Aid Motivation and Donor Behavior

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ABSTRACT
This paper develops an analytical framework to explain foreign aid motivation and donor behavior, using an interdependent utility maximization framework, in which donor faces two constraints; its own budget constraint and the recipient's utility function. This paper specifically contributes to the literature on foreign aid by integrating the various objectives underlying aid allocation, namely recipient income and trade performance, international income distribution and donor reaction to fungibility. Between trade interest and international income distribution, the former is found to be a more common consideration in aid allocation. One of the important results is that the fungibility of foreign aid is established as a major problem so as to invite donor's retaliation. However, the retaliatory response appears to co-exist with other motivations.

JEL Classification Codes: *F35*

Key words: *foreign aid; aid determinants; fungibility; donor trade interest; developing countries*

1. INTRODUCTION

An extensive literature exists to explain donor behavior underlying allocation of foreign aid. Researchers have attempted various motivations basically in terms of donor self-interest and recipient need (McKinlay and Little, 1979; Maizels and Nissanke, 1984; Trumbull and Wall, 1994 and Gounder, 1999). It has been argued that, except when aid is allocated on the basis of altruism, even the recipient's need criteria must somehow satisfy donor interest. The latter may be built in trade, investment, and security considerations. Trade policy has been particularly an important basis for aid allocations; more particularly, it has been shown that given consumer preferences, donors would maximize their welfare by allocating aid to countries with lower tariffs (see Lahiri and Raimondos-Moller, 1997). Nevertheless, donor self-interest may have substantial positive externalities for some aid-receiving countries. The trade interest of a donor country, for instance, may lie in promoting growth in developing countries, which are its major trading partners (Maizels and Nissanke, 1984). The presence of recipient growth in the donor objective function has been analyzed by Khilji and Zampelli (1994) and Rodrik (1995). It is interesting to note that for 99 projects evaluated in 1993, an average economic rate of return of 21 per cent was obtained, and there is evidence that the World Bank financing was not available to projects with a low rate of return with 12 per cent as the cut-off (Devarajan et al., 1997). Thus, donors may continue to allocate aid to their trading partners, even though these countries may be implementing projects that

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do not necessarily generate a high rate of return. Moreover, some studies, such as Edelman and Chenery, 1977 and Llavador and Roamer, 2001, have rationalized such behavior of donors by highlighting that aid could also be provided on the basis of improving international income distribution. This means that as countries achieve some threshold level of income, donors would reduce their financial aid to such countries. Mauritius and Botswana are concrete examples of economies which once crossed the threshold of middle-income were subsequently entitled to much lower financial assistance levels. However, it is extremely crucial to note that in early stages of development, donors may be frustrated whenever recipient governments tend to direct aid amounts to untargeted projects. The latter would simply bring about sluggish growth of income and that threshold may not be easily attainable in the long run. Although the issue of the fungibility of foreign aid remains empirically debatable (see, White, 1992 and Feyzioglu et. al, 1998 for a recent review of literature), donors largely tend to believe that foreign funds are spent on non-designated projects by LDC governments. As such, donors may respond to this attitude of recipients by allocating lower amounts of aid to such countries. Moreover, despite donors' tendency to respond to fungibility, there is no empirical evidence as such to this effect. Such donor responses on occasions may be in conflict with donor self-interest in which case it may underplay the recipient fungibility behavior.

In the existing literature on external financial assistance, limited attempt is made to integrate the various objectives underlying aid allocation, namely donor trade interest, recipient growth, international income inequality, and donor reaction to fungibility. In this paper, we model the behavior of donors integrating these conflicting objectives. From the proposed framework, donors choose countries for aid allocation using a portfolio approach, explicitly incorporating their choice over alternative uses of grant amount, recipient performance, and fungibility attempts. Hence, we propose to model the supply-side of foreign aid allocation by taking into account donors' resource capability and motivation and recipient performance.

The remainder of the paper is structured as follows; in section 2, a utility maximization model of aid allocation is developed, postulating interdependence of donor and recipient utility functions, and in section 3 the impacts of recipient economic and fiscal behavior including fungibility attempts on aid allocation are postulated under alternative scenarios The proposed model is tested for a group of aid-receiving countries in section 4 with a view to empirically examine donor response to recipient output performance, international income inequality, and the fungibility of foreign aid. Lastly, section 5 concludes and addresses policy issues.

2. A MODEL OF FOREIGN AID ALLOCATION

Let the utility functions of donor and recipient be specified as follows:

$$U_d = f_1 (Y^d, G^d, GR) \quad (1)$$

$$U_r = f_2 (Y^r, G^r, GR) \quad (2)$$

Where Y, G, and GR stand for per capita national disposable income, per capita government expenditure, and total foreign grants respectively, and superscripts 'd' and 'r' represent donor and recipient respectively. The utility functions represent the aggregative welfare preferences of all agents in both type of countries and would indicate clearly the utility derived from a range of private goods, captured by Y; a range of public goods, tracked by G, and foreign aid indicated by GR. In the context of a donor country, grant giving brings satisfaction to agents as they are in a position to help Less Developed Economies[1]. On the other hand, for a recipient country this financial assistance leads to higher utility and more so for those public goods whose production would not otherwise have been materialized. These functions could be specified in Cobb-Douglas form. In other words, the arguments in the donor and recipient utility functions present a trade-off between alternative uses of resources at hand. It is worth observing that arguments used in the two specifications are just substitutes and not necessarily perfect substitutes. Donors are assumed to maximize their own utility functions subject to two constraints; namely, the recipient's utility function with an ensured level of utility K, derivable by the recipient country, and their own budget constraint.[2] In fact the recipient's utility function enters as a constraint because any change in the recipient's disposable income and government expenditure levels, in the presence of foreign aid, would provide information on welfare performance and macroeconomic achievements in aid-receiving countries. Such information would also help donor countries to assess trade potential, international income disparities, and utilization of foreign funds.

We set the following LaGrange and maximize it subject to two constraints

$$L = aY_d^{\theta 1} G_d^{\theta 2} GR^{\theta 3} + \lambda_1[K - b_1 Y_r^{\theta 4} G_r^{\theta 5} GR^{\theta 6}] + \lambda_2 [Y_d - AE - G_d] \quad (3)$$

The variables are defined in the following table:

Table 1: Description of the Variables

Symbols	Description
$\mathbf{Y_d}$	Donor's Income Level per Capita
$\mathbf{G_d}$	Donor's Government Expenditure Level per Capita
GR	Grants or Foreign Aid in Total
K	Assumed Level of Utility of Recipient (Benchmark Utility Level)
$\mathbf{Y_r}$	Recipient's Income Level per Capita
$\mathbf{G_r}$	Recipient's Government Expenditure Level per Capita
AE	Aggregate Private Expenditure Level per Capita

[1] The utility derived may range from altruistic motives to opportunistic needs (trade gains and bilateral agreements)

[2] The donor's budget constraint is derived from the usual national income identity where $Y_d = AE + G_d$ and AE is net private expenditure.

Setting the partial derivatives equal to zero yields:

$$\frac{\partial L}{\partial Y_d} = a\theta_1 Y_d^{\theta 1-1} G_d^{\theta 2} GR^{\theta 3} + \lambda_2 = 0 \quad (4)$$

$$\frac{\partial L}{\partial G_d} = a\theta_2 Y_d^{\theta 1} G_d^{\theta 2-1} GR^{\theta 3} - \lambda_2 = 0 \quad (5)$$

$$\frac{\partial L}{\partial GR} = a\theta_3 Y_d^{\theta 1} G_d^{\theta 2} GR^{\theta 3-1} - \lambda_1\theta_6 b_1 Y_r^{\theta 4} G_r^{\theta 5} GR^{\theta 6-1} = 0 \quad (6)$$

Using equation (6)

$$\therefore a\theta_3 Y_d^{\theta 1} G_d^{\theta 2} GR^{\theta 3-1} = \lambda_1\theta_6 b_1 Y_r^{\theta 4} G_r^{\theta 5} GR^{\theta 6-1} \quad (7)$$

This equation represents the inter-dependence of two economies (a donor and a recipient). Taking log to both sides of equation (7) we have

$$\log (a\theta_3) + \theta_1 \log Y_d + \theta_2 \log G_d + (\theta_3\text{-}1) \log GR = \log (\lambda_1\theta_6 b_1) + \theta_4 \log Y_r + \theta_5 \log G_r + (\theta_6\text{-}1) \log GR \quad (8)$$

After rearranging terms,

$$(\theta_6\text{-}\theta_3) \log GR = \theta_1 \log Y_d - \log (\lambda_1\theta_6 b_1) + \log (a\theta_3) - \theta_4 \log Y_r - \theta_5 \log G_r + \theta_2 \log G_d \quad (9)$$

$$= \log \frac{a\theta_3}{\lambda_1\theta_6 b_1} + \theta_1 \log Y_d - \theta_4 \log Y_r - \theta_5 \log G_r + \theta_2 \log G_d \quad (10)$$

$$\therefore \log GR = \log \left[\frac{a\theta_3}{\lambda_1\theta_6 b_1}\right]^{\theta_6-\theta_5} + \left(\frac{\theta_1}{\theta_6-\theta_3}\right) \log Y_d - \left(\frac{\theta_4}{\theta_6-\theta_3}\right) \log Y_r - \left(\frac{\theta_5}{\theta_6-\theta_3}\right) \log G_r + \left(\frac{\theta_2}{\theta_6-\theta_3}\right) \log G_d \quad (11)$$

$$\log GR = A_0 + A_1 \log Y_d - A_2 \log Y_r - A_3 \log G_r + A_4 \log G_d \quad (12)$$

where

$A_0 = \log \left(\frac{a\theta_3}{\lambda_1\theta_6 b_1}\right)^{\theta_6-\theta_5}$, $A_1 = \frac{\theta_1}{\theta_6-\theta_3}$, $A_2 = \frac{\theta_4}{\theta_6-\theta_3}$, $A_3 = \frac{\theta_5}{\theta_6-\theta_3}$, $A_4 = \frac{\theta_2}{\theta_6-\theta_3}$.

Equation (12) represents the equation of interest. It postulates that donor's decision to supply aid to developing countries will depend on changes in donor's disposable

income and government expenditure levels, on the one hand, and changes in the recipient disposable income and government expenditure, on the other. From the model, the expected signs on the coefficients are as follows:

$$A_1 = (\partial GR/\partial Y_d) > 0, \qquad A_3 = (\partial GR/\partial G_r) < 0$$
$$A_2 = (\partial GR/\partial Y_r) < 0, \qquad A_4 = (\partial GR/\partial G_d) > 0$$

A positive sign is unambiguously expected on A_1 and A_4 because an increase in donor's disposable income and government expenditure on the provision of public goods would engender higher foreign aid. This postulate assumes that increases in donor income and government expenditure are indicative of enhanced donor resource capacity to give aid. Any deviation from the positive impact would imply some conflict between spending within the country and spending a part of donor income as aid in developing countries. It is possible that enhanced donor capacity may be associated with lower aid disbursements due to some strategic reasons. Similarly, aid allocations may be continued despite a decline in donor capacity. These conflicts would reflect on the changing donor perspectives on aid-giving in the light of developments at home and in the countries of aid destination. Further, a negative sign is expected on A_2 and A_3, because higher output and government expenditure performance of recipient countries may dampen aid prospects. Any deviation would indicate donor self interest and other motivation, such as retaliation to fungibility attempts.

3. MEASURING DONOR RESPONSE AND ALLOCATION OF AID

In order to test certain hypotheses concerning the motives underlying the aid-giving behavior, namely improving international income distribution, self-interest, and reaction to fungibility, we need to interpret the sign of the two coefficients, namely A_2 and A_3 appropriately. These coefficients measure stimulating and dampening impacts of recipient economic and fiscal performance and fungibility attempts on allocation of foreign grants. For this purpose, four situations are developed and quantified; namely, grant stimulation of recipient growth, grant dampening of recipient growth, grant stimulation of recipient government expenditure and grant dampening of recipient government expenditure. The first one refers to a situation when foreign aid is stimulated by recipient growth, which in turn would increase trade with aid recipients. The second channel captures international income distribution effect of recipient growth on grant- giving. This would underpin the objective of redistributing foreign aid to more needy countries. The third situation describes donor response in terms of increasing grant to reward the recipient for good fiscal performance, and the last situation deals with those outcomes involving decrease in grant indicating the retaliatory donor attitude towards fungibility behavior. It is important to identify the precise conditions, which would guide aid allocations. The following conditions are designed to measure aid stimulation and lack of it, which can be attributed to changes in recipient growth and government expenditure. If foreign aid rises by more than the increase in the value of recipient growth and government expenditure, then aid stimulation of recipient output

and government expenditure levels is said to have occurred. Moreover, aid stimulation may also be obtained if aid amounts are adjusted downwards by less than the decline in the value of recipient income and government expenditure.

We concentrate on the coefficients of Y_r and G_r in equation (12). The former captures the link between grant and recipient output level and the latter shows the link between grants and fungibility attempts, revealed by the changes in recipient government expenditure. For instance, $A_2 < 1$ would indicate that donors are interested in reducing international income inequality, and therefore, they increase grants less than proportionally for countries whose output levels tend to grow sluggishly and reduce grants when recipient's income tends to increase faster (grant dampening of recipient growth). Any deviation from this postulated behavior would be explained in terms of either donor self-interest or fungibility behavior on the part of the recipient. For instance, $A_2 > 1$ would indicate donor's self-interest, because grants continue to rise despite the good performance on the part of the recipient in terms of output performance (grant stimulation of income level). Recipient good economic performance may entail an increase in donor exports. Thus, increase in the recipient's disposable income is expected to increase their imports, which will foster the donor's trade interest.

Table 2: Donor's Reaction to Recipient's Performance

Motivation	Testable hypothesis	Expected sign on coefficient
Equitable allocation of grants	Grant dampening of recipient growth	$A_2 < 1$
Donor trade interest	Grant stimulating of recipient growth	$A_2 > 1$
Donor's reaction to good fiscal performance	Grant stimulating of recipient expenditure	$A_3 > 1$
Donor's reaction to fungibility	Grant dampening of recipient expenditure	$A_3 < 1$

Source: Authors' Postulates

Measuring donor's response to fungibility is a stupendous task. Fungibility takes place when aid is allocated to projects that donors do not intend to support. In other words, the fungibility of development funds refers to a recipient's ability to transform some portion of categorical aid into pure revenue- or income- augmenting resources that could be spent effectively in any way the recipient chooses (McGuire, 1978 and Feyzouglu et. al, 1998). Thus, it can be diverted to other projects or used to extend tax relief to citizens. Attempts to divert these funds to other projects are taken to mean that local resource-raising efforts are hampered (see Nath and Sobhee, 2002, for a discussion on the interaction between local and external resources in the presence of fungibility of foreign aid). In the proposed framework, this information has to be extracted from the behavior of recipient government expenditure. In this exercise, a reaction to the fungibility of foreign aid would be captured by the lesser extent of grant increase (less than proportionate) in response to expanding recipient government expenditure (grant dampening of recipient government expenditure level : $A_3 < 1$). Moreover, the reaction to fungibility can also be measured by the greater extent of grant decrease (more than proportionate decrease) in response to a decline of recipient expenditure. In the light of the above, $A_3 > 1$ would imply donor rewarding the recipient for good fiscal performance, which may indicate lack of fungibility of foreign aid (grant

stimulation of recipient expenditure). In other words, donor provides financial assistance to those public projects, which are stimulated by the recipient government itself. Public expenditure growth and decline would indicate the extent of recipient government commitment to domestic resource mobilization in response to foreign aid. These working rules for aid allocation are summarized in Table 2.

4. MODEL ESTIMATION AND RESULTS

The model was estimated using a sample of 15 developing countries over the period 1973 -1996. Data relating to the definitions provided in Table 1 were obtained from two major sources; namely, IMF Government Finance Statistics Yearbook (various issues) and International Financial Statistics (various issues). Donor disposable income and government expenditure are constructed as average of donors' income and government expenditure respectively. Foreign aid is measured as total aid available to recipient country from various donors. In this way, we explain the behavior of an average donor considering aid allocations to different recipient countries over a period of time.

Before estimating the model, it was deemed necessary to ascertain whether foreign aid in Equation (12) is exogenous. If this is not the case, estimated coefficients from this model would have no meaningful interpretation as they suffer from simultaneity bias. But theoretically speaking, these relationships could be bi-directional. Put differently, while output and government expenditure levels determine aid amounts flowing to the recipient country, the possibility of grants having an impact on income and expenditure in the recipient country might not be discarded. In fact, there is growing evidence of growth promoting impact of foreign transfers in the presence of resource gaps in highly indebted countries (see Bacha (1990) for a discussion). On the other hand, the significance of recipient growth in the portfolio of aid allocation has also been discussed (see Khilji and Zampelli, 1994; and Rodrik, 1995). In a recent paper, Hansen and Tarp (2001), have reviewed the literature on growth regressions and the problem of simultaneity bias due to endogeneity of aid, and have shown that aid, in all likelihood, increases growth rate. Similarly, the directions of the relationship between aid and recipient government expenditure have been addressed in the literature. Fungibility of foreign aid has also focused on the links between recipient government expenditure and foreign aid (see for instance, White, 1992; Nath and Sobhee, 2002 and Feyzioglu et al., 1998). Foreign aid may generate dampening impact on recipient government expenditure. In other words, increases in recipient government expenditure would depend on foreign aid. On the same line, there are research attempts in terms of sub-national government expenditure responses to changes in grants from higher levels of governments as well (see Gramlich, 1977, 1987; Logan, 1986 and Nath and Purohit, 1992). On the other hand, foreign aid is influenced by recipient government expenditure growth; grants that require matching contributions from the recipient would depend extensively on the scale of self-financed government expenditure. In fact, conditionality is designed with a view to eliciting higher resource mobilization in the recipient countries (Gunning, 2001). These researches do substantiate the possibility of two-way causal linkages between recipient government expenditure and foreign aid.

In light of the above discussion, tests of exogeneity based on Wu (1973) and Hausman (1978) were performed with each country data set to determine the endogeneity of foreign aid variable. Other right-hand side variables were used as instruments in applying these tests. The results did indeed reveal endogeneity of the recipient's government expenditure variable and grants in some countries such as Nepal and Sri Lanka (see Appendix A for the Wu-Hausman Exogeneity results). After using the relevant instruments in the regression for Nepal and Sri Lanka to control for simultaneity bias, OLS was then suitably applied to estimate equation (12) for the entire sample of countries. To determine any time trend in the variables, which could reduce the reliability of our estimates, unit roots tests for stationarity were conducted for all the series in level form using Dickey and Fuller (1979, 1981) specifications (see Appendix B). Except for India and Sri Lanka, the data were found to be non-stationary. To avoid spurious problems as indicated in Table 3 below an iterative method was used.

Table 3: Regression Estimates

Country	K	G^R	Y^R	G^D	Y^D	F	$\bar{R}^2$	DW
****Mauritius**	-26.06 (-1.6)	7.41 (1.51)	-7.28 (-1.69)	0.98 (1.64)	16.14 (1.7)	5.3	0.50	1.5
****Ghana**	86.7 (2.3)	-6.6 (-2.14)	29.8 (1.8)	6.54 (0.81)	18.5 (2.3)	3.3	0.40	1.95
Kenya	-69.0 (-2.7)	1.41 (0.8)	1.8 (0.71)	0.86 (0.56)	3.18 (2.81)	5.4	0.52	1.4
****Zambia**	86.6 (0.7)	5.0 (0.63)	-6.3 (-0.5)	-2.8 (-0.6)	-0.52 (-0.2)	0.45	0.14	1.5
****Nepal**	-3.7 (-0.4)	1.54 (13.13)	1.06 (1.6)	-0.97 -(2.6)	0.6 (1.0)	6.35	0.60	1.6
Botswana	64.6 (2.2)	0.27 (0.54)	-2.1 (-1.5)	-1.1 (-1.25)	(-2.53) (-2.4)	3	0.30	2.1
Malawi	-55.7 (-2.2)	2.3 (4.6)	1.26 (1.5)	1.52 (1.5)	0.57 (0.8)	9	0.7	1.2
Egypt	-81 (-1.16)	-2.2 (-0.61)	0.3 (0.09)	4.64 (2.7)	4.5 (1.06)	3	0.35	2.7
****Sri Lanka**	1.6 (2.12)	-2.5 (-5.5)	3.1 (9.8)	-0.25 (-0.65)	-1.39 (-4.3)	37	0.9	2.0
Cameroon	6.9 (1.26)	0.84 (5.32)	1.1 (2.11)	-0.57 (-1.92)	-0.48 (-1.3)	47.16	0.92	2.02
Tunisia	-47 (-1.0)	-31.9 (-1.2)	3.07 (2.4)	0.53 (0.26)	4.1 (1.98)	4.35	0.5	1.72
Malaysia	82.7 (1.82)	-9.7 (-0.4)	(-1.27) (-0.4)	-1.65 (-0.73)	(-3.27) (-1.5)	2.45	0.3	1.7
****Brazil**	24.9 (2.08)	1.02 (22.7)	0.07 (1.22)	-0.93 (-2.51)	-1.63 (-2.3)	152.2	0.97	2.8
India	-5.3 (-2.43)	0.21 (0.46)	1.78 (1.64)	-0.49 (-1.66)	0.417 (1.87)	6.1	0.6	2.2
****Pakistan**	-9.6 (-2.3)	0.026 (0.15)	9.95 (0.63)	0.37 (0.68)	0.919 (2.96)	3	0.3	2.4

Source: Estimated ** Adjusted for auto-correlation

Given that each country data set is limited; we considered it unreliable to estimate the regressions in differenced form. Indeed, as reported in Appendix B, some equations were estimated using stationary data, but they prove to be unreliable due to small data set. Hence, the regression results used for interpretation were those in level form albeit ensuring that errors were not serially correlated.

Table 4: Assessment of Objectives: Test Results (Stop/Give Aid)

Country	Addressing international income inequality	Self-interest (Trade motive)	Reaction to fungibility
Mauritius	stop		Give
Ghana		give	Stop
Kenya		give	Give
Zambia	stop		Give
Nepal		give	Give
Botswana	stop		Stop
Malawi		give	Give
Egypt	stop		Stop
Sri Lanka		give	Stop
Cameroon		give	Stop
Tunisia		give	Stop
Malaysia	stop		Stop
Brazil	stop		Give
India		give	Stop
Pakistan		give	Stop

Source: Derived from Table 2

The results are rather varied across the sample of countries. When we compare these coefficients in terms of expected signs, these are quite mixed. Some of the coefficients are statistically insignificant. Nevertheless, the tests for equitable distribution of aid, donor self-interest, and tracking of fungibility on the part of recipients have been performed in terms of the signs of the coefficients. These results are found in Table 4. The coefficients on donor disposable income and government expenditure variables are positive as well as negative. Whereas the positive coefficients are as expected, the negative coefficients indicate conflicts in the foreign aid policy. Although some of the coefficients are not statistically significant, the obtained signs are quite instructive. Presumably, these conflicts could be better explained by analyzing the underlying motivations and recipients' behavior, which are summarized above. When the more definite results are analyzed, it is found that Mauritius, Zambia[3], Botswana, Egypt, Brazil, and Malaysia are clear-cut cases where donors would tend to gradually withdraw

[3] The case of Zambia appears to be a complex one that would require further investigation because this country is still plagued with several economic problems and acute income inequality. Further analyses would be warranted for a clearer picture.

aid assistance as these countries have witnessed, by and large, faster increases in their per capita income. In this group, excepting Mauritius, Brazil, and Zambia, there is some evidence of fungibility attempts, which seems to have exerted a negative impact on foreign aid programs. As regards self-interest, it is found to be one of the major objectives underlying aid-giving behavior. It is important to note that in 9 out of our sample of 15 countries, self-interest seemed to be dominant. With the exception of Nepal, Kenya, and Malawi, these countries have also witnessed some dampening impact on grants in the light of their fungibility attempts. In fact, in 9 out of 15 countries studied here, the fungibility of foreign aid does appear to be a major problem so as to invite donor's retaliatory response.

It should, however, be noted that our results are tentative in that some of the regression coefficients are statistically insignificant. Moreover, the explanatory power of the models pertaining to many countries is low, excepting for Nepal, Malawi, Sri Lanka, Cameroon, Brazil, and India. Nonetheless, our estimation of the model and analysis of donor's reactions to recipient growth and fungibility outcomes do lend support to alternative motives underlying the aid-giving behavior. One of the interesting observations is that donor retaliation to fungibility appears to co-exist with other motivations, namely reducing international income inequality and self-interest dominated by trade considerations. Between trade interest and international income distribution, trade interest is found to be more common in aid allocation.

5. CONCLUSION

This paper attempts to model the motivation and behavior of donors in providing foreign assistance to developing economies. We use the utility maximizing framework with interdependent utility functions, in which a donor faces two constraints, its own budget constraint and recipient's utility function. The analysis is principally carried out in terms of factors, which contribute to more aid and lack of it. Whereas trade interest will generally foster aid, fungibility will dampen it.

Although the evidence on the aid-giving behavior is mixed one, the results emanating from our model do establish that donors seem to take into account the recipient' attitude towards the utilization of foreign aid along with achieving the objectives of growth, trade interest, and improving international income distribution. One of the interesting results is that donor retaliation to fungibility appears to co-exist with other motivations. Between trade interest and international income distribution, trade interest is found to be more common in aid allocation. Nevertheless, various factors motivating grant giving are founded in utility maximization. Donors seem to compare the utility increments from aid giving to those emanating from spending within the donor country. However, we also have some empirical evidence that would tend to confirm conflicts of objectives in foreign aid policy.

It should be indicated that the results of this work should be treated as being illustrative in that they are derived from a small sample of countries. We have noted that there are two sets of donor's worry that characterize the aid giving process, namely the resource allocation at home and aid management in the destination countries. Modeling

such complex issues may necessitate more extensive analysis with broader data sets. Nevertheless, these results bear significant implications for foreign aid policy and further research.

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APPENDIX

(A) Wu-Hausman Exogeneity Test

Country Regression	Tests of Residuals			
	G_r	Y_r	G_D	Y_D
Mauritius	0.9	1.02	0.3	0.2
Ghana	0.67	0.91	0.45	0.77
Kenya	0.22	0.90	0.51	0.42
Zambia	0.27	0.29	0.41	0.59
Botswana	0.45	0.76	0.56	0.91
Malawi	1.1	0.91	0.68	0.71
Egypt	0.96	0.9	0.76	0.91
Cameroon	0.74	0.88	0.88	0.76
Tunisia	0.77	0.45	0.23	0.38
Malaysia	0.81	0.62	0.39	0.44
Brazil	0.2	0.53	0.67	0.51
India	0.65	0.44	0.18	0.24
Pakistan	0.84	0.28	0.36	0.16

Source: Computed (All t ratios are insignificant implying that all the right hand side variables are exogenous).

(B) Regressions in the differenced form using stationary data

Country	K	GR	YR	GD	YD	$\bar{R}^2$	F
Mauritius	0.42	0.04	-0.24	0.06	-0.41	-0.4	1.1
Ghana	0.31	0.03	-0.21	-0.01	-0.03	-0.21	1.4
India	0.10	0.16	0.25	-0.01	0.06	0.02	1.36
Malawi	0.09	1.4	0.9	0.21	-0.03	-0.03	1.17
Brazil	-0.15	-0.01	0.03	0.04	-0.03	-0.020	1.3

Source: Computed (t ratios are not mentioned here, they were all very insignificant and all variables have been inverted to I_0. Some variables became stationary after second and third differences. Given that unit root tests are valid asymptotically, we believe that the sample size for each country is too small and the hypothesis of non-stationarity was accepted too often for the variable of interest).

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