Foreign economic aid; should donors cooperate?

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Abstract

Altruistic donors face common good problem which calls for cooperation and policy integration. On the other hand, the more united and responsible donors act towards the poor in the country that receives aid, the less domestic support does the poor get. I study these two countervailing effects of donor cooperation in different settings. Cooperation is always beneficial if donors can enforce contingent aid contracts. If contracts cannot be used, I show that cooperation can be harmful. I find that the negative effect of mutual aid policy is reduced if the donors face Samaritan's dilemma.
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1. The countervailing effects of cooperation

Consider a group of rich countries that independently provide economic aid to another country in which a large share of the population live in extreme poverty. Suppose donors are "poverty averse"; their aim is to improve the living conditions for the poor in the deprived country. Should donors cooperate? Should they unite their poverty reducing effort and create one integrated aid organization (multilateral aid), or are they better off operating independently (bilateral aid)?

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This question raises a highly relevant policy issue. Within the group of DAC-countries the importance of donor cooperation is often emphasized. In the DAC guidelines for poverty reduction it is stated that alleviation of poverty is an international public good of the first order, serving the interests of all, and it is stressed that effective eradication of poverty calls for collaboration among donors.[1]

Effective poverty alleviation is a complicated and many-faceted problem. This paper makes no attempt to give a comprehensive evaluation of the costs and benefits of donor cooperation. It takes a narrow perspective on foreign economic aid and focuses on one aspect of foreign aid where cooperation among donors seems to generate an interesting trade-off.

If the donors are altruists their welfare increase in the living standard of the poor in the deprived country. Poverty alleviation is then a public good among the donors: If one donor provides aid to alleviate poverty this has a positive effect on all donors. It is well known that individual–non-cooperative–contributions to a common good leads to under-provision of the good.[2] This aspect of poverty alleviation calls for an integrated solution.

Before we conclude that a united aid policy is preferable we must address how the organization of foreign aid affects policy in the receiving country. It has been argued that foreign economic aid has negative effects on domestic policy, e.g. that foreign aid has a tendency to reduce–to crowd out–the receiving government's incentives to help its own poor citizens.[3] Such agency problems arise naturally if donors hold different priorities than the receiver of aid and it is difficult to use contracts to align their interests. Donor cooperation might intensify the incentive problems that are associated with foreign economic aid: The more united and responsible donors act towards the poor in the receiving country the less responsible does the receiving government act.

These two mechanisms indicate that cooperation among donors have countervailing effects, both on the economic resources made available to the poor and on the welfare of the donors. This paper shows that the effect of donor-cooperation depends critically on the nature of the interaction among donors and policy makers in the country that receives aid.

I show that donors are always better off with a joint aid policy if they can employ conditional aid contracts to influence domestic policy in the recipient country. Without contracts a critical question is whether or not the government in the receiving country can strategically exploit the altruism of the donors, i.e. whether or not the donors face a Samaritan's dilemma. If not, if they move simultaneously in a non-cooperative game I show that donor-cooperation increases foreign support, but it also aggravates the crowding out problem. Although the income of the poor increases when donors cooperate, I show that due to the escalation of the crowding out problem cooperation might not be beneficial for the donors. In fact an integrated aid policy is only beneficial if the recipient government is sufficiently poverty averse.

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[1] These guidelines can be found at http://www.oecd.org/dataoecd/47/14/2672735.pdf.

[2] There is large literature discussing the problem of under provision in Nash-equilibrium where private individuals contribute towards public good, see for example Bergstrom et al. (1986).

[3] This crowding out problem is also referred to as the fungibility of aid, see Pedersen (1997) for general discussion of this phenomenon, and Hagen (1999) for an interesting discussion of aid fungibility and the political economy of foreign economic aid.

The donors face a Samaritan's dilemma if they are unable to commit not to help the poor, and the recipient government anticipates this "softness" and chooses its policy accordingly.[4] Again, cooperation among donors implies more foreign economic aid, but in a sequential game donor-cooperation does not necessarily induce the recipient government to reduce its support to the poor. In fact, in the presence of the Samaritan's dilemma cooperation among the donors might increase both foreign and domestic aid to the poor, making it beneficial for donors to cooperate even if the recipient government gives priority to the rich ruling elite in the country.

The theme of this paper resembles the discussion of the profitability of horizontal mergers in quantity competing oligopolies.[5] If two or more firms merge they typically reduce production below the total output produced by the merging firms if they operate individually. When output falls, prices increase, and as a response the non-merging firms expand their production. Hence, the merging firms face the same countervailing effects of cooperation as the providers of foreign economic aid do. By merging they solve a collective action problem among its constituent firms. The bad news is that merging makes the behavior of the outsiders more aggressive. It is well known that whether or not mergers are profitable depends critically on the cost functions of the merging firms.[6]

The profitability of partial horizontal mergers has only been studied in games where all decision makers move simultaneously.[7] A central topic of this paper is to study the effect of aid policy "mergers" in a sequential game where donors move after the recipient government. This is interesting since the sequential interaction pattern captures the Samaritan's dilemma that altruistic donors face when they cannot commit to an aid policy.

2. A model

To study the countervailing effects of donor-cooperation, it suffices to have two donor countries denoted 1 and 2 ,and one country that receives foreign aid, R. In each country the government decides among other things the provision of aid to the poor in R. Each donor country divides a fixed income, I_i, between domestic consumption c_i and aid a_i. It would

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[4] This dilemma was first pointed out by Buchanan (1975). Later Neil Bruce and Michael Waldman (1991) and Stephen Coate (1995) have shown that the Samaritan's dilemma has important implications for the design of poverty alleviation programs. For discussion of the Samaritan's dilemma in connection with foreign economic aid, see e.g. Svensson (2000), Pedersen (2001). Pedersen (2001) shows that when several recipient government compete for aid, poverty averse donors might fact be counter-productive and increase poverty, simply because each recipient has incentive to pose as poor in order to get more transfers. Svensson (2000) argues that one way to avoid this problem is to delegate part of the aid budget to a multilateral agency that is less poverty averse than the donors. Hagen (2003) allows the recipients of help to differ with respect to their ability to utilize the aid they receive, and he shows that it might be beneficial for a donor to delegate to an agent that is *more* poverty averse than himself.

[5] See also Buchholz et al. (1998) for similar discussion, they analyse partial integration in a situation where n identical factors contribute to public good.

[6] Salant et al. (1983) show that at least 80% of the firms in market must be involved if merger is to be profitable when demand and costs are linear. Perry and Porter (1985) show that mergers are more attractive if costs are sufficiently convex.

[7] One exception is Huck et al. (2001), they discuss mergers in quantity competing sequential game.

be more realistic to let the amount of foreign economic aid be determined in a political process, and financed by distorting taxes. But adding realism along these dimensions only muddles the focus of our concern. To concentrate on the theme of the paper we simply assume that each donor's budget constraint is given by

$$c_i + a_i = I_i. \tag{1}$$

In the deprived country there is a group of rich individuals (indexed r) in addition to the poor masses (indexed p). For simplicity I assume that both groups, the rich and the poor, consist of only one person. Let I_i represent the income type i earns without any interventions from the government in R, or from the outside world, i=r, p,with $I_r > I_p$. Thegovernmentin R reallocates income between the two groups. Let t be the amount of lump sum taxes the government collects from the rich and transfers to the poor. It is realistic to allow t to become negative; the R-government might transfer money from the poor to the rich. It may do so directly via the tax system, forcing the poor to pay taxes while giving the rich access to subsidized public services. But more generally this possibility captures the idea that the government in R can choose a policy that suppresses the income potential of the poor to the advantage of the rich, for example by downgrading institutions that are vital for increasing the living standard of poor individuals (basic infrastructure, elementary schools, basic health care) and transfer resources to the rich. This scenario is particularly relevant if the poor receives a lot of support from abroad.

The consumption of the rich and the poor in R is given by

$$c_r = I_r - t$$

$$c_p = I_p + t + a, \tag{2}$$

where a denotes the total amount of foreign economic aid the poor in R receives, $a = a_1 + a_2$.

Each donor maximizes a welfare function that increases in the consumption of the poor in country R. More specifically I assume that donor i has a welfare function

$$u_i(c_i, c_p), \tag{3}$$

that it maximizes, subject to the budget constraint given by Eq. (1). The government in R maximizes

$$v(c_r, c_p), \tag{4}$$

subject to budget constraint(2).The results I derive require that the consumption of all groups–the consumption of the citizens in donor country i, and the consumption of the poor and rich in the aid receiving country–are normal goods. To simplify the exposition, I assume that the utility functions in Eqs. (3) and (4) are strictly increasing in each argument, separable (the second order cross partial derivative are zero) and concave. These assumptions are sufficient but not necessary to assure normality.

Note that the model assumes that donors can target their help to the poor in R. There is, nevertheless, a potential incentive problem associated with foreign economic aid, since the

government in R might hold back on its support to the poor–or increase its exploitation of the poor–as more aid flows in from abroad. Alternatively, one could assume that it is impossible for donors to target aid to the poor. Foreign economic aid is then a windfall income for the government in R, and there is a crowding out problem as long as some of the money is allocated to the rich.

3. Cooperation when donors can enforce contingent aid contracts

The model depicts a situation where donors and the government in the country that receives aid, have conflicting interests. Donors want to target aid to the poor in R, while the government in R wants to allocate some of the resources the poor receives to the rich. From the principal-agent literature we know that the principal can–partly or fully, it depends among other things on the information structure of the situation–align interests by offering the agent a well designed incentive contract.

If donors can use conditional contracts to restrain policy in the country that receives aid, we can conclude, without reservations, that it is beneficial for the donors to unite their aid policies. The (potential) problem with donor-cooperation is that it crowds out domestic support to the poor. This problem does not arise when donors can enforce conditional aid contracts. On the contrary with contracts an increase in foreign support to the poor in R generates *more* domestic support to the poor; t is an increasing function of a if donors can contract for aid.

It is easy to understand that this must be the case when donors have complete information about the government in the aid-receiving country. If donors do not cooperate they offer–independently and simultaneously–the government in R a take-it-or-leave-it contract that makes foreign economic aid *conditional* on how well the government in R treats its own poor citizens: Each donor i chooses the contract $\{a_i, t\}$ that maximizes i's welfare given the aid provided by the other donor, and given the constraint that the government in R accepts the conditionalities associated with economic aid (the participation constraint).

A solution to this program (a Nash-equilibrium in contracts) must entail that the consumption of the poor increases by more than the amount of foreign economic aid the country receives. The reason is that the welfare of the government in R increases in c_p which means that the government in R accepts to reduce the income of the rich in exchange of receiving foreign economic aid targeted to the poor.

Cooperation among donors is beneficial in this setting. There is no incentive problem–no crowding-out problem–that can be aggravated by cooperation. On the other hand, cooperation solves the common good problem associated with foreign economic aid. In other words, cooperation has only benefits, no costs, except of course for the rich in R.[8]

If the government in R has private information about its will–or skill–to support the poor the donors have to take account of an incentive constraint in addition to the participation constraint. Adding an incentive constraint makes it more costly to use foreign

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[8] Cooperation implies higher welfare for each donor, and higher consumption for the poor in R. Cooperation does not affect the welfare for the government in R (it is kept on its reservation utility). The only one who suffers from cooperation are the rich in R, their consumption decreases.

economic aid to reduce poverty; the government in R can use its information advantage to extract a rent from the donors, which means that the consumption of the poor does not increase as much as in the complete information regime. The donors then face the familiar trade-off between rent extraction and efficiency (efficient poverty alleviation).[9] Even though foreign aid is less efficient when the government in the aid-receiving country has private information, it is still the case that more foreign aid implies an increase in domestic support to the poor. Hence, again we can conclude that it is beneficial for donors to cooperate.[10]

According to the contracting for aid framework it is easy to reduce poverty in developing countries. Given the right contract, a $ of foreign economic aid increases the consumption of the poor with more than a $. Unfortunately the predictions of the model does not fit reality very well. Empirical studies find little or no effect of foreign economic aid on poverty alleviation, or on economic development more generally. Data indicate that foreign economic aid is fungible, and hence that economic aid has strong crowding out effects on domestic support to the poor, not *crowding in* effects as the model above indicate.[11]

The principal-agent model presumes that it is possible to write enforceable contracts. This assumption is hard to reconcile with the fact that both the providers of foreign economic aid (the principals) and the government in the country that receives aid (the agent) are sovereign states. It is hard to imagine that they can sign a contract, which if broken, is enforced by a third party. Maybe the contract in question is not an explicit contract backed by a third party (the court), but an implicit contract backed by the parties' concern for their long term reputation. Maybe the donors and the recipient fulfill their part of the agreement because they realize that opportunistic behavior today implies a return to autarchy in the future. This is a more promising idea, but this interpretation has its own problems. How can altruistic donors make it credible not to renege on their threat of reducing their aid to the poor in R unless the domestic government transfers more resources to the poor?

Hence, I conclude that the tools of applied contract theory the principal-agent model does not capture the nature of the relationship between donors and recipients of foreign economic aid. It is more realistic to model the interaction between the parties as a non-contractible relationship.

4. Aid without contracts and the effect of cooperation among donors

Without contracts the crowding out problem follows directly from the assumption that both the rich and the poor's consumption are normal goods for the government in the

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[9] Azam and Laffont (2000) study this trade off in single agency (one donor and one recipient) model.

[10] This holds as long as we consider static models. If the relationship between donors and the recipient government lasts for many periods, but can be governed only by short term contracts, an additional dynamic incentive problem, known as the ratchet effect, emerge. Olsen and Torsvik (1993) show that the low powered incentives in common agency with contract complements can be safeguard against the ratchet problem in dynamic model, and that the principals might therefore be better off with decentralized organization.

[11] See for example Boone (1996) and Burnside and Dollar (2000).

receiving country. Donor cooperation might therefore become a double edged sword. If donors unite their aid policy they solve the free rider problem associated with foreign economic aid, but they might also reduce domestic support to the poor.

I evaluate the total effect of donor cooperation in two different interaction regimes. First a situation where the recipient government cannot strategically exploit the altruism of the donors. In the model this means that all parties, the donors and the political authorities in the country that receives aid, contribute to the poor simultaneously. In the other case the political authorities in the receiving country exploit the donors altruism; they commit to a policy taking into account how their own transfers change the amount of foreign aid the poor receives. We then have a sequential game with the recipient as the leader.

4.1. Simultaneous moves

To simplify from hereon I assume that both donor countries are identical: Both have income I and a utility function $u(c_i, c_p)$. To assess the effects of cooperation, I first characterize the equilibrium when donors operate separately thereafter I solve for the equilibrium when donors integrate their foreign economic aid policy and compare the two situations.

4.1.1. Non-cooperating donors

Suppose the total support to the poor is given by the contributions that constitutes the Nash-equilibrium in the game between the donors and the and the government in R. A profile $(a_1^{n*}, a_2^{n*}, t^{n*})$ that is a Nash-equilibrium satisfies the following first order conditions

$$\begin{aligned}
u'_{a_i}\left(I - a_i, I_p + t + a_i + a_j\right) &= 0 \quad \text{for each donor } i = 1, 2, \text{ and} \\
v'_t\left(I_r - t, I_p + t + a\right) &= 0 \quad \text{for the government in } R.
\end{aligned} \tag{5}$$

The first order conditions for the donors implicitly Defines foreign aid as a function of domestic transfers to the poor. Let $a^n(t)$–superscript n for non-cooperating donors–be the amount of aid that constitutes a Nash-equilibrium among the donors for different values of t. Since the donors are identical the Nash-equilibrium is symmetric; both donors provide the same amount of aid $a_1^n(t) = a_2^n(t) = 1/2a^n(t)$. The first order condition then reads (where u'_h is the partial derivative of the welfare function u with respect to argument h):

$$-u'_1\left(I - \frac{1}{2}a^n(t), I_p + t + a^n(t)\right) + u'_2\left(I - \frac{1}{2}a^n(t), I_p + t + a^n(t)\right) = 0. \tag{6}$$

The slope of $a^n(t)$ is obtained by differentiating Eq. (6)

$$a^{n'}(t) = \frac{-u''_{22}}{\frac{1}{2}u''_{11} + u''_{22}} < 0 \tag{7}$$

Likewise from the first order condition for the recipient government we find optimal transfer policy as a function of foreign aid. Define $t(a)$ as the optimal transfer when the country receives a in foreign aid. We have

$$-v'_1\left(I_r - t(a), I_p + t(a) + a\right) + u'_2\left(I_r - t(a), I_p + t(a) + a\right) = 0. \tag{8}$$

The slope of $t(a)$ is obtained by differentiating Eq. (8)

$$t'(a) = \frac{-u''_{22}}{u''_{11} + u''_{22}} < 0. \tag{9}$$

The Nash-equilibrium is a combination of foreign aid and internal transfers (a^{n*}, t^{n*}) such that $a^n(t^{n*}) = a^{n*}$ and $t(a^{n*}) = t^{n*}$.

4.1.2. Cooperating donors

If donors cooperate they internalize the impact assistance to the poor has across donors. Hence aid is chosen to maximize the sum of donor welfare $2u$, given the constraint that $2I = c_1 + c_2 + a$. Since donors are identical and have concave welfare functions, they provide the same amount of aid when they cooperate. Let $a^c(t)$ be the amount of foreign aid that solves the first order conditions for the donors:

$$-u'_1\left(I - \frac{1}{2}a^c(t), I_p + a^c(t) + t\right) + 2u'_2\left(I - \frac{1}{2}a^c(t), I_p + a^c(t) + t\right) = 0. \tag{10}$$

The slope of the best response function is obtained by differentiating Eq. (10)

$$a^{c'}(t) = \frac{-2u''_{22}}{\frac{1}{2}u''_{11} + 2u''_{22}} < 0. \tag{11}$$

The best response function for the government in the country that receives aid is given by Eq. (8) and the slope is given by Eq. (9). The Nash-equilibrium when donors cooperate is a profile (a^{c*}, t^{c*}) such that $a^c(t^{c*}) = a^{c*}$ and $t(a^{c*}) = t^{c*}$.

4.1.3. Comparing the equilibrium with non-cooperating and cooperating donors

Comparing Eqs. (5) and (7) shows that cooperation implies more foreign economic aid for any policy chosen in R; $a^c(t) > a^n(t)$ for all t.[12] As a consequence–since both consumption of the poor and the rich are normal goods–the government in R reduces domestic transfers to the poor (increases its exploitation of the poor if t is negative). Normality of consumption implies domestic support is reduced by less than the increase in foreign support, which means that the consumption of the poor increases when donors cooperate.

What happens to the donors welfare if they integrate their aid policy? It depends on how much the recipient government reduces its support to the poor when foreign aid increases. Cooperation is not a good idea if the crowding out problem is significant. More specifically it is not in the interest of the donors to integrate their aid policy if more than half of the last dollar of foreign aid provided in the non-cooperative regime

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[12] The partial derivative with respect to the consumption of the poor is multiplied with two in Eq. (10) when donors cooperate, while it is multiplied with one in Eq. (6). These two equations can only hold if the partial derivative is lower in Eq. (10), this means that the consumption of the poor and the mount of foreign id is higher in the cooperative case.

ends up in the pockets of the rich ruling elite in R. To see this, take hold of the non-cooperative equilibrium with $c_p = I_p + a^{n*} + t^{n*}$. Suppose donors start to cooperate; they decide to increase aid with one unit and split the costs. The change in utility for donor i is $\Delta_i = -1/2u_1' + \bar{u}_2(1 + t'(a))$. Evaluated at the equilibrium where donors do not cooperate we know that $-u_1' + \bar{u}_2 = 0$. Hence it is beneficial to take one step in the cooperative direction if and only if the reduction in domestic support is less than one half: $\Delta_i > 0 \Rightarrow t'(a^{n*}) > -1/2$. Of course, the equilibrium with integrated aid policy is further than one step away from the non-cooperation equilibrium. But note that if we increase foreign aid further we get $u_1' > u_2'$ which means that there must be even less crowding out (the poor must receive strictly more than half of the increase in aid) for cooperation to be beneficial.

The results are summarized in the following proposition.

Proposition 1. *In a simultaneous move game, cooperation among donors implies:*

   (i) *more foreign economic aid: $a^{c*} > a^{n*} \Rightarrow t^{c*} < t^{n*}$;*
  (ii) *less domestic support to the poor: $t^{c*} < t^{n*}$;*
 (iii) *the consumption of the poor increases: $a^{c*} - a^{n*} > t^{n*} - t^{c*}$;*
 (iv) *cooperation is never beneficial for the donors if $t'(a^{n*}) < -1/2$.*

4.2. Donors as Stackelberg followers

The crowding out problem is intensified if the government in the aid-receiving country exploits the fact that a reduction in domestic support generates more foreign aid. This dilemma arises when donors cannot commit themselves from helping those who live in extreme poverty even if their misery is partly due to inadequate domestic support. In the model it is as if the government in the aid-receiving country is a Stackelberg leader; the government in R looks ahead and takes into account how its own policy affects foreign aid before it decides on domestic transfers to the poor.[13]

To analyze this case consider a sequential game in which the donors observe the allocation made by the government in R before making their contribution to the poor in R. If donors do not cooperate the aid response is given by $a^n(t)$ and the government in R maximizes

$$v\big(I_r - t, I_p + t + a^n(t)\big). \tag{12}$$

The first order condition for this problem is

$$-v_1'\big(I_r - t, I_p + t + a^n(t)\big) + v_2'\big(I_r - t, I_p + t + a^n(t)\big)(1 + a^{n\prime}(t)) = 0. \tag{13}$$

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[13] It appears arbitrary to let the recipient be able to precommit to policy in this set-up, where the donors and the recipient are otherwise similar. The reader should think of this assumption as reduced form description of more complicated game. In this game the recipient makes an investment decision that affects the income of the poor, and that the donors must take this decision as fait accompli when they chose their aid policy. This is the structure chosen by Coate (1995), Svensson (2000) and Pedersen (2001).

If donors cooperate the foreign aid response is given by $a^c(t)$ and the government in R maximizes

$$v\big(I_r - t, I_p + a^c(t)\big), \tag{14}$$

with first order condition

$$- v_1'\big(I_r - t, I_p + t + a^c(t)\big) + v_2'\big(I_r - t, I_p + t + a^c(t)\big)\big(1 + a^{c'}(t)\big) = 0. \tag{15}$$

To find the sub-game perfect equilibrium when donors do not cooperate we solve Eq. (12) to find optimal domestic transfers and substitute this value into Eq. (6) to find the amount of foreign aid. Likewise we solve Eqs. (10) and (14) to find the equilibrium when donors cooperate. Denote these equilibrium profiles $(\tilde{a}^{n*}, \tilde{t}^{n*})$ and $(\tilde{a}^{c*}, \tilde{t}^{c*})$, with $\tilde{a}$ to distinguish the equilibrium values in the sequential game from the equilibrium in a simultaneous move game.

We readily see that internal transfers are lower in the sequential move game (compared to the game where all parties move simultaneously). If we compare the first order conditions (Eqs. (13) and (8)) we see that the last derivative in Eq. (13) (v_2') is multiplied by a number that is smaller than one (since $a^{n'}(t) < 0$), while it is multiplied with one in Eq. (8). This means that the consumption of the poor must be lower in Eq. (13) than in Eq. (8), which again means that the internal transfers are lower. The same argument can be used when the donors cooperate, we then have to compare (Eqs. (8) and (15)).

Lower transfers implies more foreign economic aid, but the increase in aid is not sufficient to cover up for the decline in domestic help $(-a^{n'}(t) < 1)$, which means that the consumption of the poor is lower when the government in R acts as a Stackelberg leader. Donors are worse off in the sequential move game; they give more aid but the consumption of the poor is lower than in the simultaneous move game.

Let us turn to the question this paper focuses on: How does cooperation among donors affect the equilibrium? How does it affect the consumption of the poor and the welfare of the donors. The result I want to emphasize is that cooperation among donors does not necessarily crowd out more internal support to the poor in a sequential game. Hence, cooperation is more desirable if donors face policy makers in the aid-receiving country that strategically exploits their altruism.

To show this, compare the first order conditions (Eqs.(13) and (15)). These equations are evaluated at different aid levels but the interesting observation is that cooperation affects the first order conditions in two opposite ways: Cooperation implies more aid for any amount of domestic transfers; $a^c(t) > a^n(t)$ for all values of t. But donor cooperation also make foreign aid less responsive to changes in domestic transfers; $a^c(t) > a^n(t)$ (to see this compare Eqs. (7) and (11)). The donors' response curve shifts out and becomes less steep when donors cooperate and unite their aid policy. This is shown in Fig. 1.

The fact that cooperation implies more foreign economic aid (the outward shift in the response curve)instructs the government in R to reduce t, while the fact that a reduction in t generates a smaller increase in foreign aid (the flattening of the response curve) instructs the government to increase t. It is therefore uncertain how cooperation among donors affect the amount of domestic support the poor receives. If the response-effect
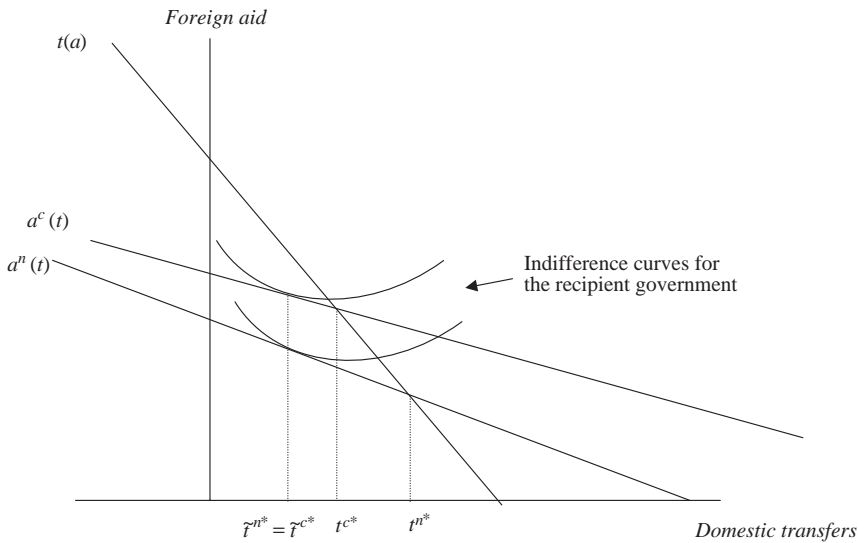
Fig. 1. The foreign aid response curve shifts outwards and becomes flatter when donor cooperate.

dominates, cooperation among donors implies *higher* internal transfers to the poor. Even if cooperation among donors lead to less domestic support to the poor in the sequential game, the reduction in t is mitigated by the fact that the slope of the aid response function becomes flatter when donors cooperate. This makes it more attractive for the donors to cooperate.

The results are summarized in this proposition.

Proposition 2. *In a sequential game, where the government in R is the Stackelberg leader, cooperation among donors implies:*

   (i) *more foreign economic aid $\tilde{a}^{c}*>\tilde{a}^{n}*$;*
   (ii) *not necessarily less domestic support to the poor: $\tilde{t}^{c}*$ can be higher or lower than $\tilde{t}^{n}*$;*
  (iii) *the consumption of the poor increases;*
  (iv) *donor cooperation becomes more attractive than in a simultaneous move game.*

4.2.1. An example

Suppose donor i maximizes the objective function $U_i(c_i, c_p)=\rho \ln(c_i)+(1-\rho)\ln(c_p)$, subject to the budget constraint $c_i+a_i=I$, $i=1, 2$. The government in R maximizes $V(c_r, c_p=\gamma \ln(c_r)+(1-\gamma) \ln(c_p)$ subject to $c_r=I_r-t$ and $C_p=I_p+t+a$.

Solving the first order conditions for the donors if they operate independently yields:

$$a^n(t) = \frac{2}{1+\rho}\left[(1-\rho)I - \rho\left(I_p + t\right)\right].$$

The slope of the foreign aid response function is given by

$$a^{n'}(t) = \frac{-2\rho}{1+\rho}.$$

If donors cooperate we get

$$a^c(t) = (1-\rho)2I - \rho(I_p + t),$$

and

$$a^{c'}(t) = \rho.$$

It is easy to check that the level of aid is higher when donors cooperate, and that the response is flatter: Both the location and slope of the aid response function changes when donors begin to cooperate: the reaction curve shifts outward and becomes less steep.

To find the sub-game perfect equilibrium we must solve the receiving government's maximization problem taking into account that foreign aid is given by $a^n(t)$ if donors do not cooperate and $a^c(t)$ if they cooperate. We find that domestic transfers are the same in both cases, both when donors operate independently and when they cooperate: $\tilde{t}^{c*} = \tilde{t}^{n*} = (1-\gamma)I_r - 2\gamma I - \gamma I_p$: Fig. 1 illustrates the situation where the level-effect and the response-effect cancel out, leaving the internal transfers unaffected by donor cooperation. In this case it is obviously beneficial for the donors to cooperate.

In a simultaneous move game on the other hand we know that cooperation reduces internal transfers. In Fig. 1 we see that the upward shift in the foreign aid response curve implies less domestic support. We know that cooperation implies lower welfare for the donors if this crowding out effect is large. In the logarithmic case it is not in the interest of the donors to cooperate as long as the government in R gives priority to the rich ruling elite. With logarithmic utility $t'(a)=\gamma$, which is the weight the government assigns the consumption of the rich and we know (Proposition 1, (iv)) that cooperation is never a good idea if $t(a)=\gamma>0$, 5).

5. Conclusion

When several altruistic donors provide aid to alleviate poverty in another country they face a common good problem. This calls for a united foreign economic aid initiative. But on the other hand, donor cooperation might change domestic policy in the receiving country in an adverse way. The potential problem is that the more united and responsible donors act towards the poor in the receiving country the less responsible does the receiving government act.

In this paper I have shown, in a simple formal model, that cooperation is indisputably beneficial if foreign economic aid can be backed by a contingent enforceable contract. This is certainly true if all relevant information is available to both parties but an integrated foreign aid policy is also beneficial when the receiving country has private information about its will, or skill, to provide help to the poor in its country.

It is, however, unlikely that donors can use contracts to align interests, and without contracts I show that donor cooperation can indeed be a double edged sword. In a game

where all parties–the donors and the receiving country–make decisions simultaneously cooperation among the donors reduces domestic support to the poor. I show that although the net effect on the income of the poor is positive the donors might not find it in their interest to cooperate.

The most surprising result in this paper is that the negative effect of donor cooperation is less pronounced if donors face a Samaritan dilemma. In a sequential game where donors must take the domestic policy as given before they provide foreign economic aid, I find that cooperation has a dubious effect on domestic policy in the receiving country. In fact, with logarithmic welfare functions the level of domestic support to the poor is independent on whether or not the donor countries cooperate. In this case we can conclude that donors ought to integrate their foreign economic aid policy.

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