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Samaritan's Dilemma, Time-Inconsistency and Foreign Aid: A Review of Theoretical Models

Alok Kumar
Department of Economics, University of Victoria
Victoria, B.C., Canada V8W 2Y2

August, 2014

Abstract

Aid by altruistic donors may induce recipients to reduce their own contribution to development efforts in order to elicit more aid from donors. Help by well-intentioned donors may reduce the welfare of needy. Donors may not be able to deter deviant recipients as any punishment involves reducing the welfare of recipients and thus the welfare of donors. This condition known as the *Samaritan's Dilemma* has played an important role in understanding the effects of foreign aid and the conduct and design of aid policies. The ineffectiveness of foreign aid and failure of aid-conditionalities to a significant extent can be traced to strategic interactions among donors and recipients. In this chapter, we review theoretical models which analyze the consequences of the Samaritan's Dilemma for foreign aid and its possible solutions. These models propose a number of solutions to this dilemma. The effectiveness of aid in spurring development process and reducing poverty can be enhanced by appropriately designing and implementing aid policies.

Keywords: Foreign Aid, Time-Inconsistency, Efficiency, Crowding-Out Effect of Aid, Samaritan's Dilemma

JEL Classifications: F35, O12, O16, O19

Author Contact:
Alok Kumar, Dept. of Economics, University of Victoria, P.O. Box 1700, STN CSC, Victoria, B.C., Canada V8W 2Y2; e-mail: kumara@uvic.ca; Voice: (250) 721-8543; FAX: (250) 721-6214

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Address: $*$ Department of Economics, University of Victoria, Victoria, British Columbia, Canada, V8W 2Y2, Email: kumara@uvic.ca.

1 Introduction

The issue of foreign aid as a tool of development has been highly controversial. One view is that foreign aid can play a very important role in spurring development and reducing poverty in poor countries (Stern 2002, Stiglitz 2002, Sachs et. al. 2004). The second view is that foreign aid has been harmful to the poor countries as it reduces their incentives to mobilize their own resources and develop and adopt good policies and institutions and has led to aid-dependency (Bauer 1972). Aid is largely wasted on unproductive expenditures and at best it has little effect on the economy of recipient countries (Easterly 2003). The third view is that effectiveness of aid depends on the policy and institutional environment of the recipient countries. It is effective only in countries with good policy and institutional environment (Burnside and Dollar 2000).

Empirical studies provide a mixed evidence with regard to effectiveness of foreign aid in achieving its stated goals. Some studies find that it has a significant positive effect on the growth of recipient countries with good policy environment (e.g. Burnside and Dollar 2000, Collier and Dollar 2002). Other studies find that it has an insignificant effect on growth (Boone 1996, Hansen and Tarp 2001, Easterly 2003, Rajan and Subramaniam 2008). There is ample evidence of foreign aid not being spent for intended purposes, but rather diverted to other usages (see Boone 1996, Feyzioglu et. al. 1998 on fungibility and crowding-out effects of aid). There is also evidence of foreign aid increasing rent-seeking activities in recipient countries (Svensson 2000a) and having a negative effect on their resource mobilization (Swaroop et. al. 2000) and the quality of governance (Brautigam and Knack 2004).

Recognizing the potential negative effects of foreign aid on resource mobilization, allocations, and policies of recipient countries, in the last few decades, donor countries have taken the approach of imposing conditionalities on recipient countries in order to reduce diversion of aid to unproductive usages by recipients and incentivize them to mobilize their own resources and undertake necessary policy reforms. But, empirical evidence suggests that conditionality have failed to improve the effectiveness of foreign aid (see World Bank 1998, Svensson 2003, Kanbur 2004 and Temple 2010 for a review of evidence). There is a weak relationship between aid disbursement by the donors and the implementation of required conditions or institutional reforms by the recipients.

The weak effect of aid and failure of conditionality, in part, is attributed to

the incentive problems associated with the strategic interactions among the donors and the recipients. This chapter is concerned with a particular type of incentive problem associated with interactions among donors and recipients known as *the Samaritan's Dilemma*.[1] Simply stated, aid by altruistic donor countries may induce decision makers in the recipient countries to reduce their own contribution to development efforts in order to elicit more aid from donor countries.[2] Donors may not be able to deter deviant recipients as any punishment involves reducing the welfare of recipients and thus the welfare of donors. In other words, altruistic donors face time-inconsistency or credibility problem in the conduct of aid policy.

Since its introduction by Buchannan (1975) in the aid literature and its formalization by Lindbeck and Weibull (1988), the concept of Samaritan's Dilemma has played an important role in the economics of aid. In this chapter, we review theoretical models analyzing the consequences of the Samaritan's Dilemma for foreign aid and possible solutions.[3] These theoretical models clearly show that the strategic interactions among the altruistic donor and recipients can lead to inefficient allocations, reduced domestic support, and diversion of resources away from development goals. The ineffectiveness of foreign aid and failure of conditionalities to a significant extent can be traced to these types of strategic interactions. These models propose a number of solutions to mitigate inefficiencies associated with this Dilemma. The effectiveness of aid in spurring development process and reducing poverty can be enhanced by appropriately designing and implementing aid policies.

The rest of the paper is organized as follows. Section 2 illustrate the nature of Samaritan's Dilemma, the effects of foreign aid and the associated inefficiencies in a simple exchange economy. Section 3 extends the model to a production economy and analyzes the effects of capital transfer on the capital investment in the recipient country. Section 4 extends the model to incorporate heterogeneity in the recipient country. Section 5 establishes connection

[1]By design we focus on a limited set of issues related to foreign aid. For general overview of economics of foreign aid see Kanbur (2004), Radlet (2008), Temple (2010) and other chapters in this handbook.

[2]The Samaritan's Dilemma pertains to strategic interactions among recipients and *altruistic* donors. However, foreign aid may be given due to other motives (see Alesina and Dollar 2000 for various motives of foreign aid and evidence).

[3]See Coate (1995) for the implications of the Samaritan's Dilemma for private charity, Lindbeck et. al. (1999) for development of institutions, Bruce and Waldman (1990) and Kumar (2014a) for human capital investment.

between the Samaritan's dilemma problem and the time-inconsistency of aid policies. Section 6 discusses various measures which have been proposed to mitigate the effects of the Samaritan's Dilemma problem. This is followed by concluding section.

2 Exchange Economy

To illustrate the nature of Samaritan's Dilemma, its effects and the associated inefficiencies, we begin with a very simple exchange economy example based on Lindbeck and Weibull (1998). Suppose that there are two-periods and two countries: one donor (d) and one recipient (r). Assume that the inhabitants of each country are identical and the government in each country maximizes the utility of its representative inhabitant. Let y_i^j be the endowment income of country $j = d, r$ in period $i = 1, 2$. The recipient country chooses its consumption, c_i^r for $i = 1, 2$, and financial savings, s^r, in the first period to maximize its utility[4]

$$U(c_1^r) + U(c_2^r), \text{ with } U_c() > 0, \ U_{cc}() < 0. \tag{2.1}$$

Normalize the interest rate on financial savings to be one.

The donor (country) is altruistic and cares about the welfare of the recipient (country).[5] It can provide aid to the recipient in period 2, $t \geq 0$.[6] The donor chooses its consumption, c_i^d, aid level, t, and financial savings, s^d, to maximize its utility

$$U(c_1^d) + U(c_2^d) + \lambda[U(c_1^r) + U(c_2^r)] \text{ with } U_c() > 0, \ U_{cc}() < 0 \tag{2.2}$$

where $0 < \lambda < 1$ is the degree of altruism and determines the relative weight which the donor puts on the welfare of the recipient. The donor's budget constraints are

[4]Throughout the paper for any function $z(x)$, $z_x(x)$ and $z_{xx}(x)$ denote the first and the second derivative respectively.

[5]In the rest of the paper, we use the terms donor (recipient) and donor country (recipient country) interchangeably.

[6]We assume that both the recipient and the donor countries produce and consume same commodity. Alternatively, one can assume that the recipient and the donor countries produce and consume two different goods, but these goods can be exchanged one to one in the competitive world market.

$$c_1^d = y_1^d - s^d \ \& \tag{2.3}$$

$$c_2^d = y_2^d + s^d - t. \tag{2.4}$$

The recipient's budget constraints are

$$c_1^r = y_1^r - s^r \ \& \tag{2.5}$$

$$c_2^r = y_2^r + s^r + t. \tag{2.6}$$

Similar to Lindbeck and Weibull (1988), we assume that the donor is a Stackelberg follower and the recipient is a Stackleberg leader.[7] In particular, we assume that aid is given by the donor after observing the recipient's choices of financial savings, s^r, in the first period. The recipient exploits the donor's altruism. While making its decisions, it takes into account how these decisions affect the level of aid.

Given this set-up, the interaction between the donor and the recipient can be modeled as a two-period transfer game. For time-consistency one needs to solve this problem recursively starting with the donor's problem. The donor's optimization problem is to

$$\max_{c_1^d, c_2^d, s^d, t} U(c_1^d) + U(c_2^d) + \lambda[U(c_1^r) + U(c_2^r)]$$

subject to the budget constraints (2.3) and (2.4) taking as given the choices of the recipient (c_1^r & s^r). Consumption of the donor in periods 1 and 2 are given by (2.3) and (2.4) respectively. The first order conditions for other optimal choices are

$$s^d : U_c(c_1^d) = U_c(c_2^d); \tag{2.7}$$

$$t : U_c(c_2^d) = \lambda U_c(c_2^r) \ \text{ if } t_2 > 0 \ \& \tag{2.8}$$

$$t : U_c(c_2^d) \geq \lambda U_c(c_2^r) \ \text{ if } t_2 = 0. \tag{2.8a}$$

(2.7) equates the marginal cost of financial savings to its marginal benefit. One additional unit of financial savings reduces the utility of the donor by

[7] The rationale for this assumption is discussed in section 5.

$U_c(c_1^d)$ in the first period, but increases its utility by $U_c(c_2^d)$ in the second period. (2.8) equates the marginal cost and the marginal benefit of the second period budgetary transfer. If the marginal cost is higher than the marginal benefit, the donor will not make second period budgetary transfer. (2.8a) characterizes this condition. This may occur if the degree of altruism and the second period income of the donor are relatively low and the second period income of the recipient is relatively high.

From the partial differentiation of (2.8), it follows that

$$\frac{dt_2}{ds^r} = -\frac{\lambda U_{cc}(c_2^r)}{U_{cc}(c_2^d) + \lambda U_{cc}(c_2^r)} < 0. \tag{2.9}$$

A higher financial savings, s^r, by the recipient reduces the level of aid from the donor. While choosing its financial savings in the first period, the recipient takes into account the effects of its choice on the transfers made by the donor. As we will see below, the negative effect of financial savings on aid reduces the marginal benefit of financial savings for the recipient and induces it to save less and consume more in the first period relative to the efficient level.

The optimization problem for the recipient is to

$$\max_{c_1^r, c_2^r, s^r} U(c_1^r) + U(c_2^r)$$

subject to the budget constraints (2.5) and (2.6) and the strategies of the donor characterized in (2.7-2.8a). Consumption of the recipient in periods 1 and 2 are given by (2.5) and (2.6) respectively. The first order conditions are

$$s^r : U_c(c_1^r) = U_c(c_2^r)\left[1 + \frac{dt}{ds^r}\right] \text{ if s}^\text{r} > 0 \ \& \tag{2.10}$$

$$s^r : U_c(c_1^r) \geq U_c(c_2^r)\left[1 + \frac{dt}{ds^r}\right] \text{ if } s^r = 0. \tag{2.10a}$$

(2.10) equates the marginal cost of financial savings to its marginal benefit. As is clear from the RHS of (2.10), the net benefit to the recipient from one unit of financial savings in the second period is less than one, since $dt/ds^r < 0$. Note that aid reduces the marginal benefit from financial savings for two reasons: (i) the second period resources of the recipient increases and (ii) the negative effect of financial savings on aid. As we will see below, it is this second effect which leads to inefficient allocations. If the marginal cost

of financial savings is higher than its marginal benefit, the recipient will not save. (2.10a) characterizes this condition.

Using the first-order conditions and the budget constraints one can derive equilibrium allocations. Before we discuss the characteristics of equilibrium allocations, let us first derive allocations before any aid is given. Denote equilibrium variables by $\hat{}$. It is straightforward to show that

$$\hat{c}_1^r = \hat{c}_2^r = \hat{s}^r = \frac{y_1^r + y_2^r}{2} \ \& \tag{2.11}$$

$$\hat{c}_1^d = \hat{c}_2^d = \hat{s}^d = \frac{y_1^d + y_2^d}{2}. \tag{2.12}$$

Note that before any aid is given, it must be the case that

$$U_c(\hat{c}_2^d) < \lambda U_c(\hat{c}_2^r) \tag{2.13}$$

i.e. the donor can increase its utility by giving aid. We assume that initial conditions are such that (2.13) is satisfied.

Now we characterize the equilibrium allocations with aid ($t > 0$). Denote the equilibrium variables when aid is given by *. For such an equilibrium to occur, it must be the case that both the donor and the recipient are better-off when aid is given compared to the case when no aid is given. We assume that initial conditions are such that both the donor and the recipient are better-off with aid in equilibrium.

Lindbeck and Weibull (1988) show that any equilibrium allocation with aid ($t^* > 0$) is Pareto-inefficient, when the equilibrium savings by the recipient, $s^{r*} > 0$. The proof is straightforward. Since $dt/ds^r < 0$, (2.10) implies that $U_c(c_1^{r*}) < U_c(c_2^{r*})$ i.e. the recipient's marginal utility of consumption in the first period is lower than its marginal utility of consumption in the second period in equilibrium. Whenever the recipient does some savings in equilibrium, the strategic motive induces it to under-save in comparison to what would be optimal if the aid had been exogenously fixed (or $dt/ds^r = 0$). Thus, if the donor can commit to provide t^* as aid, the recipient would have been able to increase its utility by saving more and consuming less in the first-period. Since, the utility of the donor is increasing in the utility of the recipient, the donor would be better-off as well.

Lindbeck and Weibull (1988) also show the inefficiency of allocations emerges due to the strategic interaction between the donor and the recipient which leads to the *free-rider problem*. The recipient free-rides on the

concern of altruistic donor in the sense that, in equilibrium, the donor gives more aid than it will give when it can commit to aid in advance and the allocation of consumption were left at the discretion of recipient (i.e. the donor is a Stackleberg leader).

To see this let $V^r(t)$ be the indirect utility function of the recipient for a given aid, t. Lindbeck and Weibull (1988) show that the indirect utility function of the donor

$$V^d(t) = U(c_1^d(t)) + U(c_2^d(t)) + \lambda V^d(t) \tag{2.14}$$

is a continuous and strictly concave function and achieves its maximum at a unique value of $\tilde{t}$. From the first order conditions and envelope conditions, it follows that $\frac{dV^d(t^*)}{dt^*} < 0$ and thus $\tilde{t} < t^*$. The donor would have transferred less had it been able to commit in advance or behaved as a *Stackleberg leader*.

Note that the Samaritan's Dilemma problem refers to free-riding by the recipient and the associated inefficiencies, and not to the reduction in savings by the recipient *per se*. Even when aid level is exogenously fixed or the donor can commit, the recipient will save less than before i.e. there will be crowding-out effect. Thus, if the donor desires that the recipient saves at least as much as it was saving before aid was being given, it will have to impose additional conditions on the recipient.

3 Production Economy

It has long been argued that the main reason for low income and growth in poor countries is low level of investment. The domestic savings are too low in poor countries to finance the required investment (savings gap) and they are not able to fill this gap by international borrowing due to financial market imperfections (see Chenery and Strout 1966 and Bliss 1989 on two-gap models of development). The foreign aid supplements domestic savings and leads to higher investment and higher growth. This idea has been highly influential and since 1960's financing of capital projects (capital transfer) has been one of the main forms of foreign aid.

Now we analyze the effects of capital transfer in an environment with Samaritan's dilemma. Let us modify our previous model as follows. Suppose now that apart from the endowment income, the recipient country possesses a production technology, $f(k)$, which is increasing and concave in the capital investment, k:

$$f(k) \text{ with } f_k(k) > 0,\ f_{kk}(k) < 0 \ \& \ \lim_{k \to 0} f_k(k) \to \infty. \tag{3.1}$$

The production $f(k)$ takes place in period 2 and the capital investment, k, is undertaken in period 1. The recipient country chooses its consumption, c_i^r for $i = 1, 2$, and financial savings, s^r, and capital investment, k^r, in the first period to maximize its utility (2.1). Assume that the international financial markets are imperfect and the low income recipient country is not able to borrow and thus $s^r \geq 0$. Also assume that $k^r \geq 0$.

The donor (country) is altruistic and cares about the welfare of the recipient (country). The donor can make capital transfer, $k^d \geq 0$, in the first period to the recipient, which is earmarked to finance the capital investment in the recipient country. The transfer is made after the recipient has chosen its financial savings, s^r, and capital investment, k^r.

The donor chooses its consumption, c_i^d, and capital transfer, k^d, and financial savings, s^d, in the first period to maximize its utility. Assume that the donor does not face the borrowing constraint in the international financial markets.

The donor's budget constraints are

$$c_1^d = y_1^d - s^d - k^d \ \& \tag{3.2}$$

$$c_2^d = y_2^d + s^d. \tag{3.3}$$

The recipient's budget constraints are

$$c_1^r = y_1^r - s^r - k^r \ \& \tag{3.4}$$

$$c_2^r = y_2^r + s^r + f(k) \tag{3.5}$$

where $k = k^r + k^d$ (sum of the capital investment financed by the recipient and the donor). Note that since the recipient can adjust its capital investment, k^r, the capital transfer by the donor, k^d, is fungible.

3.1 Efficient Level of Capital Investment

We first characterize the efficient level of capital investment in the recipient country as a benchmark. The efficient level of capital investment in the recipient country is given by

$$f_k(k) = 1 \tag{3.6}$$

which equates the marginal product of capital to the rate of interest. Let k^{**} denote the efficient level of capital investment in the recipient country.

In the rest of the section, we assume that initial conditions are such that in the *absence* of aid, $s^r = 0$ and the recipient cannot achieve the efficient level of capital investment from its own resources, i.e.

$$f_k(k^r) > 1 \ \& \ 0 < k^r < k^{**}. \tag{3.7}$$

Now we characterize the optimal strategies of the donor and the recipient. As before we begin with the donor's problem.

3.2 Donor's Problem

$$\max_{c_1^d, c_2^d, s^d, k^d} U(c_1^d) + U(c_2^d) + \lambda[U(c_1^r) + U(c_2^r)]$$

subject to the budget constraints (3.2) and (3.3) taking as given the choices of the recipient (s^r, k^r). Consumption of the donor in periods 1 and 2 are given by (3.2) and (3.3) respectively. The first order conditions are

$$s^d : U_c(c_1^d) = U_c(c_2^d); \tag{3.8}$$

$$k^d : U_c(c_1^d) = \lambda U_c(c_2^r) f_k(k) \ \text{ if } k^d > 0 \ \& \tag{3.9}$$

$$k^d : U_c(c_1^d) \geq \lambda U_c(c_2^r) f_k(k) \ \text{ if } k^d = 0. \tag{3.9a}$$

(3.8) equates the marginal cost of financial savings to its marginal benefit. One additional unit of financial savings reduces the utility of the donor by $U_c(c_1^d)$ in the first period, but increases its utility by $U_c(c_2^d)$ in the second period.

(3.9) equates the marginal cost of capital transfer to its marginal benefit. One additional unit of capital transfer reduces the utility of the donor by $U_c(c_1^d)$ in the first period, but increases the utility of the donor by $\lambda U_c(c_2^r) f_k(k)$ in the second period.[8] If the marginal cost of capital transfer is higher than

[8] Before any capital transfer is made, the initial conditions must be such that $U_c(\hat{c}_1^d) < \lambda U_c(\hat{c}_2^r) f_k(\hat{k}^r)$, i.e. the donor is better-off by making capita transfer.

its marginal benefit, the donor will not make capital transfer. (3.9a) characterizes this condition. This may occur if the degree of altruism and the first period endowment income of the donor and the marginal productivity of capital of the recipient are relatively low or the second period income of the recipient is relatively high.

From the partial differentiation of (3.9), it follows that

$$\frac{dk^d}{dk^r} = -\frac{\lambda U_{cc}(c_2^r) f_k^2(k) + \lambda U_c(c_2^r) f_{kk}(k)}{U_{cc}(c_1^d) + \lambda U_{cc}(c_2^r) f_k^2(k) + \lambda U_c(c_2^r) f_{kk}(k)} < 0 \ \& \tag{3.10}$$

$$\frac{dk^d}{ds^r} = -\frac{\lambda U_{cc}(c_2^r) f_k^2(k)}{U_{cc}(c_1^d) + \lambda U_{cc}(c_2^r) f_k^2(k) + \lambda U_c(c_2^r) f_{kk}(k)} < 0. \tag{3.11}$$

(3.10) shows that a higher capital investment by the recipient, k^r, reduces capital transfer, k^d. This happens because a higher k^r reduces the marginal benefit of capital transfer to the donor for two reasons: (i) it increases the second period consumption of the recipient and thus reduces the marginal utility of consumption in the second period as perceived by the donor and (ii) it reduces the marginal product of capital and thus the rate of return from the capital transfer declines. For a similar reason, a higher financial savings, s^r, by the recipient reduces capital transfer (3.11).

Note that (3.10) and (3.11) imply that $|\frac{dk^d}{ds^r}| < |\frac{dk^d}{dk^r}|$ i.e. a unit increase in the recipient's capital investment has a larger negative effect on the capital transfer from the donor than a unit increase in the recipient's financial savings. As discussed above, an increase in the recipient's capital investment reduces the capital transfer due to decline in both its marginal utility of consumption in the second period and the marginal product of capital. On the other hand, an increase in the recipient's financial savings reduces only its marginal utility of consumption in the second period, but does not affect the marginal product of capital. As we will see below, the larger negative effect of the recipient's capital investment on the capital transfer induces the recipient to save more in terms of financial savings.

3.3 Recipient's Problem

While making its choices, the recipient takes into account the effects of its choices on the capital transfer made by the donor. As we will see below, the

capital transfer reduces the marginal benefits of financial savings and capital investment of the recipient.

$$\max_{c_1^r, c_2^r, s^r, k^r} U(c_1^r) + U(c_2^r)$$

subject to the budget constraints (3.4) and (3.5) and the strategies of the donor characterized in (3.8-3.9a). Consumption of the recipient in periods 1 and 2 are given by (3.4) and (3.5) respectively. The first order conditions for other optimal conditions are

$$s^r : U_c(c_1^r) = U_c(c_2^r) \left[1 + f_k(k)\frac{dk^d}{ds^r}\right] \text{ if } \mathrm{s^r} > 0; \tag{3.12}$$

$$s^r : U_c(c_1^r) \geq U_c(c_2^r) \left[1 + f_k(k)\frac{dk^d}{ds^r}\right] \text{ if } s^r = 0; \tag{3.12a}$$

$$k^r : U_c(c_1^r) = U_c(c_2^r) \left[f_k(k)(1 + \frac{dk^d}{dk^r})\right] \ \& \tag{3.13}$$

$$k^r : U_c(c_1^r) \geq U_c(c_2^r) \left[f_k(k)(1 + \frac{dk^d}{dk^r})\right] \text{ if } k^r = 0. \tag{3.13a}$$

(3.12) equates the marginal cost of financial savings to its marginal benefit. One unit increase in the financial savings reduces the capital transfer. Thus, the net benefit from one unit of financial savings in the second period is less than one. If the marginal cost of financial savings is higher than its marginal benefit, the recipient will not save. (3.12a) characterizes this condition.

(3.13) can be interpreted in a similar way. It equates the marginal cost of capital investment to its marginal benefit. The capital transfer reduces its marginal benefit. If the marginal cost of the capital investment is higher than its marginal benefit, the recipient will not invest. (3.13a) characterizes this condition.

As before one can show that equilibrium allocations are Pareto-inefficient, if s^{r*} & $k^{r*} > 0$. The recipient in order to elicit larger capital transfer under-saves and under-invests in the first period. The utility of both the donor and the recipient can be enhanced if the capital transfer is exogenously fixed at k^{d*}.

In this economy, capital transfer also affects the choice of portfolio by changing the relative rate of return on financial savings and capital investment. As discussed earlier, the recipient's capital investment has a larger negative effect on the capital transfer compared to its financial savings. This distorts the relative rate of return between financial savings and capital investment and makes financial savings more attractive to the recipient compared to the capital investment. It induces the recipient to under-invest in capital relative to the efficient level, k^{**}.

Proposition 1: If the capital transfer $0 < k^d < k^{**}$, then it is always optimal for the recipient to choose $k^r \geq 0$ such that the total capital investment $k \equiv k^r + k^d < k^{**}$. When the capital transfer $k^d \geq k^{**}$, then it is optimal for the recipient to choose $k^r = 0$.

The proof of proposition 1 is in the appendix. The proposition shows that the capital transfer cannot achieve efficient level of capital investment in the recipient country, unless it is fully financed by the donor. In addition, it may induce the recipient to invest in financial instruments abroad with lower rate of return ($= 1$) than to invest in capital domestically, despite the fact that domestic capital investment is more productive, $f_k(k) > 1$. In this sense, capital transfer can lead to "capital flight".

The model developed can also be interpreted as the recipient country having two sectors: one with linear technology and other with increasing and concave technology. The sector with concave technology has higher marginal productivity of capital than in the other sector with linear technology at low level of capital investment and the donor makes capital transfer to the more productive sector. The analysis suggests that if the recipient country receives capital transfer in the more productive sector, it has spill-over effect on the less productive sector. The capital transfer may induce diversion of capital investment from the more productive sector to the less productive sector.

The analysis suggests that the weak effect of aid on capital investment and growth and diversion of resources from more productive activities to less productive activities which have been observed in many recipient countries are in part due to strategic interactions between donors and recipients. It shows that the negative effect of strategic interactions between the donor and the recipient on capital investment is magnified, when the recipient has alternative means of savings and investment. The analysis also reveals a major weakness of the two-gap models, that they ignore the incentives of donors

and recipients and thus they are not able to explain the weak relationship among aid, capital formation, and growth.

4 Heterogeneity in the Recipient Country

Reducing inequality and poverty in the recipient country is one of the main goals of donor countries. However, evidence suggests that aid has been only partially successful in achieving these goals. Part of the reason again is the strategic interaction between the recipient country and the donor country. If the amount of aid given by the donor country is dependent on the level of poverty and inequality in the recipient country, it may induce the government in the recipient country to reduce resources devoted to the poor.

To analyze such a situation, let us consider a static version of the previous models based on Pedersen (2001). Suppose that there are two types of inhabitants in the recipient country: elite (E) and poor (P). The government in the recipient country cares about the welfare of both the elite and the poor. Suppose that the recipient government chooses consumption of both groups to maximize the following social welfare function.

$$\frac{1}{1-n}c_{Er}^{1-n} + \frac{a}{1-n}c_{Pr}^{1-n} \text{ with } n \geq 0 \tag{4.1}$$

where c_{ir} is the consumption of $ith = E, P$ type of inhabitants in the recipient country and $0 < a < 1$ is the weight given to the welfare of the poor. Let y^r be the endowment income in the recipient country.

There is an altruistic donor country with an endowment income, y^d, which cares about the consumption of the poor in the recipient country. As before, while giving aid, the donor acts as a Stackleberg follower. Let the social welfare of the donor country be

$$\frac{1}{1-m}c_{d}^{1-m} + \frac{1}{1-m}c_{Pr}^{1-m} \text{ with } m \geq 0 \tag{4.2}$$

where c_d is consumption in the donor country. Parameter m can be interpreted as the degree of inequality-aversion of the donor. Larger is m more inequality-averse the donor will be.

Let us first derive the allocations in the recipient country without aid. The consumption pattern in the recipient country will be given by

$$\hat{c}_{Er} = \frac{a^{-1/n}}{1+a^{-1/n}} y^r, \ \hat{c}_{Pr} = \frac{1}{1+a^{-1/n}} y^r \ \& \ \frac{\hat{c}_{Er}}{\hat{c}_{Pr}} = a^{-1/n}. \tag{4.3}$$

Let us now derive allocations when aid is given. As the donor is a Stackleberg follower, we first derive its strategy. It chooses amount of aid, t, and its consumption, c^d, to maximize its social welfare function (4.2) subject to its budget constraint, $c^d + t = y^d$.

From the first order condition, we have

$$c_d = c_{Pr}. \tag{4.4}$$

(4.4) implies that

$$\frac{dt}{dc_{Pr}} = -1 \tag{4.5}$$

i.e. an increase in consumption of poor reduces aid from the donor one to one. The recipient while making its decisions takes into account the strategy of the donor.

The optimization problem of the recipient is to

$$\max_{c_{Er}, c_{Pr}} \frac{1}{1-n} c_{Er}^{1-n} + \frac{a}{1-n} c_{Pr}^{1-n} \tag{4.6}$$

subject to its budget constraint $c_{Er} + c_{Pr} = y^r + t$ and (4.4). From the first order conditions and the budget constraint, one can easily show that

$$c^*_{Er} = \frac{1+(a/2)^{-1/n}}{2+(a/2)^{-1/n}} (y^r + y^d), \ c^*_{Pr} = \frac{1}{2+(a/2)^{-1/n}} (y^r + y^d) \ \& \ \frac{c^*_{Er}}{c^*_{Pr}} = (a/2)^{-1/n}. \tag{4.7}$$

The comparison of (4.3) and (4.7) shows that $c^*_{Er} > \hat{c}_{Er}$ and post-aid there is a higher inequality in consumption in the recipient country. In addition, consumption of poor post-aid, c^*_{Pr} can be higher or lower than their consumption level pre-aid, $\hat{c}_{Pr}$. For example, suppose that $a = .5$ and $n = .5$. Then one can show that for any $y^r > 5/13 y^d$, $c^*_{Pr} < \hat{c}_{Pr}$. Post-aid poor have lower consumption and are worse-off.

5 Time-Inconsistency of Aid Policy

In previous sections, we analyzed the implication of strategic interactions between the recipient and the donor and associated inefficiencies under various settings. The analysis asumed that the donor is unable to commit to aid level or it behaves as a Stackleberg follower. The donor cannot or does not deter the recipient from indulging in strategic behavior. This raises the question such as: (i) Why is the donor not able to commit to its aid level or why does not the donor act as a Stackleberg leader? (ii) Why does not the donor punish the recipient or deny it aid, if it indulges in the strategic behavior?

As argued by Buchanan (1975), the main reason is that the donor faces a *Samaritan's Dilemma*. It is not able punish a deviant recipient because any punishment involves reducing the welfare of the recipient. Since, the donor cares about the welfare of the recipient, any punishment will reduce the welfare of the donor as well. It is not optimal for the donor to punish or withhold aid once the recipient has made its choices. The recipient recognizes this imperative of the donor and it may be optimal for it to divert its resources away from the development goals.

Lindbeck and Weibull (1988) formalize the Samaritan's Dilemma problem as a *time-inconsistency problem* faced by the donor in the conduct of aid policy. They model the interaction between the donor and the recipient as a game played over three stages. In the first stage, the donor chooses its aid level or policy. In the second stage, the recipient chooses the level of domestic support to meet development goals. In the third stage, the donor disburses aid. Question is that whether the donor will stick to aid level or policy announced in the first stage after the recipient chooses to provide less domestic support. In general, the answer is no as withholding aid or punishing the recipient reduces the welfare of both the recipient and the donor.

This can be seen as follows. In the second stage, the recipient will devote less resources for development than specified in the first stage, as it anticipates that the altruistic donor will give extra aid in stage three of the game if it devotes less resources. In the third stage, the altruistic donor will end up giving extra aid as anticipated by the recipient, as it is optimal for it do so. It is not in the interest of the donor to adhere to the specified level of aid or policy as it will mean less resources for development and a lower level of welfare of the recipient and thus the donor. In other words, the aid

level or policy announced in the first stage will not be a time-consistent or credible. A donor starting as a Stackleberg leader *ex-ante* will end up being Stackleberg follower *ex-post*.

One may argue that if there are repeated interactions between the donor and the recipient over many periods of time, it may be optimal for the donor to punish the deviant recipient in the short-run to deter it from diverting resources away from development goals in future. Inflicting short-run pain for long-term gain may be optimal. However, such a punishment strategy will work only if the interactions between the two are repeated or expected to be repeated *infinite number of times*. If their interactions are expected to be repeated only finite number of times, the threat of punishment will not be credible. In the second last period, the recipient will have incentive to deviate and it will be optimal for the donor not to punish the recipient in the last period. Then from backward induction it follows that the threat of punishment will not be credible in the earlier periods as well. Only when the interactions between the donor and the recipient are expected to be repeated infinite number of times, such threat can be credible. However, then credibility of threat of punishment requires that the recipient is always expected to need foreign aid. But, the whole idea behind foreign aid is to kick-start the development process in the recipient country so that the recipient does not need aid in future.

The time-inconsistency problem faced by donors also has implications with regard to efficacy of imposing conditionality on recipients by donors. For aid-conditionality to work, conditionalities have to be time-consistent. If the conditionalities are not time-consistent, recipients will not adhere to agreed conditionalities, correctly anticipating that donor will not punish them and enforce these conditionalities. An additional problem with conditionality is that it assumes that third-parties exist to enforce contracts. However, in the case of foreign aid involving transfers among governments or sovereign entities, such third parties may not exist and enforcement of contracts may be difficult. Empirical evidence does suggest that conditionality does not work and there is a weak relationship between aid disbursement by the donors and the implementation of required conditions or institutional reforms by the recipients (see Svensson 2003, Kanbur 2004 and Temple 2010 for a review of evidence).

6 Measures to Mitigate Time-Inconsistency Problem

The above discussion shows that addressing time-inconsistency problem in the context of foreign aid is quite difficult. As suggested by Buchannan (1975), the donor has to change the rules of the game and thus the incentive structure to deter the recipient from indulging in the strategic behavior. However, any change in the rules of game must themselves be time-consistent i.e. once the donor announces rules in the first stage, it has no incentive to deviate from them in the third stage regardless of what the recipient does in the second stage. Below we discuss various solutions proposed in the foreign aid literature to mitigate time-inconsistency problem. These solutions essentially involve strategically limiting the freedom of actions of the donor or tying its hands, thereby altering the beliefs and actions of the recipient in a direction favorable to the donor. All the solutions discussed below are by design time-consistent.

Delegation

Buchannan (1975) suggested that delegation of the decision making power by the donor to another agency may be one potential solution to the time-inconsistency problem. Svensson (2000b) formalizes the idea of Buchannan (1975) in a model with altruistic donor and two recipients. Each recipient country consists of two types of inhabitants: rich and poor. The donor is poverty-averse and it provides aid (budgetary support) to recipient countries in order to reduce poverty in recipient countries. The basic model is essentially a combination of the models discussed in sections 3 and 4. As discussed earlier, given the free-rider problem, aid by the donor induces recipient governments to reduce their own support to the poor. This free-rider problem becomes more serious, more poverty-averse the donor is. In this set-up, Svensson (2000b) shows that delegation of aid budget to another agency with less aversion to poverty by the donor improves welfare of the poor and thus the welfare of the donor.

Hagen (2006) argues that the result that delegation to less poverty-averse agency improves welfare crucially depends on the assumption that the productivity of the recipient countries are same. If the the recipient countries differ in their productivity levels, it may be optimal for the donor to delegate aid allocation decision to an agency which is more averse to poverty than

the donor itself. The reason is that differential productivity of recipients introduces a trade-off between equity and efficiency. A less poverty-averse donor will allocate more aid to more productive recipient after recipients have made their choices, as the return from aid will be higher. However, this may leave poor in the low productivity recipient country with a very low level of consumption, which is not optimal for the donor in the first stage. Hagen (2006) shows that in this case the donor will delegate the decision to more poverty-averse agent, which will increase the consumption of poor in the low productivity recipient country.

Tournament Between Recipients

It has been long been argued that the institutional set-up in the donor country encourages strategic behavior by recipients. In most donor countries, the aid allocation and disbursement decisions are separated. Once aid budget is decided, the disbursing agency faces strong bias towards disbursing the committed fund (budget pressure), as its performance is judged by how fast and how much aid it has disbursed rather than what the aid has achieved. The result is that aid is disbursed regardless of the performance of the recipients.

Svensson (2003) shows that the budget pressure problem can be mitigated by introducing competition among recipients and linking amount of aid disbursement to their relative performance. In the model, outcomes in the recipient countries depend on the resources devoted by the recipient governments and other random factors. The donor country only imperfectly observes the resources devoted by the recipient governments. However, it can observe the outcomes. By conditioning aid disbursement on the actual outcomes observed, the donor country is able to provide stronger incentives to reward good policies and to make inference about common shocks, which otherwise conceals the recipient's choices.

Use of Different Instruments

Donors provide aid in multiple ways (e.g. project financing, budgetary support). Different instruments of aid affect the incentives of the recipients in different ways and the use of appropriate instruments can potentially improve effectiveness of aid. In recent years, donor agencies such as World Bank has argued that general budgetary support may be a superior instrument of disbursing aid compared to the capital financing as it allows for better

alignment of goals of the donor and the recipient and lowers the inefficient use of resources. Kumar (2014b) addresses the issue of the use of appropriate instruments in mitigating the time-inconsistency problem in a model similar to one analyzed in section 3. In particular, it analyzes the effects of budgetary transfers, capital transfer, and their timings on the incentives of the recipient.

The analysis derives a number of important results. Firstly, as discussed earlier, the capital transfer distorts the relative rate of return between financial savings and capital investment and makes financial savings more attractive to the recipient. This distortion exacerbates the free rider problem.

Secondly, both the second period budgetary transfer and the capital transfer have disincentive effect on the recipient's own capital investment. But, the capital transfer has a larger disincentive effect on the recipient's capital investment than the second period budgetary transfer. The reason is that an increase in the recipient's capital investment reduces the second period budgetary transfer by increasing the second period consumption of the recipient. But it reduces the capital transfer both due to fall in the marginal product of capital and increase in the second period consumption of the recipient.

Thirdly, the first period budgetary transfer has a positive incentive effect on the capital investment by the recipient. The donor can use the multi-period budgetary transfers (or transfers in both periods) to balance out their positive and negative incentive effects on the capital investment by the recipient. Finally, in *the absence of capital transfer*, multi-period budgetary transfers not only lead to the efficient level of capital investment by the recipient, but also achieve the same allocation which emerges when the donor country is a *Stackleberg leader* or it can *commit* to its transfer policy.

The analysis suggests that in an environment where the donor faces Samaritan's dilemma, tying the hands of the donor in the sense of foregoing the use of capital transfer as an instrument of aid can mitigate the incentive of the recipient to free ride on the concerns of the donor. General budgetary transfers can be more efficient instruments of giving aid than the capital transfer.

Co-operation Among Donors

A recipient country usually receives aid from multiple donors. In such a situation, welfare of the recipient country becomes a common good for donors. Altruistic donors face a common goods problem, which leads to under-provision of aid. Co-operation among donors increases aid to the re-

cipient. However, increased aid may induce the recipient to reduce its own domestic support to development goals. Co-operation may aggravate the crowding-out problem and thus it may not be beneficial as it may lead to lower total support for development goals.

Torsvik (2005) addresses the question of when co-operation among donors is beneficial. In his model, altruistic donors care about the welfare of poor. He shows that co-operation among donors is beneficial either when donors can enforce contingent-contract or they face time-inconsistency problem. In these cases, increased aid resulting from co-operation dominates the crowding-out effect and improves the welfare of poor. When the contingent contract cannot be used, but at the same time the recipient country cannot exploit the altruism of donors (e.g. recipient and donors move simultaneously), crowding-out effect may dominate and co-operation among donors can be harmful to the poor in the recipient country.

Punishment and Rewards

As discussed earlier, when the interactions among the donor and the recipient are expected to be repeated infinite number of times, the donor may deter the recipient from indulging in strategic behavior by a (credible) threat of punishment. Blouin and Pallage (2009) develop this idea to examine the effectiveness of food-aid in fighting hunger and reduce the incidence of man-made famines in a model with multiple recipients and one altruistic donor.

In the model, the governments in the recipient countries are kleptocratic and they tax away all the income of the people above their subsistence level. They show that in such an environment mere presence of food-aid agencies increases the incidence of man-made famines. Kleptocrats in order to increase aid from food agencies provide less than subsistence level income to people. In such an environment, giving gifts to kleptocrats who do not starve their people and a threat of punishing those who starve their people by denying them aid can improve welfare.

7 Conclusion

In this chapter, we reviewed theoretical models addressing the issue of time-inconsistency of aid policy, its consequences, and possible solutions. The strategic interaction among recipients and donors is an important part of

explanation for why aid has not been as effective as hoped for in increasing growth, reducing poverty, and improving policy environments in many recipient countries. Aid by altruistic donors may induce recipients to reduce their own contribution to development efforts in order to elicit more aid from donors. Counter-intuitively, help by well-meaning donors may reduce the welfare of needy.

In the last few decades, donors have taken the approach of imposing conditionalities on recipients in order to reduce the strategic behavior by recipients. But, evidence suggests that these conditionalities have failed to improve compliance by recipients. Part of the reason is that for conditionalities to be effective, they have to be time-consistent, an issue that has been ignored in designing conditionalities.

One may argue that the time-inconsistency problem inherent in aid provides support to the view of aid-pessimists (e.g. Easterly 2003) that foreign aid is an ineffective tool of development and that foreign aid leads to aid-dependency (Bauer 1972). However, this not a correct view. Time-inconsistency problems pose a serious challenge. But, the analysis shows that solutions to these problems exist. By appropriately designing and implementing aid policies, the effectiveness of aid in spurring development process can be enhanced. Stopping or reducing foreign aid is like throwing baby along with bath water.

Appendix

Proof of Proposition 1:

First, suppose that s^r & $k^r > 0$ i.e. (3.12) and (3.13) hold. Then, (3.12) and (3.13) imply that

$$\left[1 + f_k(k)\frac{dk^d}{ds^r}\right] = \left[1 + f_k(k)(1 + \frac{dk^d}{dk^r})\right]. \qquad (A1)$$

Since the marginal cost of financial savings and capital investment is same, at the optimum the marginal benefits from both must be the same.

From (A1) it follows that $f_k(k) = 1$ only if $\frac{dk^d}{ds^r} = \frac{dk^d}{dk^r}$. However, as discussed earlier, (3.10) and (3.11) imply that $|\frac{dk^d}{ds^r}| < |\frac{dk^d}{dk^r}|$ i.e. one unit increase in the recipient's capital investment has a larger negative effect on the capital transfer from the donor than a unit increase in the recipient's financial savings. Thus, at $f_k(k) = 1$ the marginal benefit from financial savings (the LHS of A1) is greater than the marginal benefit from capital investment (the RHS of A1). Thus, the reallocation of resources towards financial savings away from capital investment makes the recipient better-off. Therefore, the recipient chooses k^r such that $f_k(k) > 1$ for any $0 < k^d < k^{**}$.

In the case, $s^r = 0$ and $k^r > 0$, (3.12a) and (3.13) imply that

$$\left[f_k(k)(1 + \frac{dk^d}{dk^r})\right] \geq \left[1 + f_k(k)\frac{dk^d}{ds^r}\right]. \qquad (A2)$$

The marginal benefit from capital investment is higher than the marginal benefit from financial savings. However, (3.10) and (3.11) imply that in order for (A2) to hold, it must be the case that the recipient chooses k^r such that $f_k(k) > 1$.

The above analysis shows that it is always optimal for the recipient to choose k^r such that $f_k(k) > 1$ for any $0 < k^d < k^{**}$. Suppose now that $k^d \geq k^{**}$. In this case, $f_k(k) \leq 1$ for any $k^r \geq 0$. Now if $k^r > 0$, then either (A1) or (A2) must hold. But then it implies that $f_k(k) > 1$, which is a contradiction. The only possibility then is that the recipient sets $k^r = 0$.

References

[1] Alesina, A. and D. Dolar (2000), "Who gives foreign aid to whom and why?", *Journal of Economic Growth*, 5, 33-63.

[2] Bauer, P. (1972), "*Dissent on Development*", Cambridge, Harvard University Press.

[3] Bliss, C. (1989). Trade and development. Chapter 23, In H. Chenery und T.N. Srinivasan (eds) *Handbook of Development Economics* vol. 2. Amsterdam et al., 1187-1240.

[4] Blouin, M. and S. Pallage (2009),"Addressing the Food-Aid Curse", *Economics Letters*, 104, pp. 49-51.

[5] Boone, P. (1996), "Policies and the effectiveness of foreign aid", *European Economic Review*, 40, 289-329.

[6] Brautigam, D. and S. Knack (2004), "Foreign aid, institutions, and governance in sub-Saharan Africa", *Economic Develpment and Cultural Change*, 52, 255-285.

[7] Bruce, N. and M. Waldman (1990), "The Rotten-Kid theorem meets the Samaritan's Dilemma", *Quarterly Journal of Economics*, February, 155-165.

[8] Buchanan, J. (1975), "The Samaritan's Dilemma", In *Altruism, Morality, and Economic Theory*, Edited by E. Phelps, New York, Sage Foundation.

[9] Burnside, C. and D. Dollar (2000), "Aid, policies, and growth", *American Economic Review*, 40, 289-329.

[10] Chenery, H. and A. Srtout (1966), "Foreign assistance and economic development", *American Economic Review*, 56, 679-733.

[11] Coate, S. (1995), "Altruism, the Samaritan's Dilemma, and government transfer policy", *American Economic Review*, 85, 46-57.

[12] Collier, P. and D. Dollar (2002), "Aid allocation and poverty reduction", *European Economic Review*, 46, 1475-500.

[13] Easterly, W. (2003), "Can foreign aid buy growth?", *Journal of Economic Perspective*, 17, 23-48.

[14] Feyzioglu, T., V. Swaroop, and M. Zhu (1998), "A panel data analysis of the fungibility of foreign aid", *The World Bank Economic Review*, 12, 29-58.

[15] Hagen, R. J. (2006), "Samaritan agents? On the strategic delegation of aid policy", *Journal of Development Economics*, 79, 249-261.

[16] Hansen, H. and F. Tarp (2001), "Aid and growth regressions", *Journal of Development Economics*, 64, 547-70.

[17] Kanbur, R. (2004), "The economics of international aid" in *The economics of giving, reciprocity, and altruism* Editors: S. Christophe-Kolm and J. Mercier-Ythier, North-Holland.

[18] Kumar, A. (2014a), "Old-Age income support, gender differentials in human capital investment of children, and efficiency", Mimeo.

[19] Kumar, A. (2014b), "Foreign aid, incentives and efficiency: Can foreign aid lead to efficient level of investment?", Mimeo.

[20] Lindbeck, A. and J. W. Weibull (1988), "Altruism and time consistency: the economics of fait accompli", *Journal of Political Economy*, 96, 1165-1182.

[21] Lindbeck, A., S. Nyberg and J. W. Weibull (1999),“ Social norms and economic incentives in the welfare state", *Quarterly Journal of Economics*, 114, 1-35.

[22] Pedersen, K. (2001), "The Samaritan's Dilemma and the effectiveneess of foreign aid", *International Tax and Public Finance*, 8, 693-703.

[23] Rajan, R. and A. Subramanian (2008), "Aid and growth: what does the cross-country evidence really show?", *Review of Economics and Statistics*, 90, 643-665.

[24] Radlet, S. (2008), "Foreign aid" in A. Dutt and J. Ros (ed.) *International Handbook of Development Economics Vol II*, Chapter 42, pp. 98-118, Edgar Elder.

[25] Stern, N. (2002), "Making the case for aid" in J. Wolfensohn (ed.), *World Bank: A Case for Aid: Building a Consensus for Development Assistance*, World Bank, pp. 15-24.

[26] Sachs, J., J. McArthur, C. Bahadur, and M. Faye (2004), "Ending Africa's poverty trap", in *Brookings Papers on Economic Activity*, 1, pp. 117-240.

[27] Stiglitz, J. (2002), "Overseas aid is money well-spent", *Financial Times*, April 14.

[28] Svensson, J. (2000a), "Foreign aid and rent-seeking", *Journal of International Economics*, 51, 437-461.

[29] Svensson, J. (2000b), "When is foreign aid policy credible? Aid dependence and conditionality", *Journal of Development Economics*, 61, 61-84.

[30] Svensson, J. (2003), "Why conditional aid does not work and what can be done about it?", *Journal of Development Economics*, 70, 381-402.

[31] Swaroop, V., S. Jha, and A. Rajkumar (2000), "Fiscal efects of foreign aid in a federal system of governance: A case for India", *Journal of Public Economics*, 77, 307-30.

[32] Temple, J. (2010), "Aid and conditionality", Chapter 67 in the *Handbook of Development Economics, Vol 5* Editors: D. Rodrik and M. Rosenzweig, Elsvier B.V.

[33] Torsvik, G. (2005), "Foreign economic aid; should donors cooperate?", *Journal of Development Economics*, 77, 503-515.

[34] World Bank (1998), "Assessing aid: what works, what doesn't and why", Oxford University Press, New York.

[35] World Bank (2005), "Conditionality revisited", Edited By S Koeberle, H. Bedoya, P. Siarsky, and G. Verheyen.