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**Research Report**

## Promises, Promises: Aid Volatility and Economic Growth

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## Promises, Promises: Aid Volatility and Economic Growth \*

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Empirical contributions show that there is robust statistical evidence that aid volatility tends to have an adverse effect on economic growth. However, the channels through which such volatility operates have not been fully articulated in endogenous growth models. Dwelling on a recent analytical contribution, this brief describes how, by creating uncertainty about the net return to education, a high degree of aid volatility can mitigate agents' incentives to invest in skills. If savings and growth depend on the composition of the labor force, and if more skilled workers are more productive, aid volatility may therefore have an adverse effect on the average growth rates of investment and output.



## ► Introduction

Aid remains an important component of capital flows to low-income countries. As shown in Figure 1, during the period 1990–2012 official development assistance (ODA) represented 55 percent of external flows to the poorest countries in Sub-Saharan Africa, compared to 23 percent for the middle-income countries of the region. In percent of GDP, ODA flows amounted to 7.9 percent (or 39.1 percent of government revenues) for the poorest countries, compared to 3.6 percent (or 12 percent of government revenues) for middle-income countries.

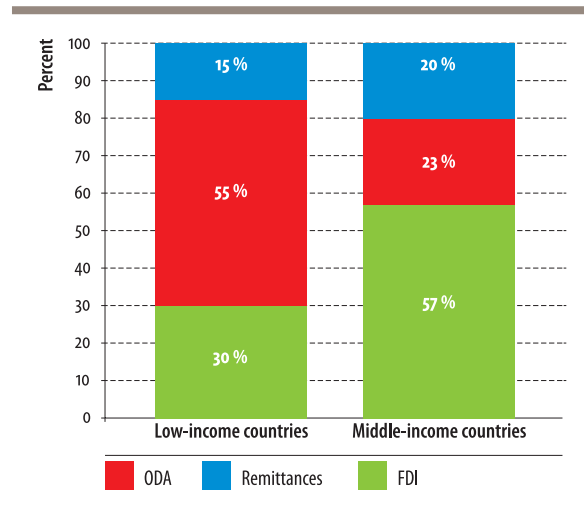
Over the past decades, a large empirical literature has focused on the effect of aid *levels* on economic growth. By and large, this literature has yielded mixed results. While some studies find a positive and statistically significant effect – even after controlling for reverse causality, that is, the fact that poorer countries may attract larger aid flows – others are largely inconclusive. The ambiguity concerns not just the size of the effect of aid on growth, if any, but also its *sign*. While these conflicting and ambiguous results are partly due to regression specifications and techniques, as well as data quality and sample size, they are corroborated by the results of meta-analyses, such as the study of Doucouliagos and Paldam (2008).

More recent research has also focused on the effect of a higher degree of *volatility* of aid on growth, a recurrent (and possibly worsening) problem. For many low-income countries, especially in Sub-Saharan Africa, aid promises have often remained just that – promises<sup>1</sup>.

1. See Desai and Kharas (2010), Guillaumont and Wagner (2014), and Hudson (2015). Various causes of aid volatility have been identified in the literature. Aid (especially emergency aid) can be volatile for good reasons, for instance when responding countercyclically to exogenous shocks, such as terms of trade or natural disasters. This is especially the case for low-income countries, which tend to be disproportionately prone to this type of shocks. Volatility may also reflect a recipient country's political status as well as its governance and macroeconomic performance, which are to some extent endogenous to the recipient country's actions. Finally, volatility can also be a

**Figure 1.** Sub-Saharan Africa: Composition of Average External Flows, 1990–2012

(In percent of total)



Source: Sy and Rakotondrzaka (2015).

Empirical studies include Chauvet and Guillaumont (2009), Chervin and van Wijnbergen (2009), Neanidis and Varvarigos (2009), Markandya et al. (2010), Aldashev and Verardi (2012), Kathavate and Mallik (2012), Kodama (2012), and Museru et al. (2014). By and large these studies conclude that aid volatility – controlling for the level of aid as well as, in many cases, the endogeneity of aid flows – is indeed harmful for growth in developing countries. This adverse effect appears to be particularly significant for project aid, which is designed to promote directly or indirectly investment in physical and human capital. Reducing volatility of project aid could actually have a larger effect on growth than an increase in the level of aid.

Conceptually, the negative impact of aid volatility on growth (and possibly welfare) can result from a variety of channels, both economic and institutional. Empirical studies suggest for instance that aid volatility can increase the likelihood of violent conflict (Aldashev and Verardi (2012)) and promote rent-seeking activities. However, few contributions have fully articulated analytically how aid volatility can affect

manifestation of budget cycles in donor economies.

growth. These contributions include Arellano et al. (2009) and Agénor and Aizenman (2010), with the first focusing on the consumption-investment allocation of private agents, and the second on public investment. Using a dynamic general equilibrium model, Arellano et al. (2009) show that higher aid volatility implies that households rationally reduce investment and increase consumption in their desire to smooth stronger variability in their income – given that aid inflows act as transfer of goods thus increasing household income<sup>2</sup>.

For their part, Agénor and Aizenman (2010) have focused on the fact that the lack of predictability in aid disbursements (especially project aid) may adversely affect growth because it makes it difficult for recipient governments to formulate medium-term investment spending plans<sup>3</sup>. If aid finances a large fraction of infrastructure investment, as is often the case in low-income countries, and if creating public capital requires time (as a result of a “time to build” assumption, for instance), an aid shortfall could bring the process to a halt if no alternative sources of financing are available. This is indeed consistent with the evidence which suggests that aid shortfalls are often accompanied by cuts in public investment (Celasun and Walliser

(2008)) and that volatility in government spending has an adverse effect on economic growth (Kose et al. (2005, Table 6)).

This brief discusses an alternative (and possibly complementary) channel, which has been fully articulated in a recent analytical contribution (Agénor (2016)), and operating not through physical capital accumulation (public or private) but rather through skills acquisition. It also discusses the policy implications of this alternative channel.

### ► Aid Volatility, Wages and Skills Acquisition

Aid volatility may adversely affect growth (and possibly welfare) when the decision to invest in skills is endogenous. To understand how this can occur, consider a low-income economy where the cost of acquiring education benefits from public subsidies, which are partly financed through domestic taxes and partly through aid. This is consistent with the evidence which suggest that, in addition to funding investment, foreign aid is often used to finance recurrent expenditures like education and health spending. The low level of income and limited capacity to enforce compliance with the law imply that policymakers have limited ability to adjust tax rates to finance their expenditures. Individuals cannot borrow to invest in skills because human capital provides inadequate collateral and (consistent with the evidence for many low-income countries) credit markets function poorly. Thus, public subsidies play a critical role in determining how many individuals choose to acquire advanced education and the skill composition of the labor force.

Individuals have identical preferences but are born with different abilities. They must decide early in their adult life whether to enter the labor force as an unskilled worker or (after undergoing training) as a skilled worker. Training involves a direct pecuniary cost, which is partly financed by a government subsidy. The

2. Similarly, Celasun and Walliser (2008) argue that developing country governments cannot rapidly adjust their investment spending upwards (e.g. construction of an additional road) in response to aid windfalls, whereas it might have severe difficulties in cutting government consumption – often consisting mainly of salaries of public sector employees – in response to aid shortfalls. Therefore, higher aid volatility (i.e. an increase in the absolute size of shortfalls or windfalls) may lead to higher government consumption at the expense of government investment. Put differently, the effect of aid volatility on the composition of public expenditure may be asymmetric: aid shortfalls may induce governments to slash investment, whereas aid windfalls may lead to increases in government consumption – which, unlike investment spending, can often be adjusted quickly.

3. Aid volatility and aid predictability are in principle distinct concepts. Aid is predictable if recipients can be confident about the amount and timing of aid disbursements. Aid is volatile if it moves up and down significantly between two time periods. Although measuring predictability requires very detailed data, it is the more relevant concept in studying aid effectiveness issues. However, for the present discussion, which focuses on transmission channels, they are used interchangeably.

individual's ability partly determines his relative cost of acquiring skills; more able individuals need less time to learn or, equivalently, a higher innate ability facilitates the acquisition of skills. Production in the economy depends on both skilled and unskilled labor, as well as private capital. At the same time, skilled labor (adjusted for time worked) is more productive than unskilled labor.

In this setting, while a positive aid shock lowers the threshold level of ability above which individuals choose to acquire skills, thereby increasing the effective supply of skilled labor, an increase in aid volatility has the opposite effect: it mitigates individuals' incentives to acquire skills. The reason is that higher aid volatility translates into higher volatility in the subsidy rate, and thus greater uncertainty about the average relative return from investing in skills.

In addition, an increase in aid volatility reduces the economy's average growth rate. Intuitively, aid shocks affect mean output growth through two channels – *an education incentive-human capital channel* and *a physical capital channel*. Both of these effects operate in the same direction. Because skilled labor is more productive than unskilled labor, greater volatility in wages and the composition of the labor force translates into lower mean output as well as lower mean savings, and thus lower investment. Through both channels a mean-preserving spread of the aid shock causes a decrease in the average growth rate of output.

## ► Policy Implications

Aid volatility creates significant macroeconomic management challenges for recipient governments in low-income countries, whose ability to raise resources through domestic taxation and to borrow on domestic and international capital markets is limited. When the amount of aid disbursed differs widely from the amounts expected, a low-income recipient is usually faced with difficult choices in terms of spending allocation.

The attempt to smooth public expenditure often leads to disproportionate cuts in productive spending. Thus, when promised aid is not provided or when additional aid is disbursed unexpectedly, productive public spending may need to be adjusted abruptly with potentially large social and economic costs<sup>4</sup>. More specifically, the point of the foregoing analysis is that by creating uncertainty about the net return to skills – through its impact on public subsidies to education – a high degree of aid volatility may mitigate agents' incentives to invest in skills. If savings and growth depend on the composition of the labor force, and if more skilled workers are more productive, aid volatility may therefore have an adverse effect on the mean growth rates of investment and output<sup>5</sup>.

Given these adverse effects, how can aid predictability, especially for project aid and budget support, be improved? The empirical evidence, especially Desai and Kharas (2010), suggests that aid shortfalls and windfalls are primarily due to the inability – or unwillingness – of donors to make long-term commitments to recipients. Two approaches have been advocated<sup>6</sup>.

The first has been to urge recipients to protect themselves from fickle donors by saving (at least a fraction of) aid windfalls in a reserve or stabilization fund. In principle, saving aid windfalls would allow building up space for future aid shortfalls and could be part of a strategy

4. In an open economy, volatility in public spending may lead to volatility in the real exchange rate, which may have an adverse effect on exports and the rate of economic growth.
5. Thus, in addition to predicting a negative relationship between (productive) aid volatility and growth, the analysis provides a new testable implication: all else equal, and controlling for the positive effect of the level of aid and other determinants of education outcomes (such as the composition of public spending on education, the quality of schooling, and so on), countries where the volatility of (productive) aid is the highest should also have the lowest ratio of skilled-unskilled workers in the labor force. This can be tested by using panel data regressions with the ratio of tertiary to primary and secondary enrolment rates as the dependent variable.
6. Of course, to the extent that aid volatility is the result of inconsistent domestic policies, the priority should be to strengthen economic management, especially macroeconomic discipline.

to manage unpredictable aid. However, can a contingency fund – financed partly through aid proceeds but also partly through domestic taxation, mitigate the adverse effects of aid volatility? Agénor and Aizenman (2010) have argued that a contingency fund can create a moral hazard effect. If in response to high aid volatility countries opt to allocate a fraction of aid flows to a contingency fund, donors may misinterpret this policy adjustment as a signal of absorption problems. As a result, they may effectively reduce aid commitments – making the initial concerns about lower assistance self-fulfilling. If indeed future aid depends on the size of the fund, precautionary public savings may not be able to mitigate the adverse effects of fluctuations in foreign aid on government spending and eventually on economic growth. The same issue would arise if the fund is built for the specific purpose of stabilizing spending on education, in line with the foregoing discussion.

The second approach is to promote more stable donor-recipient relationships, that is, to encourage donors to move away from fragmented, conditionality-based funding and

make multi-year pre-commitments, with appropriate safeguards, to ensure a longer time horizon (Eifert and Gelb (2006)). By lengthening aid allocation periods and by tying them to slower-moving country indicators rather than reconsidering fast-disbursing aid volumes annually within annual conditionality frameworks, discretion over aid disbursements would be removed. Yet, it would still allow donors to rapidly cut aid if policies and/or governance in a country deteriorate sharply. This would mean significant changes for the international aid architecture. Currently, many aid budgets are set annually, and multilateral institutions need to replenish their resources for low-income countries every three years. Longer-term commitments to budget aid – say, over a 10-year horizon – would imply that aid funding mechanisms, including for multilateral institutions, would have to be reconsidered. Unfortunately, there has been very little progress in that direction in recent years, and there is very little to suggest (given the dire situation of public finances in many donor countries) that this situation will improve any time soon.

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