenya, Lesotho, Madagascar, Mauritania, Malawi, Mozambique, South Africa, Swaziland, Tanzania, Uganda, Zambia.
Numbers in legend are the averages for the entire period.

Figure 4: GDP growth rates and gross investment/GDP, 31 sub-Saharan countries, 1980-2008, (3 year moving average)



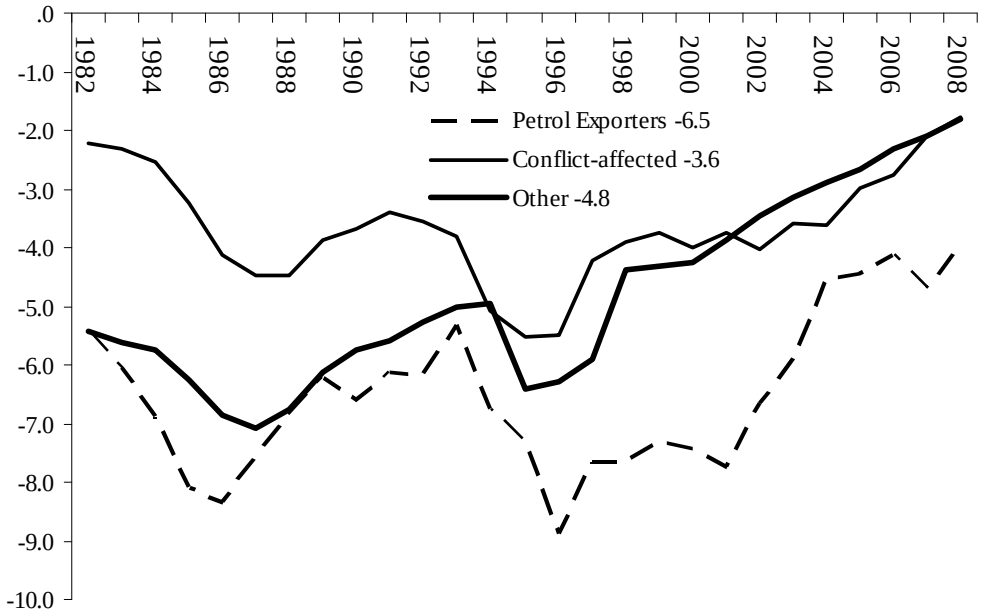
Notes: See Figure 3.

Figure 5: Capital Flight as share of GDP, 31 sub-Saharan Countries, 1980-2008 (3 year moving average)



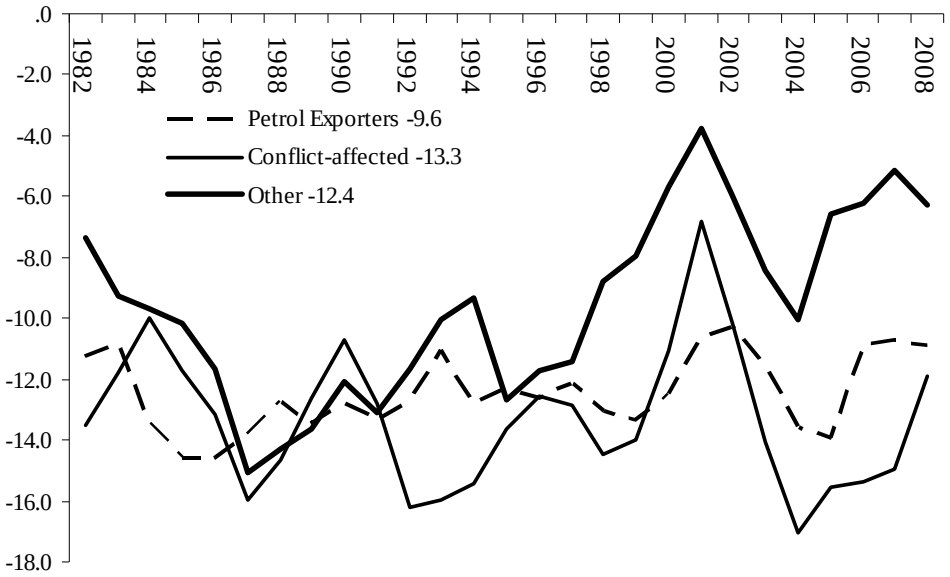
Notes: See Figure 3.
Numbers in legend are the averages for the entire period.

Figure 6: Debt Service as share of GDP, 31 sub-Saharan Countries, 1980-2008 (3 year moving average)



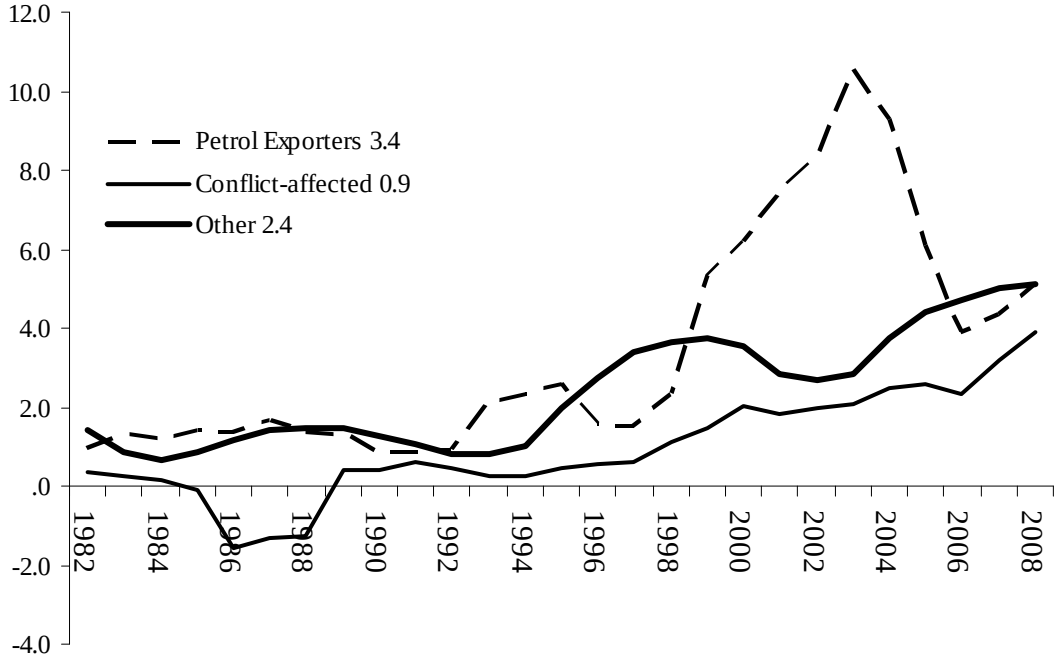
Notes: See Figure 3.
Numbers in legend are the averages for the entire period.

Figure 7: Capital Flight plus Debt Service as share of GDP, 31 sub-Saharan Countries, 1980-2008 (3 year moving average)



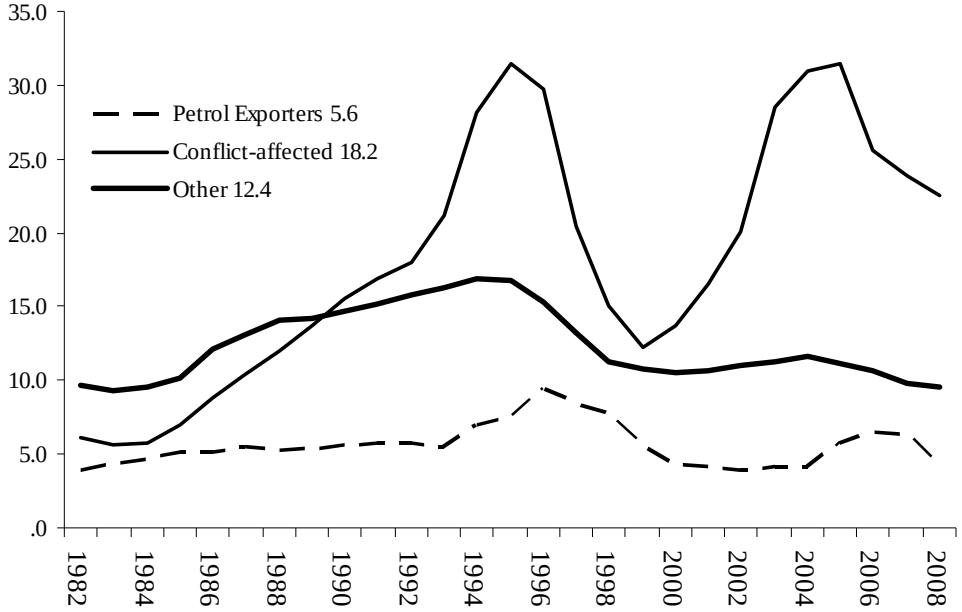
Notes: See Figure 3.
Numbers in legend are the averages for the entire period.

Figure 8: Foreign Direct Investment as share of GDP, sub-Saharan Countries, 1980-2008 (3 year moving average)



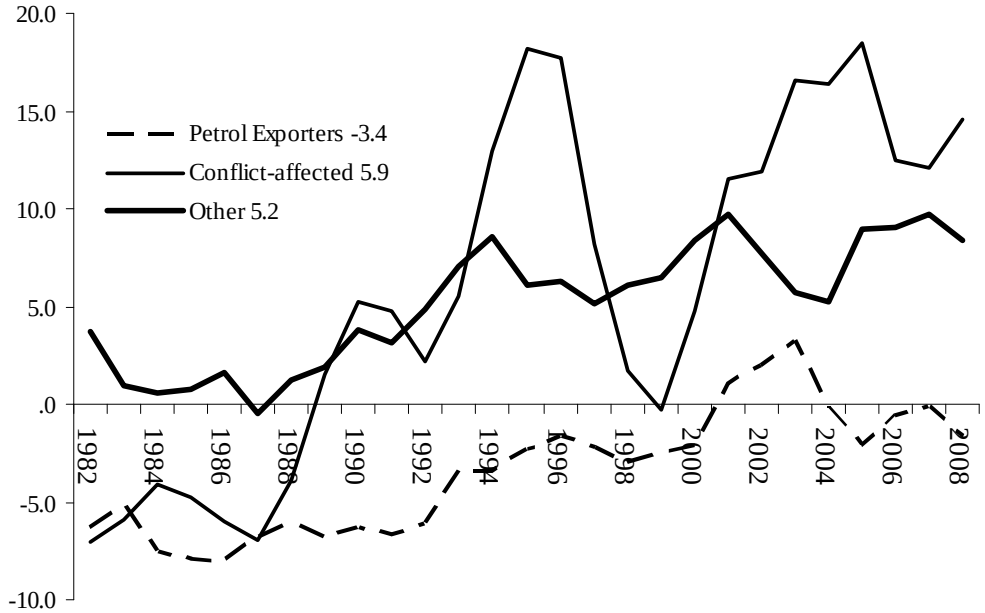
Notes: See Figure 3.
Numbers in legend are the averages for the entire period.

Figure 9: Official Development Assistance as share of GDP, sub-Saharan Countries, 1980-2008 (3 year moving average)



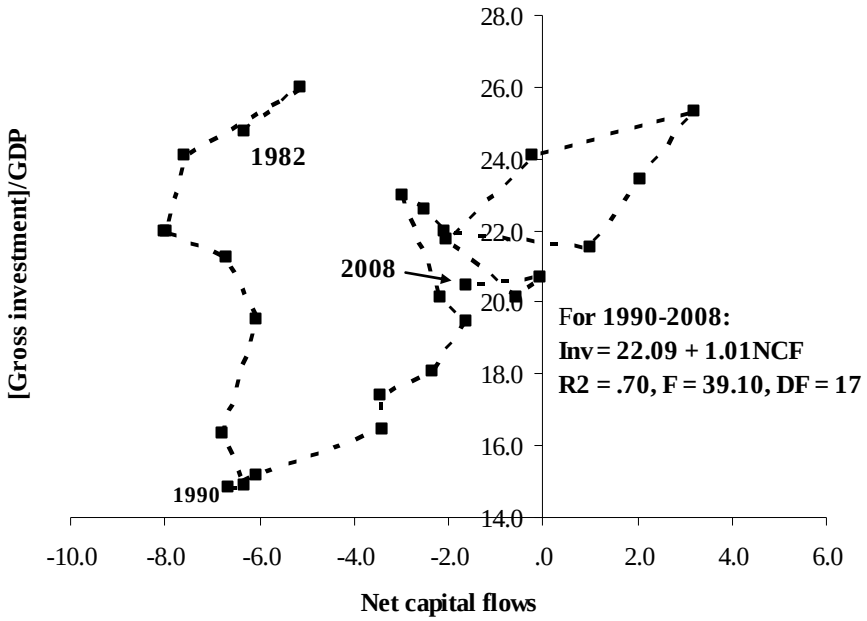
Notes: See Figure 3.
Numbers in legend are the averages for the entire period.

Figure 10: Net Capital Flow as share of GDP, 31 sub-Saharan Countries, 1980-2008 (3 year moving average)



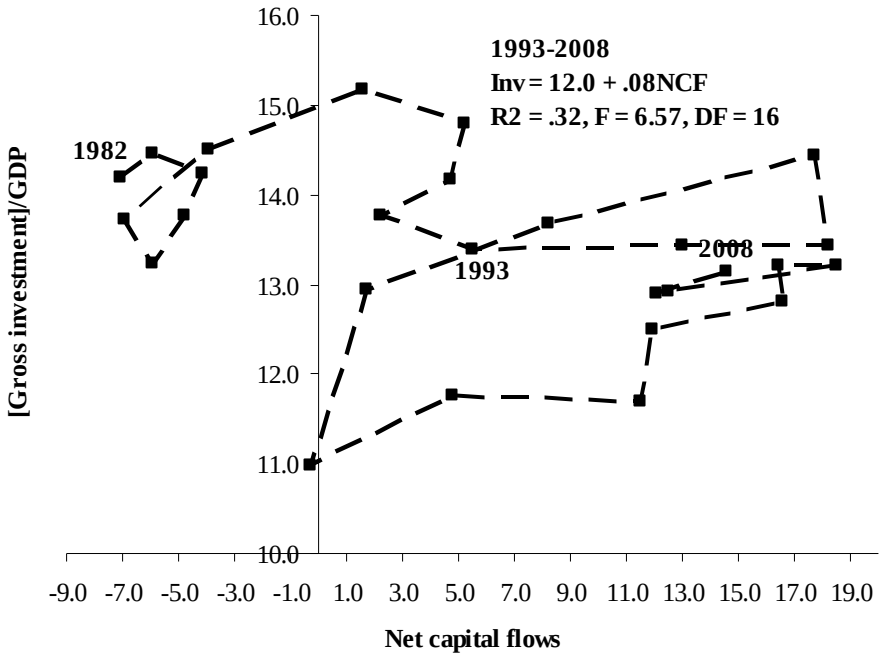
Notes: See Figure 3.
Numbers in legend are the averages for the entire period.

Figure 11: Petroleum Exporters: Net capital flow (horizontal) and investment (vertical) as share of GDP, 1980-2008 (3 year moving average)



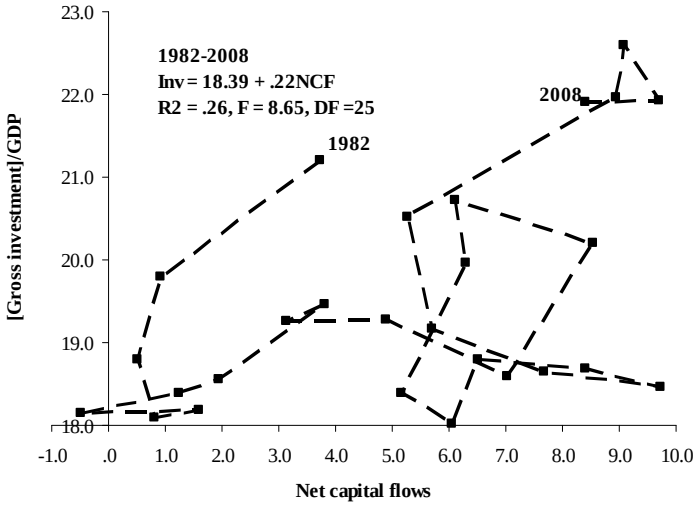
Note: oil exporters are: Angola, Cameroon, Chad, Republic of Congo, Gabon, Nigeria and Sudan.

Figure 12: Conflict-affected countries: Net capital flow (horizontal) and investment (vertical) as share of GDP, 1980-2008 (3 year moving average)



Conflict-affected countries are: Burundi, Congo DR, Ethiopia, Mozambique, Rwanda, Sierra Leone, Zimbabwe.

Figure 13: Non-Conflict-affected countries: Net capital flow (horizontal) & investment (vertical), share of GDP, 17 sub-Saharan Countries, 1980-2008 (3 year moving average)



Data Appendix

The data used in this paper are explained below.

1. Capital flight

The capital flight numbers are the estimates from Ndikumana and Boyce (2001, 2011, Chapter 2, especially Table 2.1; on deflation for constant prices, see page 45). In addition to the direct export of funds, trade invoicing serves as a major vehicle for capital flight. This is a balance of payments flow measure. The method of estimation is explained in detail in Ndkimana and Boyce (2010) and Boyce and Ndikumana (2011).

2. External Debt Service

Debt service is the sum of principal and interest on external debt. This is also a balance of payments flow measure. Source is World Development Indicators.

3. Foreign Direct Investment (net)

To quote from the World Bank web-based data bank, "Foreign direct investment is net inflows of investment to acquire a lasting management interest (10 percent or more of voting stock) in an enterprise operating in an economy other than that of the investor." The measure does not distinguish between investment in new capacity (so-called green-field investment) and acquisitions. Among the countries covered in this study the latter are minor except in South Africa. This is a balance of payments flow measure. Source is World Development Indicators. It was not possible to separate the recurrent cost component (e.g., repair and maintenance).

4. Official Development Assistance

Official development assistance is the net disbursement of funds that qualify under the definition of ODA specified by the Organization of Economic Cooperation and Development. This is a balance of payments flow measure. Source is World Development Indicators. It was not possible to estimate the portion of assistance representing actual foreign exchange inflow to the recipient country.

5. Gross Domestic Product

Gross domestic product is measured in constant dollars, converted at official exchange rates. This is a national accounts category. Source is World Development Indicators.

6. Gross investment

Private and public expenditure that is capacity increasing: plant and equipment, improvement of land and infrastructure. This is a national accounts category. Source is *World Development Indicators*.