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REDUCING POVERTY BY AID REALLOCATION: UNCERTAINTIES AND ALTERNATIVE ASSUMPTIONS

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Résumé

Deux récents documents de la Banque Mondiale soutiennent que les effets de l'aide sur la croissance dépendent de la politique des pays receveurs (Burnside et Dollar) et qu'il est possible d'allouer l'aide entre pays de façon à maximiser la réduction de la pauvreté (Collier et Dollar). Cette étude présente un examen critique des hypothèses sur lesquelles reposent les deux documents examinés et suggère de nouvelles hypothèses et orientations pour la recherche. Elle se concentre successivement sur la relation entre aide et croissance, suggérant que l'efficacité de l'aide dépend de la vulnérabilité autant que de la politique, et sur l'exercice de minimisation de la pauvreté, proposant de tester directement l'impact de l'aide sur la réduction de la pauvreté.

Summary

Two recent World Bank documents argue that the effects of aid on growth depend on the recipient country policy (Burnside and Dollar) and that it is possible to allocate aid in order to maximize poverty reduction (Collier and Dollar). This study presents a critical examination of the assumption on which the two documents rely and suggest new assumption and orientations for research. It successively focuses on the aid-growth relationship, supposing that aid effectiveness depends on vulnerability as well as on policy, and on the poverty minimisation exercise, proposing to test directly the impact of aid on poverty reduction.

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#Paper presented (in French) as a comment of the Collier and Dollar paper (1999b) at a workshop of the Europe ABCDE Conference, Ministère de l'Economie, des Finances et de l'Industrie, Paris, June 1999.

In the search of a greater aid effectiveness, Collier and Dollar (1999a, 1999b) have made an important step forward by proposing that aid should be allocated in such way to maximize the reduction of poverty across countries. In a previous work, Burnside and Dollar (1997), followed by *Assessing Aid* (World Bank 1998) built the foundations of a new and already well known aid paradigm: aid is efficient in promoting growth when policy is "good", but inefficient when policy is "bad". Consequently it was proposed that aid should be allocated according to the quality of policy.

This new principle of selectivity remained to be precised. Burnside and Dollar (1997) only illustrated the point by assuming an allocation of the total amount of aid proportionately to the quality of policy and showing the related impact on the average rate of growth of GDP per capita for the sample countries (from 1.1% to 1.4% during 1970-1993).

Collier and Dollar explicitly propose a rule of allocation which is to maximize the reduction of poverty. Taking for granted the Burnside-Dollar relationship between aid and per capita GDP growth, depending on policies, they assume an additional relationship between growth and poverty reduction. Combining the two relationships, they design an aid allocation which maximizes the reduction of poverty among countries with various initial levels of poverty, through the effects of aid on growth and the effects of growth on poverty. The result is obtained by equalizing the marginal contribution of aid to the reduction of poverty among countries. Aid effectiveness can then be understood in two different ways: effectiveness to promote growth and effectiveness to reduce poverty.

The authors argue that a reallocation of aid among countries according to this new principle of aid effectiveness would lead to significantly lessen the extent of poverty, an objective which could be largely agreed by the main sources of aid. They offer an invitation to various donors to reconsider their aid allocation, suggesting a possible impact measurable by the diminution of the number of the poor (headcount index) or of a more sophisticated measure of poverty. The exercise seems logical and politically appealing. But it is nothing more than an exercise, and in our view not yet an

operational guidance[1]. The reason is that the pioneering Collier-Dollar proposal relies on three main assumptions, which still have to be debated:

1 - Growth effectiveness of aid (its marginal contribution to GDP growth) depends on the quality of policy and only on it.

2 - The marginal growth effectiveness of aid is decreasing

3 - Growth elasticity of poverty (elasticity of any relevant index of poverty to the overall level of income) does not depend on aid and aid does not influence income distribution.

Here we first debate the relationship between aid and growth and propose an assumption alternative to the assumption 1 (alternative assumption significantly tested elsewhere, Guillaumont and Chauvet 1999). Second, we look for the condition of validity of the poverty minimizing exercise. Finally we draw some policy implications of the Collier-Dollar paper, compared to those of alternative proposals.

1 - Aid-growth relationship: the limitations of the new paradigm

The basic assumption to be considered is that growth effectiveness of aid depends on the quality of policy and only on it.

Aid effectiveness depending on policy: why ?

It is the main hypothesis and finding of the 1997 Burnside and Dollar paper. It was tested by a cross-sectional growth regression through an interactive variable Aid x Policy, which appeared to be significantly positive, so that the marginal contribution of aid to growth was considered as depending on the level of the policy variable (it also could be said that the marginal contribution of policy to growth appeared to depend on the level of aid).

Collier and Dollar (1999b) endorse this hypothesis in a similar model (panel of six four year periods on 1974-1997, instead of 1970-1993), but with a different and

[1] The April paper by Collier and Dollar is a substantially revised version of a previous Working Paper, published in January, with the same title (Collier-Dollar 1999a).

broader definition of the "policy" variable: here, it is the World Bank policy rating, instead of the weighted average of three macroeconomic policy indicators, namely fiscal balance, inflation and the Sachs-Warner indicator of openness[2].

The theoretical reasons behind the effect of this interactive variable are not explicited. It is rather a common-sense view. We can note that it allows to move from a macro-policy indicator of policy (Burnside and Dollar 1997, Collier and Dollar 1999a) to a quite broader rating index which is a simple average of "20 components covering macroeconomic, sectoral, social and public sector policies" (Collier and Dollar 1999b).

In another paper (communication to the Washington ABCDE, Guillaumont and Chauvet, 1999), we tried to explain why the theoretical reasons of such an effect are not so clear, and to some extent dubious. This effect fundamentally assumes that aid has no impact on policy. Actually, if aid has an effect on policy, this effect is likely to be the stronger when the initial quality of policy is the lower, making the marginal contribution of aid to growth higher. For instance even if the marginal rate of return of projects is higher when the macro-policy is better, the differential between the marginal rate of return of aid projects and that of domestically financed similar projects is likely to be greater in countries where policy (in particular public expenditure allocation) is poorer.

An alternative assumption: aid effectiveness higher in more vulnerable countries

More important, other factors than policy are likely to influence aid contribution to growth. In the quoted previous paper, we formulate the hypothesis that aid growth effectiveness also (mainly) depends on the quality of the environment (climatic and external environment): in countries suffering from a bad environment, facing negative shocks and largely exposed to these shocks, let us say in vulnerable countries, aid is expected to be more efficient. In these countries aid can avoid collapses and lasting recessions following negative shocks. The more vulnerable the country, the higher the marginal productivity of foreign support.

[2] weights given by the impact of the three variables on growth in an OLS regression model

Results of alternative econometric tests

We have tested this alternative assumption in a two period cross-sectional growth regression where besides the Burnside-Dollar aid variables are introduced an indicator of exogenous environment (or structural vulnerability) and a multiplicative variable Aid x Environment. The components of the environment/vulnerability variables or indicators are the four following ones: three proxies of the shocks, the instability of the real value of exports, the instability of agricultural value added, the trend of the terms of trade, and a proxy indicator of the exposure to shocks, namely the log of population size. The results obtained with TSLS (Two Stage Least Squares), where aid and policy variables are instrumented, allow to consider that aid effectiveness depends on the environment (vulnerability) (aid is more effective in more vulnerable countries), but lead to reject the hypothesis that aid effectiveness depends on the quality of macro-policy.

At this stage, it is not possible to identify the reason for the divergence between our results and those of Dollar-Burnside or Collier-Dollar. It is probably not the definition of the policy variable, since this definition differs between Burnside-Dollar (1997) and Collier-Dollar (1999b), and ours is the same as Burnside-Dollar's one. It might be due to the different breaking down of the overall period in sub-periods (six four-year periods in Burnside-Dollar and Collier-Dollar, two eleven year periods in our work), longer period allowing to better take into account the effect of vulnerability, while macro-policy effects are probably better captured within shorter periods. Another and more critical explanation is related to the inclusion in our model of the vulnerability variables. It has to be noted that Collier-Dollar present OLS results and do not instrument aid and policy variables, relying on the argument that instrumentation did not change the results in the Burnside-Dollar paper (nor in the previous Collier-Dollar January paper), which could be debated[3].

A definitive answer to this question could be obtained if all the data used by Burnside-Dollar and Collier-Dollar in their papers were made available. With regard to

the practical importance of the messages conveyed by econometric assessments of aid effectiveness, it is highly hopeful that the full set of data used by different authors could be disseminated in order to allow a clear identification of the causes of possible diverging results.

2 – The poverty minimization exercise

Collier and Dollar (1999a, 1999b) present an enlightening exercise of maximization of the contribution of a given total amount of aid to the world poverty reduction, by solving a program where the marginal contribution of aid to this reduction (through its effect on growth) is equalized among countries. The validity of the exercise, and the possibility to use it as an operational guide for aid allocation depend on three conditions, which difficulty can be considered as fulfilled:

- the total amount of aid does not depend on its allocation
- the marginal contribution of aid to growth is decreasing
- aid has no other effect on poverty than its effect through growth

First condition: the total amount of aid available does not depend on its allocation[4]

Actually, the principle of maximizing poverty reduction through reallocation of a given amount of aid is not politically realist as far as the amount of aid depends on its allocation: the neglect of donors preferences may lower the amount of aid. In other words, aid may be given for reasons which are not only related to growth purposes. But it could be objected that it is precisely the aim of the exercise to show what would be the impact on poverty of a new principle of aid allocation agreed by donor countries.

Second condition: marginal growth effectiveness of aid is decreasing

In its clearest formulation, this assumption has been introduced in the Collier-Dollar paper of January 1999 and maintained in their April paper[5]. The justification

[3] We also note that at least one of the instruments used by Burnside-Dollar (1995), namely the (log of) population size, may be an explanatory variable of growth which is not included in their growth regression, but is taken into account in our model as a component of vulnerability.
[4] I owe this remark to Elliot Berg.

given is that "aid is subject to diminishing marginal returns". It is once again a common sense view, a priori less open to a debate than the hypothesis that aid effectiveness depends on policy[6]. However we have to note that in our own regressions, including environment/vulnerability variables, we have been unable to obtain significant results for the squared aid variable[7].

It appears all the more useful to underline the implication of the decreasing marginal contribution of aid to growth. Let us assume that the marginal contribution is constant, depending only on policy and/or environment. As noted by Collier and Dollar, in that case, the maximum reduction of poverty will be obtained by giving the priority to countries with the lowest marginal cost of poverty reduction. They add: "Not only would this be politically unacceptable as to be uninteresting, it would be incredible" (Collier-Dollar 1999a). Let us precise this point. If the objective is to minimize the number of the poor and if the growth elasticity of this number is the same among the developing countries, as assumed by Collier- Dollar, it follows that aid has to be allocated first to the country where the marginal contribution to growth is the higher, until there are no longer poor living in this country, then to the next one, according to its policy level (and/or its environment level) which determines the marginal return of aid, and so on… It could be indeed politically very difficult to manage such an allocation.

The same difficulty remains even if the aim is to reduce the poverty gap, i.e. even if the growth elasticity of the poverty gap differs among countries, as does the marginal contribution of aid to growth irrespectively to the volume of aid.

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[5] In the previous Burnside-Dollar paper (1997), the squared value of the aid variable (A) was multiplied by the policy variable (P), so that with g the rate of growth

$g = f(A, AP, A^2P)$

whereas in the Collier-Dollar paper, we have $g = f(A, A^2, AP)$

Thus in the Burnside-Dollar model, the turning point, where the marginal contribution of aid to growth becomes negative, does not depend on policy, whereas in the Collier-Dollar model, it is supposed to be higher, the better is the policy.

[6] Let us assume that there is no effect of aid on saving and that the additional effect of aid on investment is one for one: would it be justified to maintained the squared term since decreasing returns are already assumed in the production function relationship?

[7] Collier-Dollar in the January version of their paper (1999a) met similar difficulties, as they explain (p. 10).

Third condition: growth elasticity of poverty does not depend on aid and aid has no direct effect on poverty

Going from growth to poverty reduction Collier-Dollar use two concepts of poverty and two related measures of the elasticity of poverty to growth:

- the head count measure of poverty (% of population with either less than 1 $ a day or 2 $ a day): the growth elasticity is here assumed to be identical for all countries (- 2), which is considered to be the average found by Ravallion and Chen (1997)[8]
- the poverty gap, with a growth elasticity drawn from a simple formula given by Datt and Ravallion (1992) and equal to one minus the ratio of headcount index to the poverty gap index.

It was of course difficult to more differentiate the elasticities of poverty according to the recipient countries. However the validity of the exercise depends on the neutrality of aid with regard to income distribution. If aid has an impact on distribution, it both modifies the growth elasticity of poverty and may have a direct impact on poverty, for a given level of average income.

Contrasting arguments have been presented about the effects of aid on income distribution (aid going to the rich, aid focused to reach the poor,…). It does not seem to be general empirical evidence of its net effect. But it is difficult to assume that for any source of aid the net effect is neutral. The problem is that the effects of aid on income distribution and directly or indirectly on poverty depend themselves on several kinds of factors (policy, shocks to be faced, initial level and distribution of income, and moreover the kind of aid given).

It is somewhat paradoxical to ask donors to maximize the poverty reduction impact of their aid by allocating their aid according to a method which assumes that aid has no specific effect on income distribution and on poverty otherwise than through income growth.

What may be needed is a direct cross-sectional analysis of the contribution of aid to poverty reduction, taking into account the factors (policy and/or environment)

[8] Ravallion and Chen appear to have also estimated an elasticity of – 3,1 (p. 377).

conditioning the marginal effect of aid. A previous attempt by Burnside and Dollar (1998) considering the factors explaining the change in infant mortality, but according to the same first assumption debated above (aid effectiveness depending on policy and only on it), has to be noted in this regard.

3 - Concluding remarks: implications for policy analysis

Collier and Dollar were right in placing the emphasis on the possible contribution of aid to the reduction of poverty. But the conceptual framework they present is not for the time being an operational method of aid allocation. Let us precise some policy implications of our previous comments.

Testing the impact of vulnerability on the effectiveness of aid with regard to poverty

First, for a given total amount of aid, the optimal allocation may be quite different from that proposed if are adequately taken into account the exogenous factors not included in the Collier-Dollar model, and on which aid effectiveness depends, as it appears in our alternative model. In particular, the small countries, generally more vulnerable (which means a higher aid effectiveness, other things equal), may presently receive a volume of aid closer to the optimum than the level shown on average in the table of the Collier-Dollar paper.

Assessing the impact of aid on policy

Second, policy cannot be definitely considered as independent from aid. The cross-sectional estimations which lead to reject the hypothesis that aid influences policy reform (Burnside- Dollar 1997, Guillaumont and Chauvet 1999) have a limited scope (they only consider macro-policy) and may not be adequately specified. What is the relevant definition of aid for such estimation? How to capture its dynamic effects? Ongoing country case studies may allow one to refine hypotheses in that field.

Towards a performance based aid allocation

Third, new criteria of aid allocation (going beyond the principles of conditionality for adjustment aid) have indeed to be designed so as to maximize the impact of aid on growth, and on poverty reduction as well, and to create incentives to policy improvements. But there are two ways to apply this principle. The corollary of the Burnside-Dollar /Collier-Dollar papers is to allocate aid according to the quality of policy, both because it is then more effective, as supposed, and because it pushes to improve policy. The corollary of our paper (following a previous paper by Collier, Guillaumont, Guillaumont Jeanneney and Gunning 1997) is to allocate aid according to the performances of the countries, the performance being defined as the outcomes (growth or poverty reduction) adjusted for the impact of the exogenous or environmental factors (climatic shocks, terms of trade, etc..): such an allocation is likely both to maximize aid effectiveness (since for a given outcome performance is better when environment is poor), and also to push to improve policies (good policies lead to better outcomes are for a given environment). The two approaches can be considered as complementary. But the practical and political advantage of the second one, the performance based aid allocation, is to leave a country free to choose the policy instruments by which it tries to obtain better outcomes (for growth or poverty reduction). Then it would lead to a greater ownership and durability of reform, thus to a more significant impact on poverty.

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