# Is Donors' Concern About the Fungibility of Foreign Aid Justified?: A Panel Data Analysis


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# IS DONORS' CONCERN ABOUT THE FUNGIBILITY OF FOREIGN AID JUSTIFIED?: A PANEL DATA ANALYSIS

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**ABSTRACT**

This paper addresses donors' policy of providing external assistance to developing countries using an inter-temporal framework, over a finite horizon. While the framework adopted tracks the motivation of providing foreign aid, it is altogether consistent with the paradigm of forward-looking governments in developed economies. Given uncertainties surrounding income flows, and the gradual convergence towards generational accounting conventions in public finances of donor countries, an attempt is made to empirically ascertain whether foreign assistance is provided on a random basis or is backed by a systematic foreign aid policy. Our findings from a panel of 27 developing countries clearly contest the hypothesis that grants are provided on a random basis. This would otherwise suggest the existence of a consistent policy characterising granting behaviour, urging the need for recipient governments to incorporate grants in their budgetary decision-making.

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## INTRODUCTION

There have been serious concerns on the issue of fungibility of foreign aid in recent years. In particular, there is a wide spread feeling among donors that foreign aid is diverted to non-designated and unproductive activities. Whether fungibilty matters to donors would depend on the intensity of motivation underlying foreign aid. The main thrust of this paper is to establish whether grants are provided systematically or arbitrary. In the former case, grants are assumed to reflect a consistent policy which encourages recipient governments to treat foreign aid with greater care in their budgetary decision-making process. In the latter case, when grants are provided as residuals or on a random basis, recipients would not be keen to treat foreign aid as a serious and reliable source of income, thus increasing their scope of funging any form of such aid. In fact, Lensink and Morrissey (2000) have empirically demonstrated that aid uncertainty reduces effectiveness of aid. However, in this paper, we do not intend to discuss which policies are dominant (see, for instance, the paper by Alesina and Dollar (2000) for a good discussion of underlying policies). Rather, our objective is basically to ascertain

consistency in grant giving, which could form a basis for justifying donors' concern about the fungibility of foreign aid. Thus, the essential idea at this stage to pinpoint donor's policy the way we argue here is to provide the basis for utilisation of grants on earmarked projects. On the other hand, lack of policy orientation can be a source of reallocation of foreign funds to projects not conceived by donors. More precisely, fungibility on the part of recipients may be an outcome of a policy of random foreign assistance, emanating from revenue uncertainties or unanticipated events. Since we would be dealing with expectations, a framework consistent with a forward-looking donor government is applied and who undertakes inter-temporal budgetary decisions encompassing foreign external assistance. Rest of the paper is organised as follows: section II discusses the literature to support the need for such an analysis; section III presents the model; section IV establishes the empirical findings while section V concludes.

## REVIEW OF LITERATURE AND GAPS

A number of studies has empirically contributed to the contention that aid is not spent as intended by donors (see for instance, Heller, (1975), Khilji and Zampelli (1991, 1994), Pack and Pack (1993)). ln a more recent paper, Feyzioglu *et al*. (1998) obtained quite mixed results both at the aggregate and sectoral levels. Although in smaller samples foreign aid is not found to be fungible, its existence in larger ones cannot be denied. However, in the sectoral cases, the authors found that fungibility is a problem in the earmarked loans for agriculture, education and energy but not for sectors like transport and communication. Swaroop *et al.* (2000) presents an interesting dimension of the central government's utilisation and monitoring of external assistance to state governments in India. They show that foreign aid merely substitutes spending that the government would have undertaken anyway; thus the funds freed by aid are spent on non-developmental activities. They further conclude that while devolving earmarked external assistance to states, the central government makes a reduction in its transfer to states. This can be interpreted to mean that external assistance displaces domestic resources, which would amount to the fungibility of external funds albeit through a different channel.

It can be argued that any deviation from the legal requirements of aid programme may jeopardise growth. It has been shown in the literature (Sobhee and Nath, 2002) that fungibility in the form of tax relief hampers growth in the recipient country. The presence of the recipient growth in the donor objective function has been analysed by Khilji and Zampelli (1994), Rodrik (1995) and Llavador and Roamer (2001). Recipient growth has also occupied a prominent place in international official lending. It would be interesting to note that, on average, economic rate of return of 21 per cent was obtained for 99 projects evaluated in 1993, and that World Bank financing was not available to projects with a low rate of return with 12 per cent being the cut-off point (Devarajan et al., 1997). This would build a strong case for foreign aid to be spent exclusively on the earmarked project. Besides growth, there is a behavioural dimension as well. Grants from higher-level governments are characterised by the flypaper effect, that is, they produce expenditure effects greater than those generated through expenditures from own revenues. This is so since grants, which are provided on a systematic basis have an

endogenous treatment in the budgetary process of recipients. Alternatively, whenever grants are provided on a random basis, associated uncertainties surrounding aid receipts may not have the flypaper effect because they are treated separately. Such grants, in fact, would tend to create uncertainties in the entire budgetary system, engendering conditions for governments to base their major expenditure decisions on own funds (see, for instance, Schroeder, 1985).

The volatility of foreign aid is a major issue that could provide additional insights into the treatment of grants by both donors and recipients, but, to date, very few studies have addressed such an issue. Indeed, one study by Bulir and Hamann (2001) showed, using results from a cross country empirical model and survey data collected from IMF funded projects that foreign aid is substantially more volatile than domestic resources and this relative volatility grows with the degree of aid dependency. It is also shown that aid volatility is pro-cyclical, that is, they follow the trend of cycles in domestic resources. As indicated earlier, supremacy of extra economic considerations in aid giving is both a necessary and sufficient condition for imparting uncertainty and volatility in aid flows. It can be conjectured at this stage that aid volatility and uncertainty may encourage recipient governments to engage in fungibility and to spend aid money on undesignated projects.

While the empirical debate on fungibility of foreign aid remains inconclusive, nevertheless, it is pertinent to know whether donors should necessarily dictate the utilisation of grants in developing countries and condemn them for misallocating such resources by revising their foreign aid policy. Nath and Sobhee (2004) empirically establish that the fungibility of foreign aid assumes a major dimension so as to invite donor's retaliation. But they nevertheless find that the retaliatory response from donors appears to co-exist with other motivations. The answer to this question whether fungibilty matters to donors would be affirmative, if donors pursue a consistent policy rather than ad hoc transfers. Consistency is taken to mean that donors pursue same policy over a period of time. Nevertheless, it is not necessary that this objective should originate in recipient needs only. It can be donor's self interest or a mix of different objectives including altruism. Irrespective of underlying objective, consistency would improve predictions about aid in flows and minimise the impact of uncertainties on aid transfers.

What the current literature lacks is a well-founded theory that could explain the consistency of motivation in terms of its systematic or ad hoc nature. This is the concern of this paper. We develop a framework to track whether there exists any policy that characterises granting behaviour. We test the random walk hypothesis to establish any underlying policy of foreign assistance or lack of it.

## AN INTER-TEMPORAL MODEL OF EXTERNAL ASSISTANCE

We apply a model of intertemporal decision-making of donor governments regarding foreign aid allocated to recipient countries under uncertainty. The uncertainty element would take care of the fact that external assistance could either be provided on a systematic basis or on a random basis or both, depending on the preferences of the donor agent. Our donor is assumed to be forward looking and derives utility to perpetuity directly from assisting financially less developed economies on a purely altruistic basis. Thus external assistance is a pre-commitment well defined in the budget constraint. One

may also assert that the whole exercise of smoothing public spending over a planned horizon is to get rid of unnecessary adjustment costs (a disutility vector). Hence, we model this inter-temporal decision-making process as follows:

$$\text{Donor agent maximises } E_t \sum_{t=0}^{T-1} (1+\delta)^{-t} U(GR_{t+\tau}) \quad (1)$$

$$\text{subject to } \sum_{t=0}^{T-1} (1+r)^{-t} (GR_{t+\tau} + G_{t+\tau}) = R_t \quad (2)$$

The above expressions can be summarised in the following manner:

$E_t$ = Mathematical expectation conditional on all information available at time t;

$\delta$ = Social rate of discount;

r = Real rate of interest ($r \geq \delta$), assumed constant over time;

T = Time horizon;

U(.) = Instantaneous or one period utility function, strictly concave;

$GR_t$ = Grants;

$G_t$ = Expenditure of donor government;

$R_t$ = Tax Revenue of donor government (which encompasses postponed taxes)

Tax Revenue is a stochastic variable and is the only source of uncertainty to private agents, who also confront income uncertainties (Barro, 1989, and Hall (1978)). Tax revenue is stochastic essentially because it is largely dependent on income, which is the principal source of uncertainty. Such uncertainty is due to business cycles or world trade uncertainties especially pertinent for highly open economies. Our budget equation does not have any liquidity restraint due to inter-temporal allocation of resources with the possibility of substituting taxes and bonds (future tax liabilities). Hence, the stream of financial resources matches the stream of expenditures. In each period the donor government chooses $GR_t$ conditional on the information set available to him at time t to optimise expected lifetime utility.

It is also reckoned that social discount rate is different from the market rate of interest, and more particularly it is lower assuming that financial markets are not perfectly efficient for reasons usually attributed to financial market imperfections (see for instance Barro (1989) and Hall (1978)). Thus, the donor government maximises utility subject to the inter-temporal budget constraint as defined above. The model is solved using a Lagrangean formulation. Let us analyse the inter-temporal choice exercise over two periods. In period 1, the donor government faces the following first order condition:

$$\mathsf{E}[U'(GR_t)] + \lambda = 0$$

$$\text{such that, } \lambda = -\mathsf{E}[U'(GR_t)] \quad (3)$$

In period 2, the government faces the following first order condition:

$$\mathsf{E}[U'(GR_{t+1})](1+\delta)^{-1}] + \lambda(1+r)^{-1} = 0$$

$$\text{such that, } \lambda = -E[U'(GR_{t+1})(1+\delta)^{-1}(1+r)] \quad (4)$$

Equating equation (3) with equation (4), we have

$$U^{'}(GR_t) = U^{'}[(GR_{t+1})(1+\delta)^{-1}(1+r)]$$

implying that, $U^{'}[(GR_t)(1+\delta)\ (1+r)^{-1}] = U^{'}(GR_{t+1})$ (5)

Equation (5) suggests that marginal utility derived in providing external assistance at time period t+1, by the donor government, simply depends on its previous level transformed however by a multiplicative factor; $(1+\delta)\ (1+r)^{-1}$. From general to a specific case, we consider a quadratic concave (additive over time) function of the following type:

$$U(GR_t) = -1/2\left(\bar{GR} - GR_t\right)^2 \quad (6)$$

with $\bar{GR}$ indicating an ensured minimum utility level[1].
Now, it can be shown that the intertemporal choice of GR over the two periods would work out as follows:

$$\left(\bar{GR} - GR_t\right) = [(\bar{GR} - GR_{t+1})(1+\delta)^{-1}(1+r)] \quad (7)$$

Solving for $GR_{t+1}$, we have the following determining equation,

$$GR_{t+1} = a_0 + a_1 GR_t \quad (8)$$

Where the constant term $a_0 = \bar{GR}[1-(1+\delta)(1+r)^{-1}]$ and $a_1 = (1+\delta)\ (1+r)^{-1}$

Equation (8) implies that there is no variable other than the current level of grants to predict the level of grants one-period ahead. To have more insights from this equation, we lag equation (8) by one-period and add an error term $\varepsilon_t$ to it to obtain the following;

$$GR_t = a_0 + a_1 GR_{t-1} + \varepsilon_t \quad (9)$$

Equation (9) consequently constitutes a random walk equation or the classic Euler Test, to empirically verify whether grants are provided on a systematic or on a random basis. If GR are provided on a systematic basis, we would expect coefficient $a_1$ to be significantly different from zero and be less than unity in absolute terms. In the alternative case, we would expect this coefficient to be insignificant, implying that GRs are simply random. The latter case would therefore fail to support the systematic approach in giving grants. However, in the systematic case, when $a_1$ is significant, its absolute value should at least be equal to unity, i. e, $|a_1| \geq 1$, and GR variable is non-stationary. Having now defined the theoretical underpinnings regarding the expected coefficients, our next objective is to empirically test equation (9) and verify whether donors have a systematic or random approach to providing external assistance. The core of the empirical strategy is to test the random walk hypothesis to establish consistency or lack-of-it in donors' grant-giving behaviour. It is important to note is that this study does not attempt to make a determinant analysis of grant allocations; it aims at testing for consistency in granting behaviour irrespective of any motive. The empirical exercise is conducted and discussed in the following section.

**HYPOTHESIS, DATA AND EMPIRICAL ESTIMATES**

Our empirical verification is two-fold; firstly, to test the given hypothesis using a panel of 27 countries over a period of 25 years and second to report individual country estimates to draw on further insights. The equation to be estimated is as follows:

$$GR_{it} = a_0 + a_1 GR_{it-1} + \varepsilon_{it}$$

In this equation, current level of grants is postulated to depend on previous level of grants and a constant term, $a_o$. $\varepsilon_{it}$ is a random error term with well defined first and second moments. The most common term for foreign aid (GR) is Official Development Assistance (ODA). Development Assistance Committee defines ODA as those flows to developing countries and multilateral institutions, which meet the following tests. (a) They are administered with the promotion of economic development and welfare of developing countries as its main objectives, and (b) they are concessionary in nature and contain a grant element of at least 25 per cent. To test the above hypothesis, we make use of panel data for 27 countries over time period 1972–96. The countries used in the present analysis are presented in the appendix. This investigation is expected to provide more robust implications for policy that is characterized by foreign aid flowing from high income to low-income economies. Data on foreign aid are from Organisation for Economic Co-operation and Development, Geographical Distribution of Financial Flows to Aid Recipients. The countries relate to various parts of Africa and Asia including some small open island economies. For tractability and convenience, our sample excludes Latin American Countries to avoid extreme political economy events and heterogeneity of country characteristics that would have had a substantial impact on our analysis[2].

***Panel Data Estimates***

A panel data set can be useful for a researcher since, if the model is properly specified, the pooling process provides more efficient estimation, inference and possibly, prediction. Apart from its ability to separate time and cross -sectional effects, panel data or pooled data can have a number of other advantages (see for example Greene (1993). Panel data estimates distinguish differences in time and across countries via fixed effects and random effects. While the fixed effects allow the constant term to capture cross sectional and time differences through dummy variables, the random effects capture major differences through the errors and holding the constant term invariant.

***Fixed and Random Effects***

However, when dealing with panel data, a problem with both fixed effects and random effects models is that the above equation contains a lagged endogenous variable. This causes the estimates to be inconsistent (for examples, see Judson *et al*.(1996). A popular means to correct for this bias is to use dynamic panel data (DPD), especially, the generalized method of moments (GMM) as put forward by Arellano and Bond (1991). The GMM estimator first differences each variables so as to eliminate country-specific effects and then makes use of all potential lagged values of each of the variables as instruments. A critical assumption is made where the error terms cannot be serially correlated $(\varepsilon_{it} - \varepsilon_{it-s}) = 0$ for all $s > t$. Formally, we can rewrite the equation (9) as:

$$GR_{it} - GR_{it-1} = \gamma\left(GR_{it-1} - GR_{it-2}\right) + \left(\varepsilon_{it} - \varepsilon_{it-1}\right)$$

where all variables are now expressed as deviations from period means (to control for the period dummy variables). All these effects have been considered in the empirical estimates that follow for the purpose of identifying the best fit. The empirical estimates are contained in Table 1.

**TABLE 1. PANEL REGRESSION RESULTS**

Dependent variable: $GR_{it}$

| Variable | Fixed Effects | Random Effects | P(h) | P(c) | Arellano & Bond |
|---|---|---|---|---|---|
| Constant | 1.53e+08<br>(9.70)* | 5.21e+07<br>(3.88)* | 1.32e+07<br>(3.55)* | 4.6e+07<br>(17.55)* | 2.59e+6<br>(1.27) |
| Lagged $GR_{it}$ | 0.6325<br>(21.37)* | 0.8899<br>(49.25)* | 0.9367<br>(56.87)* | 0.9080<br>(118.28)* | 0.5093<br>(13.55)* |
| $R^2$ | 0.4138 | 0.7828 | - | - | - |
| Number of Observations | 675 | 675 | 675 | 675 | 621 |

Source: Computed

Note: * denotes significance at 1% level. P(h) and P(c) are the estimates for random effects after correcting for heteroskedasticity and autocorrelation respectively. $R^2$ is the within-$R^2$ for fixed effects and the overall-$R^2$ for random effects. T-statistics are in parentheses.

**Panel Unit Root Test**

Im, Pesaran and Shin (1997) developed the (IPS) t-test for unit root in heterogeneous panels. Based on the mean of the individual Dickey-Fuller t-statistics of each unit in the panel, the IPS test postulates that all series are non-stationary under the null hypothesis. Lags of the dependent variable can be introduced to allow for serial correlation in the errors. Following IPS, the Psi[t-bar] statistic ($\Psi_{\bar{t}}$) is distributed standard normal under the null hypothesis of non-stationarity. Assuming that the cross-sections are independent[3], IPS propose to use the following standardized *t*-bar statistic:

$$\Psi_{\bar{t}} = \frac{\sqrt{N}\left\{\bar{t}_{NT} - \frac{1}{N}\sum_{i=1}^{N} E\left[t_{iT}(p_i,0)\right]\right\}}{\sqrt{\frac{1}{N}\sum_{i=1}^{N} Var\left[t_{iT}(p_i,0)\right]}}$$

where N is the number of panels, $\bar{t}_{NT}$ is the average of the ADF test for each series across the panel and values for $E[t_{iT}(p_i,0)]$ and $Var[t_{iT}(p_i,0)]$ are obtained from the results of the

Monte Carlo simulation carried out by IPS. Results for the $\Psi_{\bar{t}}$ statistics are reported in Table 2. Since the IPS t-statistics is less than the critical value, we cannot reject the null hypothesis of non-stationarity of the panel data. This result is consistent with Table 2.

**TABLE 2. IPS PANEL UNIT ROOT TESTS**

| Variable | Psi[t-bar] |
|---|---|
| GR | -0.039 |
| Lagged GR | -1.479 |

Source: Computed
Note: The one-tailed 5% critical value is -1.645. Lag order of 6 has been used.

Comparing results, Table 1 reports estimates of the above equations using fixed effects, random effects and Arellano and Bond GMM technique. Estimates vary quite significantly depending on the technique used. It is important to test the validity of the assumptions underlying each method. First, a Hausman Specification test comparing random effects to fixed effects is required. The computed $\chi^2(1) = 116.81$ [0.000]. P-value is in square brackets. Thus, we reject the null hypothesis, i.e., the assumptions required for the random-effects and choose the fixed-effects model instead. This implies that the dummy variable model is more relevant for the data set in use. Estimates would imply that variations on the constant term rather than the error term fit our data. This could tentatively mean that the evolution of countries has taken place in a systematic rather than random manner. However as mentioned before, both methods are inconsistent because of the lagged endogenous variable. GMM procedure corrects this problem. Test for the assumption of no serial correlation, namely a test for second-order serial correlation, is satisfied. In the test for second-order serial correlation in differenced equation, the test statistics is $N(0,1) = 1.25$ [0.2126], which is unable to reject the null (of no second-order serial correlation) at any standard level of significance. This implies that the error terms are white noise and that a long-run relationship exists between the two variables. Thus, there is evidence that our GMM estimates are consistent and efficient and that we should focus our analysis on these estimates. The results obtained by estimating the relevant reduced – form equation are consistent with a unit root test of variable GR using the IPS test as defined above. The significance of the coefficient on $GR_{it-1}$ clearly shows that across countries and over time, donors have made use of some policy tool to provide foreign assistance. This is also confirmed by the non-stationary nature of the panel. Furthermore, the insignificance of the constant term reveals that donor's altruistic motives do not hold in the long run. As the behaviour of foreign assistance can be modelled per se, it can be said that the lagged term on grants brings a great deal of information pertaining to forward-looking donors using a systematic policy.

***Individual Time Series Unit Root Tests***

We also test for non-stationarity for each and every country in our sample. This is done to reinforce our understanding of whether for all countries randomness or consistency was found to be uniform. Conventional time series unit root tests, as proposed by Dickey and Fuller (1976), are obtained to study the order of integration for individual countries.

However, we have to report that due to lack of quarterly data, we had to rely only on annual observations thereby obviously compromising with better estimates from a wider range of observations[4]. The results of unit root tests are presented in Table 3 with the granting policy being indicated thereon. In fact, if the grant variable is found to contain a unit root, this means that it is non-stationary and hence foreign aid in this context is given on a systematic basis. On the contrary, when the variable is found to contain no unit root and to be thus stationary, the policy of providing foreign aid is simply random.

**TABLE 3. UNIT ROOT TEST FOR VARIABLE $GR_T$**

| Country | ADF (*l*,*t*) I(1)/I(0) | Grant Giving Policy |
|---|---|---|
| Bahrain | -2.4598 (0,0) | Systematic |
| Botswana | -2.8971 (0,t) | Systematic |
| Chad | -2.1069 (0,t) | Systematic |
| Cyprus | -3.1508 (0,0) | Systematic |
| Egypt | -2.9475 (0,t) | Systematic |
| Ethiopia | -1.8328 (0,t) | Systematic |
| Fiji | -3.8364 (0,t) | Random |
| Gambia | -4.0035 (0,t) | Random |
| Guyana | -.93747 (0,t) | Systematic |
| India | -2.1600 (0,0) | Systematic |
| Jordan | -3.0552 (0,0) | Systematic |
| Kenya | -.32607 (0,t) | Systematic |
| Lesotho | -4.3339 (0,t) | Random |
| Malta | -1.7528 (0,0) | Systematic |
| Mauritius | -4.6039 (0,t) | Random |
| Nepal | -1.9572 (0,t) | Systematic |
| Oman | -4.0376 (0,0) | Random |
| Pakistan | -3.1054 (0,t) | Systematic |
| Panama | -2.7532 (0,t) | Systematic |
| Papa New Guinea | -3.7449 (1,t) | Random |
| Philippines | -3.9919 (0,t) | Random |
| Seychelles | -2.9843 (0,t) | Systematic |
| Sierra Leone | -2.2012 (0,t) | Systematic |
| Swaziland | -2.3807 (0,0) | Systematic |
| Tanzania | -2.1449 (0,t) | Systematic |
| Tunisia | -3.0076 (0,0) | Systematic |

Source: Computed Note: The 95 % critical values for the DF statistic for lag orders 0, 1 of variable lagged GR, are critical values are -3.6219 and -3.6331, if a trend is present and -2.9970 and -3.0039 with no trend, respectively. For the $\Delta$ variable, the 95 % critical values for the DF statistic for lag orders 0, 1 of variable lagged GR are critical values are -3.6331 and -6.6454, if a trend is present and -3.0039 and -3.0115 with no trend is incorporated, respectively.

Our results confirm that in 19 country cases, GR is non-stationary while it is stationary in the remaining 7 cases. We may thus say that, by and large, foreign assistance is not a random element rather it follows a random walk process with some persistence. The random walk hypothesis identified in the policy of foreign assistance clearly reveals one aspect of donors' behaviour that they tend to be systematic rather than arbitrary in giving

grants to LDCs. Altogether, the empirical result would support that one-period lagged value of grants is an important determinant of the current grant policy. Nevertheless any search for this policy would require further investigation.

## CONCLUDING REMARKS

This paper attempts to explain the policy of rich countries in providing external assistance to developing countries. An inter-temporal utility maximising framework is developed and it is assumed that the donor government holds the profile of being forward-looking. The latter assumption is consistent in a world where markets are well developed and private agents also are futuristic. This framework allows us to test whether foreign aid is provided on a random or on a systematic basis with some well-defined targets. We consider it essential to investigate into this area because such policy may well explain budgetary uncertainties of recipient governments – a cause to funge external assistance.

Based on panel data comprising 27 countries, the empirical findings indicate that grants are not always given on a random basis and may follow rather a random walk whereby previous years level of grants determine the current year's level. Thus, there seems to be a consistent policy, which underpins donors' behaviour. Consistency in providing foreign assistance in turn compels recipient governments to act rationally, that is, treating grants systematically in their budgetary decisions. Such consistency, in grant giving, justifies donors' concern about the fungibility of aid. However, what would be more instructive now is to identify pertinent policies that donor governments tend to apply in providing foreign aid to specific sectors. Altruism is not established as an objective of donors in aid giving. Donors' self-interest and recipient needs are important candidates. Treating external assistance as a business activity by donors can be clubbed with their self-interest. We consider this study to be an important area that would warrant further investigation. It would also be interesting to augment the current empirical framework to introduce political economy events and structural reforms and analyse their effects on granting behaviour together by expanding the data base and incorporating large developing economies such as those of Latin America. A further experiment would be to relax the assumption of independence of cross sectional units that the IPS test assumes and track any potential deviation from the results established in our paper.

## ENDNOTES

* We are grateful to Vishal Jaunky for research assistance

1. Use of quadratic utility functions in smoothing consumption has been used in Hall (1978).
2. The external assistance profile of most of these countries in this study has been dealt with at length in Feyzioglu et al. (1998).Some specific tax and spending issues are addressed in this paper.
3. It is instructive to note that this test may suffer from the flaw of assuming a prior independence among the cross section units particularly when countries have similar institutional and regional characteristics. Such possibility may not be ruled out from our sample.
4. In addition to lack of data, we have to highlight that certain countries in the sample might have undergone serious political economy problems or specific reforms that have affected the flow of aid. These are normally taken care with the use of dummies. However, we do not extend our analysis to encompass such events.

## APPENDIX

### COUNTRIES INCLUDED IN THE SAMPLE

1) Bahrain
2) Botswana
3) Chad
4) Cyprus
5) Egypt
6) Ethiopia
7) Fiji
8) Guyana
9) India
10) Kenya
11) Lesotho
12) Malta
13) Mauritius
14) Oman
15) Panama
16) Seychelles
17) Sierra Leone
18) Sri Lanka
19) Swaziland
20) Tanzania
21) The Gambia
22) Tunisia
23) Jordan
24) Papua New Guinea
25) Nepal
26) Pakistan
27) Phillipines

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