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**Working Paper**

## Big push versus absorptive capacity: How to reconcile the two approaches

WIDER Discussion Paper, No. 2007/05

**Provided in Cooperation with:**

United Nations University (UNU), World Institute for Development Economics Research (WIDER)

*Suggested Citation:* Guillaumont, Patrick; Guillaumont Jeanneney, Sylviane (2007) : Big push versus absorptive capacity: How to reconcile the two approaches, WIDER Discussion Paper, No. 2007/05, ISBN 978-92-9230-021-0, The United Nations University World Institute for Development Economics Research (UNU-WIDER), Helsinki

This Version is available at:

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Discussion Paper No. 2007/05

## **Big Push versus Absorptive Capacity**

How to Reconcile the Two Approaches

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and Sylviane Guillaumont Jeanneney\*

October 2007

### **Abstract**

In this paper we examine whether absorptive capacity can constitute sufficient justification for rejecting the proposal of a large aid increase to support the ‘big push’. We argue that the probability of a poverty trap exists for many countries, in particular the least developed countries (LDCs) and that an increase in aid is relevant for them. Moreover we show that the decrease in marginal aid returns is slower in vulnerable countries, which supports the rationale to include vulnerability as one of the aid-allocation criteria. We examine the main obstacles to absorptive capacity, such as disbursement constraints and short-term bottlenecks, macroeconomic problems, including loss in competitiveness and macroeconomic volatility, as well as the weakening of institutions. The general conclusion that we draw for reconciling the two approaches is that absorptive capacity strongly influenced by aid itself or by its modalities. The big push and absorptive capacity approaches cannot be reconciled without aid reform supported by an aid increase. First, what is needed is to balance the utilization of aid between activities that are directly productive and those that are social

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Keywords: absorptive capacity, big push, aid effectiveness, poverty trap, institutions

JEL classification: F35, O40

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This study is a revised version of the paper presented at the 16-17 June 2006 WIDER development conference on ‘Aid: Principles, Policies, and Performance’, directed by George Mavrotas.

UNU-WIDER gratefully acknowledges the financial contribution to the conference by the Finnish Ministry for Foreign Affairs.

UNU-WIDER also acknowledges the financial contributions to the 2006-07 research programme by the governments of Australia (AusAID), Denmark (Royal Ministry of Foreign Affairs), Norway (Royal Ministry of Foreign Affairs), Sweden (Swedish International Development Cooperation Agency—Sida), and the United Kingdom (Department for International Development—DFID).

in nature in order to avoid transitory loss of competitiveness. Second, schemes that facilitate the use of aid as insurance against exogenous shocks are to be enhanced because they lower the risk of Dutch disease, and contribute to faster and more equitable growth over the long term. Finally a performance-based conditionality should replace the traditional policy-based one in order to cope with several absorptive capacity limitations, particularly the sociopolitical one. An aid-supported big push will not be effective without new ownership of policy by the recipient countries.

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Katajanokanlaituri 6 B, 00160 Helsinki, Finland

Typescript prepared by Liisa Roponen at UNU-WIDER  
Printed at UNU-WIDER, Helsinki

The views expressed in this publication are those of the author(s). Publication does not imply endorsement by the Institute or the United Nations University, nor by the programme/project sponsors, of any of the views expressed.

ISSN 1609-5774

ISBN 978-92-9230-020-3 (printed publication)

ISBN 978-92-9230-021-0 (internet publication)

## 1 Introduction

Two opposing views seem to dominate the present aid debate: the ‘big push’ thesis and the absorptive capacity concern. The big push is supported in particular by Jeffrey Sachs (2005) and is based on the poverty trap concept, while the absorptive capacity concern collects in a multifold concept several opposing views to the first approach. On one hand, there is the United Nations’ *mot d’ordre* ‘doubling aid to reduce poverty by half’, and on the other hand, the reviving scepticism that aid will not be absorbed usefully. *The End of Poverty*, by Jeffrey Sachs (2005) faces the *White Man’s Burden* by Bill Easterly (2006a). Incidentally, the term ‘big push’ does not appear in the index of Sachs’ book but then neither is ‘absorptive capacity’ found in the Easterly index. The concept ‘big push’ listed in the Easterly index refers to the ‘legend of the big push’, and ‘absorptive capacity’ in the Sachs index makes reference to the statement: ‘Limited absorptive capacity is not an argument against aid. It is the very reason that aid is needed!’

These two opposing views are not really new and paradoxically have common roots. One author, Rosenstein-Rodan, may even appear as a major contributor both to the big push theory and to the absorptive capacity concept applied to foreign aid. He first argued for the idea of increasing returns, for a big push, in 1943. During the 1950s he was joined by other development pioneers, in particular Nurkse (1953), who underlined the need for balanced growth to break the vicious circle of the supply and demand of capital. In 1961, Rosenstein-Rodan presented a comprehensive use of the absorptive capacity concept to measure the capital needs of the developing countries, based on the famous proposal by Millikan and Rostow (1957) to allocate aid according to capacity (once domestic saving were taken into account). Nurkse himself referred to the limitations of aid’s absorptive capacity for investment, as did most of the main works on development economics in the 1950s. These limitations were first acknowledged in BRD’s Fourth Annual Report in 1949 (see Guillaumont 1971 for a historic survey).

Why did not absorptive capacity and the big push appear as contradictory half a century ago as they do today? First, both concepts are founded on the idea that low-income countries face structural obstacles to growth, which are reflected in the absorptive capacity and which require massive investment in interdependent sectors to be resolved. Second, aid today is likely to increase significantly: absorptive capacity then becomes a kind of warning against the risk of waste, whereas in the past it was a criterion for mobilizing more aid. Fifty years ago the main criticism of aid was not presented in this context. Coming from rather extreme and opposite political positions, whether liberal or radical, criticism was targeted at the support given through aid either to enlarging states or to non-democratic regimes and corrupted bourgeoisies.

Currently, opposition is somewhat different. The main argument for doubling aid is not simply to fill a financial gap, but to push countries out of the stagnation trap which will be impossible to escape otherwise (without, however, any clear statistical link between the size of the needed push and requirements for aid). The criticism then is an attack against the idea of a trap and its big push corollary. Other critical opinions or reservations—mostly with regard to the notion of absorptive capacity—are intended to highlight all the reasons why increased aid is likely to be useless, wasted or even harmful. Consequently an increase in aid would not lead to a big push nor the subsequent escape from poverty.

In this context the notion of absorptive capacity of external aid has been used in connection with several different, at times contradictory, meanings. We can identify four main meanings:

- The first is the ‘pipeline’ effect; disbursement constraints or disbursement slowness, evidenced by a low rate of utilization of credits or a long lag between commitments and disbursements.
- The second meaning refers to possible macroeconomic problems associated with large aid inflows (disbursements): these include in particular the loss of competitiveness through real currency appreciation (‘Dutch disease’ effect) and the recently debated effects of aid volatility.
- The third and more classical meaning of absorptive capacity is a decrease (or possibly a cancellation) in the marginal return of aid beyond a certain point in the terms of growth when analysed at the macro level, in terms of projects or specific expenditures when analysed at the microlevel. This is the ‘decreasing returns’ effect.
- Finally, a fourth meaning should be added, which is the ‘sociopolitical approach’, or the weakening of institutions induced by aid or a lack of social assimilation.

In this paper we examine whether absorptive capacity, according to each of these four meanings, represents a justifiable reason for rejecting the proposal of a large increase in aid to help poor countries to leave the underdevelopment trap, subject to the existence of such a trap. To do so we consider the following points and related questions:

- *The poverty trap hypothesis*: fact or fiction? We argue this is a probability for many countries, particularly LDCs. Consequently, increased aid for these states is important;
- *Disbursement constraints and short-term bottlenecks*: why is there an underutilization of credits? Reforming the aid procedures is needed to overcome these constraints;
- *Macroeconomic difficulties*, including the loss of competitiveness and macroeconomic volatility: to what extent is there the risk of Dutch disease? What is needed here is a focus on both productivity and on the stabilizing impact of aid;
- *Decreasing returns*: why are they decreasing more or less quickly? We argue that the decrease is slowed down in vulnerable countries, which makes these nations a priority in aid allocation;
- *Institution weakening*: how can it be avoided? We believe that it can be avoided to a large extent with performance-based conditionality.

## **2 Underdevelopment trap: not the rule, but a risk for many, particularly the LDCs**

The possibility that low-income countries may be locked in a trap of poverty or underdevelopment and that their chance of moving out of the trap is dependent on large inflows of aid can be considered as the underlying principle of the UN Millennium

Project and of the Report of the Blair Commission on Africa. It is also the basis of the related proposals to find new and additional development resources, such as the International Financial Facility. However, the underlying principle has recently been challenged in several studies, some rather sophisticated and academic, others rather polemical. The issue is actually extensive and quite complicated. Without going into details of the debate, we take a look at the main arguments of the recent critique. These appear twofold: (i) there are neither analytical nor empirical grounds for the existence of a trap, (ii) nor is there evidence of aid being a factor likely to support the big push (out of the trap). In spite of the critique, our conclusions support the importance of an aid-supported big push.

## **2.1 Truncated criticism of the concept of a low-level equilibrium**

The concept of a poverty trap at the macro level, developed in the 1950s in particular by Leibenstein (1954) and Nelson (1956), has recently been revitalized. Sachs et al. (2004) re-examine three sources of a trap, i.e., a low level stable equilibrium, namely increasing returns, the saving income function and the fertility income function. The two first factors have been debated in particular by Kraay and Raddatz (2005), who argue that the functions do not conform to such conditions that could lead to a trap. Their scepticism seems to be endorsed by the *Global Monitoring Report 2005*, ‘In general ... neither macroeconomic nor microeconomic evidence tends to support the existence of such traps’. Easterly’s criticism in his book (2006a) and in a recent review paper (2006b) has been more radical.

A purely empirical argument has been added to the analytical scepticism and can be summarized as follows: the number of countries that forty or fifty years ago were low income but that have been able to grow significantly and to move up from this low level is not negligible. Thus a low level of income by itself is not a stable equilibrium or a trap, a fact which cannot be contested.

The point is that many countries, which were initially considered as low-income, have remained poor and they share certain common structural characteristics, suggesting that the combination of these characteristics creates conditions conducive to low level equilibrium. In Guillaumont (2006), we identify these in the persistently low-income per capita countries as the combination of a relatively low level of human capital and a high vulnerability to exogenous shocks. These two structural handicaps interact which makes sustained growth rather unlikely for logical reasons not rejected by econometric tests. Furthermore, these factors—in addition to the low level of income per capita—are precisely the same elements that the UN uses to identify the LDCs. It would then appear that a group of nations, corresponding roughly to the present LDCs, can be considered to constitute the future’s most likely low-income countries. Briefly stated, not all low-income countries are ‘trapped’, but some clearly are and these are the LDCs.

More precisely we find that:

- While there is no absolute convergence among all developing countries; two clear regimes of absolute convergence exist, the non-LDCs, and the LDCs, at a significantly lower level, and leading to a lower steady state;
- Over a long (30-year) period, differences in income per capita perspectives among developing countries are rather well explained by three factors that

correspond to the LDC identification criteria: in addition to the initial level of income per capita, the two variables reflecting structural handicaps—an economic vulnerability index and an index of human capital weakness, both expressed in logs—are significant negative factors. This means that they reflect an obstacle to growth or the possibility of a trap, all the more so because of their interaction (quite weaker results are found with the linear specification).

Of course there can be other interpretations of the logic behind the notion of an underdevelopment trap (see, for instance, Berthélemy 2006), but it seems necessary to look at the structural specificities or initial conditions of countries that have been poor and remained poor for long period.

## **2.2 Misuse of aid effectiveness literature to deny the possibility of a big push**

Another argument that has been used to downplay the possibilities of a big push supported by high aid inflows for moving countries out of the trap is in the mitigated results of cross-country regressions on aid effectiveness.

First, the results are not as ambiguous as is often argued, although the aggregate concept of aid has such a heterogeneous content that it makes it difficult to obtain very strong results. As we see later, positive results on aid effectiveness (possibly contingent on specific factors) have been found to be robust in external assessments (see Roodman 2004, for instance, on Hansen and Tarp 2001 and on Guillaumont and Chauvet 2001) and on Burnside and Dollar (2004). In particular, we argue that aid is efficient in promoting growth in countries that are vulnerable to exogenous shocks (Guillaumont and Chauvet 2001, Chauvet and Guillaumont 2004, 2006). We note that in a recent sceptical survey of aid-growth regressions referred to by opponents to the big push-cum-aid, the authors (Rajan and Subramanian 2005b) omit consideration of the vulnerability factor of aid effectiveness.

Second, it is a debatable issue to consider that none of the low-income countries that have been able to emerge, were supported by large, or even transitory, inflows of external aid. The most successful aid process is precisely the type that leads to self-sustained growth, and ultimately to a weaker aid-growth relationship. It seems that present econometric studies have not adequately addressed the time sequence of this relationship. Historical perspective is needed, which we can obtain by reviewing Korea, Mauritius, Thailand, Indonesia, Tunisia—the countries that over the past decades have emerged or are now emerging. At the beginning of their growth period, these countries received significant inflows of aid which have subsequently and quite normally decreased during periods of growth.<sup>1</sup> For instance the average aid-to-GDP ratio has decreased in Korea from 6.3 per cent in the 1960s to 0.1 in the 1980s, and in Tunisia from 8.1 per cent in the 1960s to 1.5 per cent during 1990-2003. Let us look at the few LDCs which were upgraded by the UN from the LDC status after they had experienced certain degree of growth: Botswana in 1994, Cape Verde and Maldives in 2004 (albeit with postponed implementation of the decision). They had all received an initially high level of aid which then declined, suggesting that countries locked into a trap can escape

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<sup>1</sup> In India, due to size, the aid-to-GDP ratio has always been low. However, after adjustment for the size factor, it also appears to have been significant, then declining

with the help of international community. For instance in Botswana the aid-to-GDP ratio has decreased from 18.8 per cent in the 1980s to 1.9 per cent in 1990-2003.<sup>2</sup> But it should be remembered that not all of these countries were LDCs with the severest initial conditions, particularly with regard to human capital, a fact which made it easier to move up. But these conditions—particularly human capital—could have been supported by prior aid. If the aim of aid inflows is to lead to sustained growth, it is worthwhile to facilitate the progress by changing the preconditional requirements of a possible takeoff.<sup>3</sup>

### **3 Disbursement constraints: a need to reform procedures**

Disbursement constraints constitute to the first difficulty of absorbing more aid. The problem of the lag between commitments and disbursements has been considered for many years (Guillaumont 1967) but curiously has not led to many studies, even though quantitative analysis can be easily applied. Complaints by recipients (and at times by donors) about the large gap between cumulative commitments and disbursements, the so-called ‘pipeline’, are becoming more and more frequent. The rate of underutilization of credits, in fact, is in some cases very high, leading to scepticism about the possibility of recipients being able to use significantly higher amounts of aid.

The reasons behind this underutilization may lie in the circumstances of the receiving countries, such as low administrative capacities or weak transportation infrastructure, as well as the non-fulfilment of conditions attached to disbursement. However, with these facts in mind, Svensson (2006) observes:

a strong bias towards ‘always’ disbursing committed funds to the ex ante designated recipient, or project, irrespective of the recipient government’s performance, or the conditions of other potential aid recipient countries (projects) ...

Here the risk constitutes excess spending under budget pressure rather than disbursement lag.

But disbursement lags may also result from the inadequacy of aid modalities to adjust to recipient circumstances. ‘Aid fragmentation’ or the multiplicity of aid sources in a country, each with different procedures, forms and disbursement conditions, becomes a greater problem when the country is small with low administrative capacities. Donors are inclined to target support for the reinforcement of the recipient’s administrative capacities rather than modify their own behaviour. This is a valuable but a long-term process, as is the improvement of transport facilities and infrastructure which also makes the disbursement of project aid easier. Identifying and attacking such bottlenecks will stay on the agenda for a long time.

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<sup>2</sup> In Cape Verde it has decrease from 37 per cent in the 1980s to 16 per cent in 2000-03 and in the Maldives from 14 per cent to 3.7 per cent.

<sup>3</sup> More generally the issue of evaluation is counterfactual, as usual. It is always difficult to say what would have happened without aid in very poor countries.



The solution is to search for more appropriate procedures. In addition to considerations of ‘alignment’ and ‘predictability’ (we revert to these later), the Declaration of the Paris Forum on Aid Effectiveness in 2005 underlines the need for the ‘harmonization’ of procedures, and defines related indicators. However, to quote Heller (2005):

Current approaches with respect to the goals for harmonization ... are still far short of the professed objectives and aid recipients have reasons to be uncertain about how long it will take for these gaps to be closed. Moreover, it must be daunting for LDCs to catalogue both the number of donors with which they must work, as well as the multiplicity of their objectives, modalities of operation, underlying criteria for aid levels, and conditionalities and terms of aid.

Given the difficulties of the harmonization process, which is progressing very slowly, one cannot help but wonder whether a more radical reform might not be needed. It could—as we see later—consist of adopting an outcome-based conditionality, thus meeting both the concerns of disbursement lags and disbursement incentives, and eliminating bias from either source.

### **3 Macroeconomic drawbacks from higher aid inflows: are they real?**

We now assume that not only commitments but also disbursements are significantly increased, albeit with some possible delay. Disbursement lags postpone the risk of macroeconomic drawbacks which we examine next. Two kinds of problems have been extensively considered in recent literature. One is the risk resulting from an appreciation of the real exchange rate; the second risk, likely to reinforce the first, is associated with the volatility of aid flows. These two risks, while not negligible, are often overestimated, and deserve, at the very least, adequate assessment with regard to some basic economic principles.

#### **3.1 Real exchange rate concern: will aid increase induce a loss of competitiveness?**

There are a number of studies that point to the risk of a real exchange rate appreciation after the scaling-up of aid flows, by authors either from the IMF and World Bank,<sup>4</sup> or from the academic aid literature.<sup>5</sup> It is argued that increased aid inflows generate the Dutch disease effect through a real exchange rate appreciation, with a subsequent loss of competitiveness in the tradable sectors, harming exports as well as competitive import substitution. Aid can induce this effect; either through increased domestic prices of non-tradables in a fixed exchange rate regime, or through the appreciation of the nominal exchange rate in a regime of floating rates.

The empirical evidence on the occurrence of the Dutch disease seems to be weakening (see, for instance, some studies in Berg et al. 2005). Gupta, Powell and Yang (2005)

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<sup>4</sup> See Arellano et al. (2005); Heller (2005); Gupta, Powell and Yang (2006); Rajan and Subramanian (2005a, 2005b); World Bank and IMF (2005, 2006).

<sup>5</sup> See Adam and Bevan (2006); Adam 2005, Bevan (2005); Gunning (2004).

present a sample of econometric studies which illustrate the contradiction among the results. Some authors find a positive link between aid inflows and real exchange rate (e.g., Kasekende and Atingi-Ego 1999 for Ghana), while others observe a negative link. Even the influential paper by Rajan and Subramanian (2005a) which argues that aid has a negative effect on the share of labour-intensive and tradable industries, only suggests that this may be due to a real appreciation. The hypothesis is not tested, nor is consideration given to possible effects on other tradables, such as agriculture and tradable services, which may be particularly important in small and highly aid-dependent developing countries.

Why is there so little evidence? In the short run, the increase in the price of non-tradables occurs only if productive capacity in the non-tradable sector is fully utilized. If there is underutilized capacity, for instance, due to disguised urban unemployment, the supply elasticity may be relatively high. In the long run, real appreciation will occur after a sustained higher aid level only if it is not compensated by an increase of productivity in the non-tradable sector, as Heller (2005) argues in recommending the use of aid to favour such an increase, which in reality is not easy.

Moreover in the longer run, an increase in productivity in the tradable sector is likely to compensate the effect on competitiveness of a possible rise of the non-tradable price. According to the Balassa-Samuelson theorem, if income growth per capita that is higher than in the rest of the world involves appreciation of the real exchange rate, then the big push should lead to a similar affect. Thus there cannot be a big push without real appreciation—if aid succeeds in supporting the big push, it would cause the real value of the currency to appreciate. Appreciation is no longer a problem, it is a reflection of the strategy's success.

These arguments have strong implications for economic policy. In the short run, macroeconomic management of increased aid inflows may help to prevent an over-rapid rise of non-tradable relative prices, although sterilization of reserves can be only a transitory and partial solution (Heller 2005). More important is to consider the uses of aid as well as of public domestic resources. It is necessary to maintain a balance between aid allocated to productive sectors and aid to social sectors. Aid to increase the health and education of children will indeed increase productivity, but only in the long term. Using aid to improve infrastructure is an important factor for increasing absorptive capacity (Agénor et al. 2006). Briefly stated, aid that strives to promote balanced growth also needed to be balanced.

### **3.3 Threaten of aid volatility: is aid destabilizing or stabilizing?**

Aid volatility has become a very fashionable topic and is one of the favourite arguments to illustrate the dangers of a rapid increase in aid. Aid, if volatile, might be a source of macroeconomic instability and all the more so the higher the level of aid.<sup>6</sup> This can be a way of highlighting absorptive capacity. Aid indeed may appear volatile, but it does not mean it is destabilizing, nor is it likely to be so, if its level is increased. Next we

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<sup>6</sup> Buliř and Hamann (2003, 2005); Lensink and Morrissey (2000); Pallage and Robe (2001); Rand and Tarp (2002); Eifert and Gelb (2005).

summarize the conclusions of an on-going research partly presented in Guillaumont (2006b) and Chauvet and Guillaumont (2006).

The first issue is to choose a second monetary flow which is relevant for the comparison of aid volatility, usually tax revenue, in order to examine the effect of aid instability on public budget stability or national income. Because the concern is with macroeconomic vulnerability, it is preferable to compare aid fluctuations (or cycle) with the exports of goods and services, the aggregate of which is the most likely to be affected by exogenous shocks. Tax revenues, as well as national income, are influenced by the overall impact of exports, but also by aid. Moreover, all aid flows are not channelled through the public budget, a fact that makes it important to consider the volatility of the different types of aid (Fielding and Mavrotas 2005).

In comparing total aid (net) to (goods and services) export fluctuations (measured in various ways), Guillaumont (2006b) and Chauvet and Guillaumont (2006) come to the three following conclusions:

- i) Over thirty years (1970-99), the average level of aid volatility for a large sample of developing countries has been approximately the same as that of exports but half the export volatility level for the African subsample. Measured on 8-year subperiods with a cycle component with regard to a trend drawn from a Hodrick-Prescott filter, both aid and export volatilities on average are equivalent to 8.8 per cent for the whole sample, while they are 5.9 per cent (aid) and 11.2 (exports) for the African subsample.
- ii) Criticism of aid volatility may be misplaced if aid has a compensatory profile, which could be consistent with the finding that aid is more effective in more vulnerable countries (see above). As previously argued for real exchange rate appreciation, aid volatility could be a solution rather than a problem. In that perspective, the volatility of aid is not to be criticized *per se* so much as its procyclicality. With regard to exports, procyclicality appears not to be the rule, not even in the majority of cases, as is sometimes asserted. The procyclical character of aid is measured by the correlation between the 'cycle' of aid (that is, its deviation from its trend) and the 'cycle' of exports. Using the Hodrick-Prescott filter and considering more than 100 developing countries over the period 1970-99 (broken down into 8-year subperiods which produced 465 subperiod observations), country correlation between the cycle of net aid disbursements and the cycle of exports of goods and services appears to be negative almost as often as positive (222 cases versus 243). A similar balance is found for the African subsample. This means that aid is nearly as often countercyclical as procyclical. Furthermore in the majority of cases the correlation coefficients on which the comparison is based are not significant.<sup>7</sup>
- iii) Measuring counter- or procyclicality is less relevant than determining whether aid inflow is stabilizing or destabilizing with regard to total aid plus export flows. Procyclical aid can still be stabilizing if its volatility, expressed in relative terms, is lower than the volatility of exports. There may also be opposite and paradoxical cases where aid is countercyclical and destabilizing,

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<sup>7</sup> At a 15 per cent threshold.

when its volatility is significantly higher than that of exports, depending on the relative levels of aid and exports.<sup>8</sup> What is the real picture? To assess the stabilizing character of aid, we consider an index corresponding to the difference between the instability (volatility) of exports and that of the aid plus export flows. If the difference is positive, aid is stabilizing; if negative, aid is destabilizing. Generally, aid had stabilizing impact, particularly during the 1990s than during previous periods, indicating on average 18 per cent of the average value of the instability of exports (28 per cent for the African subsample). In the majority of cases where aid was procyclical, it was then stabilizing. When aid was countercyclical, it was, as expected, generally but not always stabilizing. On the whole, aid had destabilizing affect in less than one-tenth of the cases. Figure 1 demonstrates that the stabilizing impact of aid (measured by the difference between the two instabilities) is all the more important the higher the aid-to-GDP ratio is, and is not significantly influenced by the level of aid volatility.

- iv) In the future, if aid amounts grow substantially, the potential stabilizing or destabilizing impact with regard to exports will be higher, but the risk of a destabilizing impact will remain low since in the case of procyclicality, it is conditioned by a level of volatility higher than that of exports.

Given that export are not the only exogenous source of instability, it is also relevant to examine whether aid contributes to reducing or enhancing growth volatility, once the influence of the traditional structural factors of this overall volatility is taken into account. Using GMM estimator with 5-year average observations, and applying initial income per capita, exports-to-GDP ratio and export volatility as control variables, it appears that the aid-to-GDP ratio has a significant negative impact on growth volatility (aid-to-GDP ratio and income per capita instrumented)<sup>9</sup> (Chauvet and Guillaumont 2006).

Even if aid has on average had rather stabilizing outcome in the past, some policy lessons can be drawn to avoid the destabilizing effect of higher aid levels in the future. On the donor side, the principle of conditionality is itself a potential instability factor, and all the more so once donor policies are harmonized (Heller 2005). However the move towards a more gradual conditionality, generated through an output-based conditionality, may lower the risk of aid instability since the assessment of results or outcome is less dichotomic than that of policy measures implementation. Moreover, better transparency in the criteria of aid allocation may render aid more predictable and then facilitate the domestic management of aid flows.

Finally it is argued that aid can be used more extensively as insurance to smooth public and private incomes in the face of export instability or other shocks. As we have

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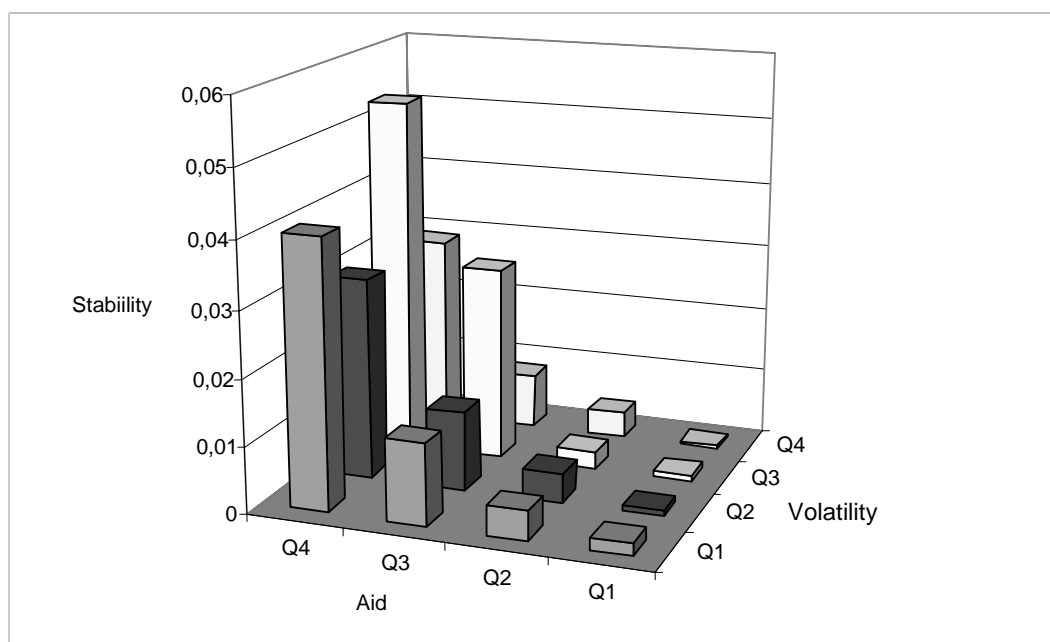
<sup>8</sup> The arithmetic condition is that the absolute value of the ratio of the relative cycles exceeds one by twice the ratio of exports to aid.

<sup>9</sup> Aid volatility added alone to the regression does not change the result and is not significant. When a multiplicative variable (aid ratio x aid volatility) is added, it appears significantly positive, suggesting a threshold beyond which an increase of the aid to GDP ratio may become a factor of macroeconomic instability. But this last result is not very robust, as it can be expected, since the impact of aid volatility differs from one country to the next, depending on proper countercyclicality.

explained elsewhere, solutions do exist that can be built on a contractual basis involving the international community, recipient-country governments and producer groups respecting market trends (Guillaumont and Guillaumont Jeanneney 2003; Guillaumont et al. 2005). Notably, they include grant disbursement and/or debt service adjustment in response to price shocks, and support to domestic insurance schemes targeted to agricultural producers.

On the recipient side, higher aid dependency needs a cautious management of the domestic fiscal space. The government has to be able to maintain some flexibility in public expenditures and to save some potential for domestic borrowing. It may also find it appropriate to accumulate a certain level of foreign reserves that are likely to be used to smooth the impact of aid inflows.

Figure 1  
Stabilizing impact of aid with regard to exports,  
based on aid-to-GDP ratio and aid



#### 4 Decreasing returns: occurring more slowly in vulnerable countries

Absorptive capacity, in the usual meaning of the concept, is associated with decreasing returns. There may be decreasing returns of aid, as with any other factor. However, decreasing returns do not exclude increasing returns below a specific aid level, consistent with the big push hypothesis. An additional analytical difficulty comes from the fact that the turning point is likely to differ among recipient countries, depending on the specific characteristics and circumstances of each nation. Here we focus on their structural vulnerability since in our previous works this has appeared to constitute a significant factor of aid effectiveness. We rely on both macro and micro evidence to argue that vulnerability influences the profile of aid's marginal returns.

## 4.2 Lessons from growth regressions: is the big push justified by vulnerability?

The test of the decreasing marginal returns of aid has been an important part of the debate on aid-growth relationships. In growth regressions both the aid variable and its squared value are included as explanatory variables, with respectively positive and negative coefficients expected. This specification involved not only a decreasing marginal impact of aid on growth, but also that an aid increase beyond a certain level is detrimental to growth (inverse U curb). The turning point could be construed as a measurement of absorptive capacity. Conversely, if the coefficients are respectively negative and positive, or only significant and positive for the squared term, it is an argument in favour of the big push.

The estimation, including the aid term and its squared value, was run initially by Hadjimichael et al. (1995) with reference to absorptive capacity constraints, and has since then become common practice (Burnside and Dollar 2000; Collier and Dollar 2001, 2002; Hansen and Tarp 2000, 2001; Lensink and White 2001). Results vary considerably, with the squared term being either significantly negative or insignificant. The results depend, as clearly documented by Hansen and Tarp, in particular on whether another nonlinearity is introduced in the model through a multiplicative term of aid.

In earlier studies on the influence of vulnerability on aid effectiveness (Guillaumont and Chauvet 2001; Chauvet and Guillaumont 2004), non-linearity was introduced through a multiplicative term (aid x vulnerability index), but without the aid squared term. Results suggest that aid is more effective in more vulnerable countries or in other words, the negative impact of vulnerability is dampened by aid. A more recent paper focusing on Africa (Chauvet and Guillaumont 2006) comes to a similar conclusion, with the instability of goods and services export as only measure of vulnerability. This allows us to assess the stabilizing impact of aid examined above. Regressions are run on a sample of 38 African countries for six 5-year periods (with GMM and additional instrumentation of aid). Controlling for aid ratio and export instability levels, we obtain a significant positive impact on growth of either the multiplicative variable (aid x export instability) or of the indicator of the stabilization impact of aid (the difference between the instability of exports and the instability of the aggregate flow [export plus aid]). In these specifications, the marginal effectiveness of aid does depend on vulnerability, but not on the aid level. It suggests that if there were a turning point based on the aid level (evidenced by a significant coefficient of squared value of aid), this point would be eliminated by higher vulnerability.

To simultaneously test the existence of two successive turning points which correspond, first, to a minimum amount of aid *below* which it is no longer effective (an approach to the big push), and second to the level *beyond* which it becomes ineffective (a measure of the absorptive capacity), it might be conceivable to estimate the growth regression with not only the aid variable and its squared value, but also its cubic value, expecting the coefficients to be successively negative, and positive and negative, and the returns being at the two turning points successively increasing and decreasing. Then the two approaches could be reconciled. However this specification is not very appropriate: there is no reason to expect negative marginal returns instead of nil returns below the first threshold, or even beyond the second one. This is why it seems better to look for thresholds which empirically differentiate aid growth relationships according to the level of aid. This has been done by Gomanee, Girma and Morrissey (2003). They find that aid beyond 2 per cent of GNP becomes effective in contributing to growth and there

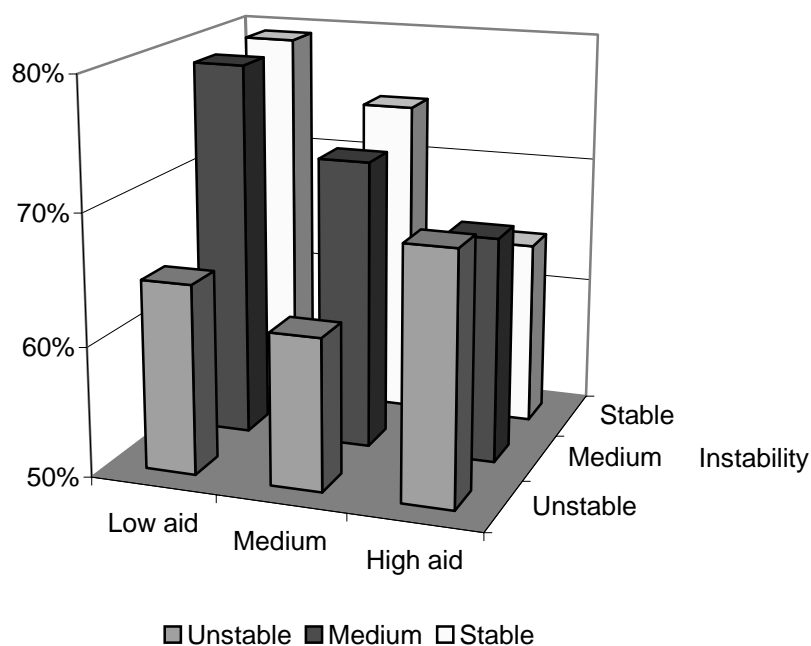
is no evidence of diminishing returns to aid afterwards. But, by using annual growth data, these authors may be capturing short-term rather than long-term aid effects. Moreover, the threshold is assumed to be the same for all countries, but it is likely that aid effectiveness thresholds depend on the specific circumstances of recipient countries.

### 4.3 New micro evidence from project evaluation confirming the impact of vulnerability

The ambiguous results of growth regressions regarding aid effectiveness thresholds may be due to some extent to the heterogeneity of aid aggregates, including projects, budget support, debt relief, technical assistance, etc. For this reason it is useful to consider a more homogeneous set of aid inflows, for instance, a set of projects, and to analyse whether their results depend on the total amount of aid as well as the specific features of recipient countries. If our assumption holds that aid's marginal returns are influenced by the vulnerability of countries, this should be reflected at the micro level, as we see now.

The working paper by Guillaumont and Laajaj (2006) considers the results of an evaluation of World Bank projects conducted by the Bank's Independent Evaluation Group. In this database the outcome of projects is measured on a six-scale notation ranging from very unsatisfactory to very satisfactory. This makes it easy to examine if the rate of success is influenced by the level of aid in the recipient countries and if this relationship depends on their economic vulnerability. We surmise that the rate of success decreases when the total amount of aid received by the country increases, but to a lesser extent in the highly vulnerable countries.

Figure 2  
Slower decreasing returns of aid when exports are more unstable



This view is confirmed by Figure 2, which represents the average project success according to the combined levels of export instability and aid-to-GDP ratio. The success rate<sup>10</sup> has been broken down into nine groups. ‘Low aid’ corresponds to a third of the projects carried out in countries receiving aid at less than 1 per cent of GDP (the lowest level of ODA); ‘high aid’ to the top third (receiving aid exceeding 8 per cent of GDP). Thus ‘medium aid’ went to the intermediate group; each group was similarly subdivided into the upper, middle and lower third groups of projects, according to the export instability of the countries, weighted by the exports-to-GDP ratio.

As is seen, the average success rate for low aid-level countries is 15 points higher in a stable country. However, in stable countries, this rate decreases sharply when the level of aid increases, suggesting a limited absorptive capacity. On the other hand, in the most unstable countries, the success rate does not clearly decrease as it is the highest in the most-generously aided countries; moreover in the most aided countries, the average success of projects is the greater the more unstable the country.

Some econometric estimations confirm these relationships. Following Kaufmann and Wang (1995), Isham, Kaufman and Pritchett (1997), Isham and Kaufman (1999) and Levin and Dollar (2005) we estimate the factors determining the success of World Bank projects, but we do not aggregate project data at the national level so that the regressions are run at the micro level with an observation for each project. Since the outcome of the projects is measured on a six-scale notation, our econometric model is an ordered logit. It combines factors related to the characteristics of the project (sector, IDA or IBRD conditions, etc.) and to the circumstances of the country (income per capita, level of education, quality of institutions, etc.) (as well as year dummies). Our specific concern is to test the influence of the other, following variables:

- the total aid-to-GDP ratio, to identify possible decreasing (or increasing) aid returns (variable introduced also by Levin and Dollar);
- the volatility of exports, which can induce an unstable environment likely to be harmful for the fulfilment of projects;
- one variable multiplicative of the two previous ones, consistently with our previous finding at the macro level (with Chauvet) that aid dampens the negative effects of external shocks.

We expect the success of projects to decline as the total amount of aid increases and as the recipient country faces external shocks (export instability), while the impact of the interactive (multiplicative) variable (aid x instability) becomes positive.<sup>11</sup> The results of

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<sup>10</sup> A project is considered successful if it has been rated at least moderately satisfactory.

<sup>11</sup> In this model the success of project, which is directly estimated, is found to be decreasing when the coefficient of the aid value received by the implementing country is negative. Then if the outcome of projects is declining when the total amount of aid increases and if it is lower when the recipient country faces external shocks (export instability), the positive expected impact of the interactive (multiplicative) variable (aid x instability) means, as in the growth model, that aid dampens the effect of instability. By comparison in the aid-growth model the marginal return of aid is given by the first derivative of growth and is found positive and decreasing with the coefficients of aid and of its squared value are respectively positive and negative: in the aid-growth model aid lowers the negative impact of instability even if there are constant returns, in the success-of-project model the decrease of aid project outcome is slowed down by instability. When instability is high, aid outcome may cease to decrease or even be increasing.

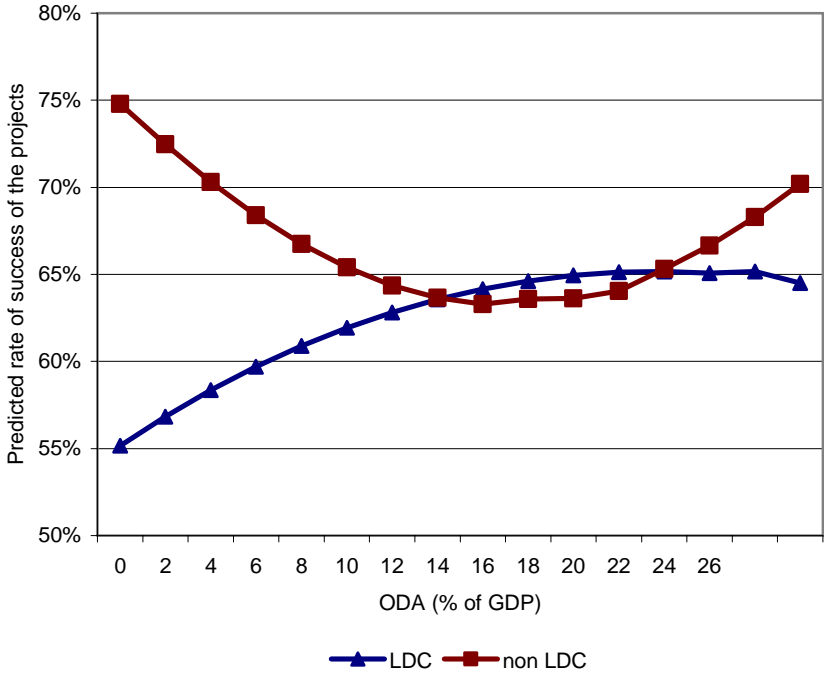


the base regression do not reject our hypotheses. The success of projects decreases less in the more unstable countries, a finding that emphasizes the need of aid in vulnerable countries.

Another finding concerns the role of education in the success of projects. The rate of success is positively influenced by the level of education, but a low educational level dampens the negative impact of aid size on the success of projects. When a multiplicative variable of aid and education is introduced in the model, it appears to have a significant negative impact. This should not be surprising: aid has a knowledge content that makes its marginal impact higher the lower the level of education (similar finding in Gomanee, Girma and Morrissey 2003).

Considering that both vulnerability and low human capital are factors of slower decline of aid effectiveness and that these two characteristics in conjunction with a low level of income are the criteria identifying the LDCs, this suggests that the function of success of projects may differ between LDCs and other developing countries. While vulnerability and lack of human capital have a negative impact on the average project success, they can moderate the possibility of failure, or even increase the chance of success when aid levels increase, which do not preclude such a decline beyond a certain level of aid. This means that they extend the limits of absorptive capacity. We then estimated a success-of-project model where the explanatory variables are the aid-to-GDP ratio, its squared value, and a dummy variable for LDCs, introduced both additively and multiplicatively of the aid ratio and its squared value.<sup>12</sup> The results are illustrated Figure 3. In the non-LDCs developing countries, the outcome of projects is

Figure 3  
LDCs: Initial handicap but higher absorptive capacity



<sup>12</sup> The variables corresponding to the identification of LDCs, income per capita, vulnerability, lack of human capital are excluded.

generally higher than in LDCs, but declines when aid increases (the turning point of approximately 25 per cent aid ratio is not empirically relevant since countries reach this level of aid only in less than 1 per cent of the cases). In LDCs the average rate of success increases when the aid-to-GDP ratio increases, at least below the threshold estimated at around 17 per cent in the estimation corresponding to Figure 3, and does not decrease quickly beyond the threshold (25 per cent of cases beyond this point). Clearly, even if the LDCs have a lower average rate of success, they show increasing returns to aid and higher absorptive capacity.

A final but not less intriguing result of the previous estimations is that institutions do not appear to be significant factor in the success of projects.

## **5 Weakening institutions: towards performance-based conditionality**

The relationship between aid and institutions of the recipient countries has been examined in the literature from three different angles. First in the aid effectiveness literature, institutions (and policy) have been presented as a crucial factor of effectiveness (in the ‘ABCD paradigm’ of assessing aid, e.g., Burnside, Collier, Dollar), a factor that is strongly debated, as is well known. Second, the impact of institutions on inter-country aid allocation has been analysed and debated, both as a positive issue and as a normative issue in particular with the aim to assess the selectivity of donors (Amprou, Guillaumont and Guillaumont Jeanneney 2007). Third, the effect of aid on the quality of policies and institutions has been for a long time a matter of concern and now is of topical interest, as it could significantly limit absorptive capacity. Relying on earlier studies on this last issue, we try to see how aid can be prevented from weakening the institutions of recipient countries.

### **5.1 The institutional dimension of absorptive capacity**

Is aid dependency weakening domestic institutions which are now considered as an important factor of economic growth? Several potential negative effects of large aid inflows on institutions have been identified, mainly the detrimental impact of aid on private saving, on state revenue and the consequences on the accountability of public management ( or the link between the state and the civil society).

The first analytical attack against foreign aid that has been largely debated on empirical grounds (Griffin 1970; Papanek 1973) was the crowding-out effect of aid on savings. A common conclusion at the aggregate level is that even if aid has a short-term negative impact on savings, it nevertheless increases investment and thus contributes through a higher income to a long-term increase of the saving ratio (Guillaumont 1985). The crowding-out effect was founded on two basic assumptions linked to policy and institutions. First, aid was assumed to dominate the better investment opportunities, discouraging private savings and investment. It would thus exert an institutional effect on the financial system, the deepening of which would be reduced. Whether this effect resulted from aid or from other sources of external finance is not known and has not been extensively investigated.

The second crowding-out effect, related to fiscal revenue, has been examined in more detail, both through cross-section and country case studies. However results are

mitigated, as is noted in the survey by Moss, Pettersson and van de Walle (2006). Even if the literature frequently finds a negative relationship, it raises several questions. The first is due to the heterogeneity of aid flows and tax receipts, with each tax group inducing specific responses to each aid type. Gupta et al. (2004) suggest that grants, but not loans, have a negative effect on total tax revenue, while Mavrotas (2005) (who also considers the effects on the different kinds of public expenditure) argues to the contrary, 'in Uganda the government did not reduce its tax effort following additional disbursements of different types of foreign aid'. A second problem is related to aid endogeneity. Aid and fiscal receipts are linked by reciprocal relations and may be influenced by common factors while the instrumentation of the aid variable is often unsatisfactory. Finally and most importantly, studies focused on the short-term impact of aid inflows do not capture the long-term institutional effects.

With regard to long-run effects, two opposite views exist. On one hand, the concern over aid dependency leads to underlining the risk that the state is over-dependent on foreign aid and is thus accountable to foreign donors instead of the national population or civil society. From that perspective, the crowding-out of fiscal revenue is considered to be a factor of weak accountability, since governments do not need to maintain their legitimacy to collect revenue (Moss, Pettersson and van der Walle 2006). However, it is not certain that tax collection is always an aspect of democracy and institution-building, as the heavy taxation of African agriculture in the 1970s and thereafter has shown. On the other hand, increased aid can be considered as a transitory impulse that generates a pump-priming effect which will reduce the requirement for aid itself. A good example is given by tax policy: if aid enables a country to reduce high and distortionary taxation, it will help to remove the obstacle to growth and possibly lead to larger amounts of public revenue in the future (Gunning 2004).

Other factors are the more detrimental effects of aid on institutions and these are mainly due to the way in which aid is delivered. There is indeed a sociopolitical dimension to absorptive capacity but it comes from aid modalities to some extent. This may seem paradoxical since larger and larger portions of aid are devoted to budget support, which is conditioned by policy reform. Traditional conditionality has been criticized strongly. In particular it has been argued that it was inefficient due to the common interest of the partners to act as if it was efficient (Collier et al. 1997). This criticism has found expression in the hypothesis by Burnside and Dollar (2000) that aid has no effect on policy. It has been challenged not only in cross-section studies (see, for instance, Chauvet and Guillaumont 2004),<sup>13</sup> but also more significantly by the African case studies by the World Bank (Devarajan, Dollar and Holmgren 2001) and by Berg (2003) and Tarp (2001). It is difficult not to acknowledge that the intense policy dialogue between donors and recipient governments has been sometimes successful in generating significant policy decisions or institution reforms.

Furthermore, the crucial issue of ownership, already raised during the initial criticism of conditionality, seems to remain unsolved. The pressure of donors to 'obtain' policy measures and reforms, and the commitment of recipient countries to be accountable to external agents have resulted in governments and civil servants in these countries becoming distanced from full responsibility for their actions. Moreover they are less

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<sup>13</sup> Tests do not reject the hypothesis that policy is improved by aid when quality is weak, which leads to aid effectiveness being negatively influenced by previous policy (and positively by the current one).

inclined to justify their action except by their external commitments. ‘The hypothesis here is that large aid flows fundamentally alter the relationship between government, elites and local citizens’ (Moss, Pettersson and van de Walle 2006). This lack of ownership and accountability to citizens is enhanced by the weight of donor advice, presence, missions and own agenda, as stressed by Berg in his posthumous paper (2003).

## **5.2 Why a performance-based conditionality is an answer to aid dependency**

Faced with the sociopolitical limits to absorptive capacity, the usual donor response is to consider that the main source of difficulties is the weak administrative capacity, which needs to be enhanced. Reinforcement of capacities has thus been a goal of aid, well-reflected in the share of technical assistance provided. A future increase of aid should then justify further advances in this direction. It is a reasonable principle. However, it has at times been implemented in an inefficient manner. A common practice is to set up autonomous agencies in order to attract the best of the civil servants, with possibly higher wages after appropriate training, and to avoid administrative inertia. It is a short-term search for efficiency, and often triggers discouragement within traditional administration. Policy that aims at reducing the number of civil servants but compensating the remainder with better pay possibly after appropriate training has a longer-term focus, although it may be politically difficult.

The analysis of the drawbacks of aid dependency calls for deeper reform in aid practice. In previous papers, we have argued in favour of an outcome-based or performance-based conditionality for budget support instead of conditionality that is based on the adoption of policy changes (Collier et al. 1997; Adam et al. 2004). Performance would be measured as much as possible in terms of ultimate objectives, such as reduced child mortality or knowledge acquisition by children. To quote:

A performance-based approach allows for better ownership of reforms, since the choice of instruments would reside with the country; it avoids arbitrary judgement on multiple heterogeneous economic policy measures; and it facilitates gradual and progressive support according to the degree of progress of performance relative to outturns; and by eliminating the scope of discordant conditionality, it supports better coordination between donors (Adam et al. 2004).

Although the principle of this proposal has not met strong criticism, the likelihood of its implementation by a significant number of donors appears rather limited. Even the European Union which has taken the pioneering initiative for reform in that direction has gone only half way, as the retained conditions refer to intermediate indicators related to policy instruments (ibid.). The main obstacles to full implementation of a performance-based conditionality are twofold. One is the lack of trust in the capacity and will of the recipient countries, which create a vicious circle since capacities will not develop fully without ownership. The second and probably more important hindrance is the weight of habit within aid agencies. Full performance-based conditionality would involve a dramatic change in agency jobs, which would be devoted to monitoring and assessing the progress of countries based on a few ultimate development indicators, taking into account the impact of exogenous factors, independent of policy.

Furthermore, it may not be possible to undertake such reform in countries which have merely a minimal state or are the continually failing states. At least temporarily increased aid inflows should be delivered more directly through technical assistance and projects implemented in particular through civil societies organizations (EGDI 2006; Cohen, Guillaumont Jeanneney and Jacquet 2006); these efforts should bypass the failing states (Chauvet and Collier 2005).

## **6 Conclusion: how to reconcile the two approaches**

In this paper we have neither rejected the relevance of the big push nor denied the existence of serious limitations to absorptive capacity, but asset that both require further analysis. The limitations to absorptive capacity do not imply that the big push should be abandoned; on the contrary, the big push seems to be needed to remove these obstacles. However, this becomes feasible only if aid policies are consistently designed. Our general conclusion on the reconciliation of the two approaches is that absorptive capacity is heavily dependent on aid itself or on its very modalities. The big push and absorptive capacity approaches cannot be reconciled without reforming aid supplemented with an increase in aid amounts. Based on that perspective, the following main lessons can be drawn.

First, it is necessary to balance the utilization of aid between directly productive activities and social services in order to avoid a transitory loss in competitiveness. Second, schemes that promote the use of aid as insurance against exogenous shocks are to be enhanced because they lower the risk of Dutch disease and contribute to a faster and more equitable long-term growth. Third, due to the higher marginal impact of aid in vulnerable countries and in particular the LDCs, where the need for a big push is the most obvious, priority should be given to these countries in aid allocation. Finally, as much as possible, a performance-based conditionality should be substituted for the traditional policy-based one in order to cope with several absorptive capacity limitations, of which the sociopolitical element is the most important. An aid supported big push will not be effective without a new ownership of policy by the recipient countries.

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