

Can foreign aid contribute to sustained growth? A comparison of selected African and Asian countries

Foreign aid
contribution to
economic
growth

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John Adams

School of Social Sciences, Heriot Watt University, Edinburgh, UK, and

Ola Elassal

*Faculty of Business and Entrepreneurship, Universities of Canada in Egypt,
New Cairo, Egypt*

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Abstract

Purpose – Identifying if aid flows have contributed to economic growth or growth divergence between a sample of Asian and African countries is the purpose of this paper. Using data over the period of 1980–2015, the paper attempts to establish whether aid, in any of its forms, has played a role in economic growth in these countries.

Design/methodology/approach – A comprehensive literature analysis over the past 70 years sets the scene for the paper. A panel data fixed-effects model is applied for each sample (Africa and Asia) between 1980 and 2015. Both theoretical predictions and empirical studies are used to derive the independent variables selected for modelling.

Findings – The findings strongly suggest that aid flows in both the Asian and African samples have no relation at all to either long-run growth paths or growth divergence. However, there is a suggestion in the case of the Africa sample that governance decline may well be the primary source of growth divergence.

Research limitations/implications – This result cannot be generalised because it only focuses on six countries but as demonstrated in the paper, other possible samples (from both regions) actually make no difference to the results. It could also be argued (given the comprehensive literature analysis presented here) that it is not essential to have a theoretical relationship between aid and growth because aid is given to different countries with very different characteristics, needs, governance and policy environments.

Practical implications – Donor countries must play a more supervisory role to ensure aid flows are directed to the right channels in recipient countries. Aid should be given to countries which have a certain degree of macroeconomic stability and “good” policy to ensure effectiveness. They also need to pay attention to the sectoral distribution of aid as do recipient countries to better allocate aid flows to productive sectors that contribute to both short- and long-term growth.

Social implications – These are not given much emphasis in this paper.

Originality/value – Most aid–growth studies are based on a large number of countries from different regions with different characteristics or on a single country case. This paper compares between two samples of countries sharing the same characteristics to overcome the heterogeneity problem. This paper is based on a more protracted time series from 1980 to 2015 to capture more accurately the impact of foreign aid on economic growth.

Keywords Aid, Sustained growth, Divergence Africa, Asia

Paper type Research paper

1. Introduction

Foreign aid to less developed countries started to take place after WWII and on the basis of the success of the Marshall Plan implemented in, at that time, West Germany. The main rationale behind foreign aid in this period was to provide developing countries with the needed capital investments and technical assistance to fill their saving gap and achieve economic growth, especially that most of them were newly independent countries (Ali and Zeb, 2016). In 1970, in UN Resolution 2626 (XXV), donor countries agreed to spend a minimum 0.7 per cent of their gross national income on overseas development assistance (ODA) to developing countries. This international target was proposed to replace the previous



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suggestion of a 1 per cent target in 1958 which was hard to be monitored or controlled by donor governments as it included private inflows (Clemens and Moss, 2007). Despite growing ODA [1] after WWII, economists have questioned the effectiveness of aid, thus creating a debate that remains unsettled. The role of aid flows in promoting growth is still a highly contentious issue in the academic literature. This paper provides a close examination of the literature and using a sample of countries from Asia and Africa tests to what degree, if any, aid flows have impacted growth in these countries in terms of *growth sustainability or divergence*. The motivation for this analysis is twofold: **first**, to closely examine the empirical studies on aid–growth over the 70-year period since ODA began to answer the following – what are the results and the conclusions of this volume of work, are the results consistent and can theory inform the empirical analyses undertaken over the past 70 years? **Second**, to find a sample of countries with very similar characteristics at the start of the time series (1980) and test if aid has had any effect at all on subsequent economic growth paths. The countries identified by the similarity (1980) criteria are: Nigeria, Egypt, Ghana, Malaysia, Indonesia and Thailand.

According to the Organisation for Economic Co-operation and Development (OECD), foreign aid constitutes the financial flows, commodities and technical assistance which aim to enhance economic development and welfare in the recipient countries and can be provided in a form of grants or subsidised loans. This definition excludes military aid and any other non-development aid (OECD, 2018). The OECD divides aid flows into three main channels: ODA which contains aid provided by donors to low- and middle-income countries, official assistance which contains aid provided by donors to countries whose per capita income was more than \$9,000 in 2006 and private voluntary assistance which contains grants from charities, non-government organisations (NGOs), private companies and religious groups (Radelet, 2006).

2. Asia and Africa's growth history

Both Asia and Africa started from almost the same point in the early nineteenth century with respect to economic growth. Both continents enjoyed almost the same rate of economic growth for almost 100 years to the early twentieth century. Notably, between 1913 and 1949, Africa recorded a growth rate *10 times* that of Asia (Morrel, 2006). But from 1950 to at present, we have witnessed significant divergence in the growth rates of both continents, especially since 1972 and shortly after implementation of UN Resolution 2626 (XXV), despite the fact that Africa has been the largest aid recipient for a long period and receives far more aid than Asia (see Figure 1) (see Table I).

The objective of this paper is to test the impact of aid on growth in a small sample (see aforementioned) of Asian and African countries to determine whether it is one of the reasons behind the growth difference between them. This is an important question because, as discussed in Section 2, the results of more than 70 years of research have been at best contradictory. This paper, however, strongly demonstrates there is *no substantive or significant* relation between aid and growth sustainability or aid and growth divergence. First, we set out the development of the literature in this field over the past 70 years.

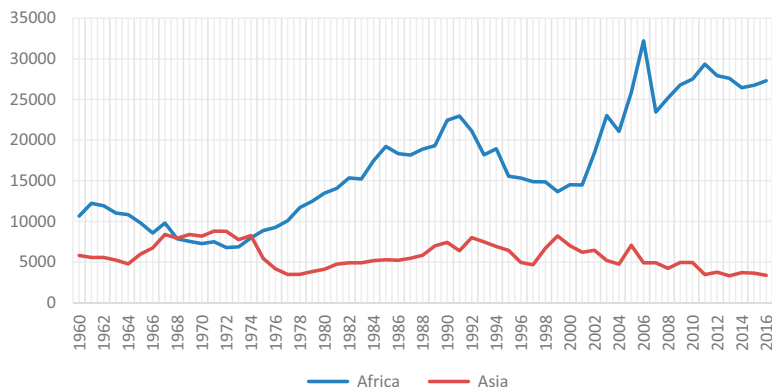
2. Literature review

2.1 Growth and development theories

Classical theory identified capital as the major determinant of growth and development and contends that a decrease in the capital stock can lower annual production which negatively affects real wealth. The early work of Adam Smith and David Ricardo, in the late eighteenth and early nineteenth centuries, respectively, argued that capital accumulation is the major determinant of growth, although Ricardo modified the argument by adding the concept of diminishing returns to land and argued that as growth increases, profits decrease due to rise

in wages to cope with the higher prices as a result of the increase in population and the scarcity of resources such as land. This was a development of the earlier Malthusian thesis focusing on the importance of saving and investment as drivers of growth and the concept of an “Optimum Propensity to Save”. Malthus argued that a certain amount of saving is needed in order to finance existing investment opportunities. However, if savings increase more than this amount, it will negatively affect consumer spending and discourage investment. Schumpeter (1954) on the other hand put great emphasis on the role of entrepreneurship and “basic innovations” in enhancing economic development theory. He argued that the key factor behind growth is the entrepreneur since development can only mean the introduction of new products, new methods of production, opening of new markets and the discovery of new materials and thus strongly supported the flow of foreign capital to less developed countries *if* it brought to them new skills and entrepreneurship.

Ragnar Nurske (1953) emphasised the importance of massive capital investment in developing countries as these countries are trapped in a vicious cycle of poverty, low investment, low productivity, low income and low savings; hence, a massive “push” is required to break out of the cycle, and this could be done with foreign aid. Lewis (1954) argued also that to transfer excess labour from the agricultural sector to the industrial sector requires significant capital imports and foreign aid could be a positive element in achieving this. Harrod and Domar in the 1930s and 1940s also argued that investment is the main determinant of growth, with the assumption that savings equal investments. They argued that developing countries’ domestic savings are insufficient to finance the required level of investments to achieve the desired level of growth; hence, foreign aid is needed to fill the gap. There is no doubt, since Adam Smith to the 1950s that capital centric growth literature has



Source(s): (OECD, 2018)

Figure 1.
Total official
assistance received by
Africa and Asia (US\$
millions)

Years	Asia	Africa	Total world
1820–1869	0.1	0.1	0.6
1870–1912	0.6	0.4	1.3
1913–1949	0.1	1.0	0.9
1950–1972	3.8	2.1	2.9
1972–1992	3.2	–0.1	1.2

Source(s): Morrel (2006)

Table I.
Economic growth by
region (annual %)
(1820–1992)

occupied a dominant position in the growth and development discourse. The literature specifically on the foreign aid–growth relation is not that different.

2.2 Foreign aid–growth theories

Some economists in both the early and recent literature argue that foreign aid is a promotor of economic growth through physical capital accumulation in the recipient countries, see [Nowak \(2014\)](#), for example.

Based on this, [Chenery and Strout \(1966\)](#) introduced the “two gap” model which included not only the saving gap but also a foreign exchange gap. They claimed that the foreign exchange gap occurs when a country’s foreign exchange earnings are insufficient to finance its import requirements; therefore, aid is required. [Bacha \(1990\)](#), [Easterly \(2003\)](#), [Trinh \(2014\)](#) and [Albiman \(2016\)](#) added fiscal deficit to create and test the “three gap” model arguing that developing countries suffer from a revenue gap and are unable to finance both public expenditure and public investment.

The “gap” approach, however, fails to include other important determinants of growth such as technological progress, the amount and the quality of natural resources and social and cultural characteristics of the economy. [Byers \(1972\)](#) and Michael [Lipton \(1990\)](#) are considered main critics of the foreign aid–growth models as they argue that these models are implicitly biased against a capital-intensive growth strategy without considering that each country has its own structural conditions. Also, capital accumulation is not the only problem facing developing countries as they suffer from other problems that are beyond the saving and foreign exchange constraints. This argument is also forwarded by [Pankaj \(2005\)](#).

The endogenous growth models were developed as an alternative to the Solow growth model. These models include not only physical capital as a promotor of growth but also a group of inputs such as human capital, technology, intermediate new goods, social capital, organisational capital and institutional design ([Easterly, 2003](#)). According to this model, the impact of foreign aid on growth can be estimated through factors other than capital accumulation. For example, it asserts on the importance of human capital in promoting growth. So foreign aid in the form of technical assistance and investment in education and healthcare systems contributes in building up human capital in the recipient country and fosters production which promotes growth. This model became widely used in aid–growth studies as it solves the drawbacks of the neoclassical models. Especially that it assumes increasing returns to capital which means that foreign aid can contribute to growth in the long run. It also assumes a non-linear relationship between growth and investment which leads to the case of measuring the quality of both investment and foreign aid ([Trinh, 2014](#)). This quality dimension is completely missing from the previous models.

The foreign aid–growth models have also been criticised in terms of foreign exchange earnings (the expenditure gap approach). The critique argues that the simple flows of unearned foreign exchange from outside such as foreign aid, remittances from nationals living abroad or in terms of petroleum exports are not very helpful in promoting growth. These flows have to be from exports produced inside the country to significantly contribute to growth ([Pankaj, 2005](#)).

This is consistent with the argument that developing countries resort to the easy option as they utilise their foreign exchange shortage to attract foreign aid instead of exerting effort in promoting exports. This foreign aid also contributes in “killing” the process of learning since resources are imported rather than used to produce domestically a key requirement for sustainable growth. This excludes countries from the process of acquiring knowledge, learning and developing new skills and technology through the process of production. This lost opportunity enhances dependence on aid by receiving countries (see [Shleifer, 2009](#)). The aforementioned theoretical insights and arguments, however, are to some extent contradicting. To examine which, if any, hold more sway, we need to turn to the empirical evidence.

2.3 Empirical literature

The past three decades have witnessed a massive number of studies on the aid–growth relationship with different ideological and methodological perspectives. This section provides an overview of previous empirical studies based on the four main phases which characterise the evolution of the aid–growth literature. The studies selected for analysis and comparison represent the key empirical work over the 70-year period the literature covers in this field (see Table II).

The early empirical literature focused on the impact of foreign aid on domestic savings or investment as main determinant of growth. Griffin and Enos (1970) conducted a study on 32 developing countries in the period between 1962 and 1964. They found that savings are inversely related to foreign aid and every extra dollar of aid increases consumption by 75 per cent and investment by only 25 per cent. Griffin and Enos argued that foreign aid will not support domestic resources (savings) as claimed by the Harrod–Domar model unless a country's propensity to save is equal to 1 since part of this foreign aid will be directed to consumption instead of savings. This result is supported by another study conducted by Griffin (1970) on Latin America in the period between 1961 and 1968 where he found that aid is a substitute for savings and a large amount of aid contributed to increased consumption rather than investment. He further argued that foreign aid could encourage recipient country governments to lower taxes or change the combination of their expenditure which negatively affects public savings.

Papanek (1972) conducted a study on 34 least developed countries in the 1950s and 51 countries in the 1960s and found that foreign aid negatively affected savings as he argued that as long as the impact of an extra unit of foreign sources on investment is lower than 1, it will have a negative impact on savings (Papanek, 1972). Weisskopf (1972) conducted a study on 44 countries over the post-war period and found a negative relationship between foreign aid and economic growth.

2.3.1 The second phase (aid and growth). Papanek (1972) argued that the focus on aid-effectiveness studies has to shift away from general aid–savings relations to examine the impact of aid directly on growth. He formulated a model of growth using foreign aid, domestic savings, foreign investment and other foreign capital inflows as separate independent variables. He found that foreign aid had a positive impact on economic growth with a coefficient of 0.39 which is higher than the impact on growth of other variables [2] (Papanek, 1973).

Stoneman (1975) re-ran the Papanek data in the period between 1945 and 1970 and found that the aid variable has a positive significant impact on growth with coefficients ranging between 0.26 and 0.501 while Dowling and Heimenz (1983), on Asian countries in the 1970s, found that foreign aid, domestic savings and the inflow of private capital positively contributed to economic growth. However, Mosely (1980) criticised these previous studies for having mis-specified equations and inappropriate tests. He took these drawbacks into consideration and estimated the impact of aid, saving and other financial flows on economic growth on 83 countries using a two-stage least square (2SLS) model with lag structure and

Studies	Countries	Time period	Impact of ODA on savings
Griffin and Enos (1970)	32 developing countries	1962–1964	Negative
Griffin (1970)	Latin America	1961–1968	Negative
Weisskopf (1972)	44 underdeveloped countries	Post-war period	Negative
Papanek (1972)	85 developing countries	1950s and 1960s	Negative

Table II.
First-phase studies

found that aid has a negative but insignificant impact on economic growth with a coefficient of -1.08 [3].

In order to obtain accurate results, he divided the sample into two income groups. The first group contains the poorest 30 countries and the other contains 53 middle-income countries. In the first group, aid was found to have a positive impact on growth with a coefficient of 0.98, while in the second group of countries, aid had a negative insignificant impact on economic growth (Mosely, 1980; also see Fayissa and El-Kaissy, 1999).

Hadjimichael *et al.* (1995) conducted a study on 31 sub-Saharan African countries in the period between 1987 and 1992 and found that aid has a positive impact on growth. Dimanche (2010) also found an insignificant negative relationship with growth for a sample of 79 countries in 2000.

Ferreira and Simoes (2013) conducted a study on a group of Asian and African countries and found that aid has a negative impact in both regions (Ferreira and Simoes, 2013). Mitra and Hossain (2013) found a similar result for the Philippines over the period of 1970–2010, and Gitaru's (2015) paper on Kenya over the period 1970–1995 also found a negative impact on growth. Finally, Albiman (2016) found that aid had a negative impact on growth in Tanzania over the period of 1976–2014 (see Table III).

2.3.2 *The third phase (aid, policy, governance and growth).* The term good policy is an index of the monetary, fiscal and trade policies. It is a linear combination of inflation, budget surplus and trade openness (see Quibria, 2014). Burnside and Dollar's research in aid effectiveness contributed positively in shaping donor policy. An example of this is research which argues that aid works but only under a good policy environment (see Mercieca, 2010).

Easterly (2003) tested Burnside and Dollar's (2000) approach but they expanded the data set to include the period from 1970 till 1997. They also tested how the results would change when different definitions for aid, growth and good policy are used in the original data set. But they failed to find any significant relation between aid and policy, despite the poor economic performance in sub-Saharan Africa (Easterly, 2003).

However, Durbarry *et al.* (1998) found that foreign aid has a positive impact on growth only in the context of a stable macroeconomic policy environment but in contrast found that aid has a positive impact on economic growth even in countries with poor policies (see also Tarp and Hansen, 2003). This is similar to the paper by Tang and Bundhoo (2017) focusing on

Table III.
Second-phase studies

Studies	Countries	Time period	The impact of foreign aid on growth
Papanek (1972)	85 developing countries	1950s and 1960s	Positive
Stoneman (1975)	Same as Papanek	1945–1970	Positive
Mosely (1980)	30 poor countries	1970s	Positive
	53 middle-income countries		Negative
Dowling and Heimenz (1983)	Group of Asian countries	1970s	Positive
Hajimicheal (1995)	31 sub-Saharan countries	1987–1992	Positive
Dimanche (2010)	79 countries	2000	Insignificant negative
Mitra (2013)	Philippines	1970–2010	Negative
Ferreira and Simoes (2013)	44 sub-Saharan and 31 Asian countries	1972–2007	Negative in both regions
Gitarv (2015)	Kenya	1970–1995	Negative
Albiman (2016)	Tanzania	1976–2014	Negative

10 African countries over the period of 1990–2012 – they found that aid did not affect growth; however, under good policies, it will lead to growth. Further, some studies started to test the aid–growth relationship with respect to the quality of governance (Tang and Bundhoo, 2017). But Biboh (2007) conducted a study on 65 developing countries over the period of 1998–2002 and found that aid did not affect growth and improvement in governance did not contribute to the effectiveness of aid, but conversely Adedokun's (2017) paper on sub-Saharan Africa over the period from 1996 to 2012 found that the quality of governance is essential for aid effectiveness (see Table IV).

2.3.3 The fourth phase (aid by sector and growth). Since the publishing of Official Development Assistance Data by sector in 1995 by the OECD, some studies focused on the impact of different *types* of aid on growth. Clemens *et al.* (2004) argued that the aid directed to support the budget, investments in industry, infrastructure and agriculture is more likely to have an impact on growth in the short run. They found that a \$1 increase in aid directed to these sectors increases income, on average, by \$1.64, while aid directed to support democracy, education, health and environment is more likely to have an impact on growth in the long run [4] (see also Minoiu and Reddy, 2010). Nilsson (2013) focusing on sub-Saharan countries over the period of 1995–2011 found that different types of aid flows have different impacts on growth while Mallik's paper on six African countries found that aid has a negative impact on growth where countries received more humanitarian aid than aid directed to production sectors (Mallik, 2008) (see Table V).

The numerous studies are inconclusive throughout the four phases of the literature, and this suggests that the empirical literature on the aid–growth relationship, however vast, has shed little light on the subject. This paper approaches the issue from a new perspective, not growth–aid *per se*, but growth divergence and aid. The method adopted to determine if there is such a relationship in the selected samples is discussed in the next section.

3. Sample selection

Three Asian and three African countries were selected for this study. Sample selection was based on two criteria: first, the classification of each country in terms of development stage at a given point in time must be the same and second, the “starting” point in terms of GDP per capita must be similar. In fact a completely different sample of six could have been drawn or an even larger sample and both meet these two criteria. Therefore, the results from the six countries are in fact no different from any other sample set using both criteria. In terms of the GCI classification at the start of the 1980s, all six were “low middle income, factor driven”

Studies	Countries	Time period	Good policy and good governance are important for aid effectiveness?
Dubarry (1998)	58 countries	1970–1993	Important
Burnside and Dollar (2004)	56 countries	1970–1993	Important
Easterly and Roodman (2003)	Same as Burnside	1970–1997	Not important
Bidoh (2007)	65 developing countries	1998–2002	Not important
Adedokun (2017)	Sub-Saharan Africa	1996–2017	Important
Tang and Bundhoo (2017)	10 African countries	1990–2012	Important

Table IV.
Third-phase studies

economies. In terms of GDP per capita (current prices), the following table shows the trend for both samples (see Table VI).

From the table it is clear that all six countries were experiencing very similar GDP per capita levels even up to the 1980s. They were therefore starting from the same point (even as far back as 1960) in terms of this criterion and their GCI classification. However, for the three African economies, their GDP per capita level as a percentage of global GDP per capita hardly changed between 1960 and 2015. For the three Asian countries, the trend is very different – almost equivalent with the Africa sample in 1960 but 2.4 times this by 2015. The strong divergence in the growth rates is particularly evident in Figure 2 where the gap has been increasing since the mid-1980s.

This is not the prediction of the convergence hypothesis (relative or absolute) to be found in neoclassical growth models but a complete contradiction of it. Nevertheless, this cannot be a conclusion to be made at this stage in the paper prior to closer analysis within an appropriate modelling framework. This is the subject of the next section of the paper.

4. Empirical model

In order to answer the question of this paper, ordinary least squares regression is applied based on endogenous growth theory because it has a broader concept for capital which not only includes physical capital but also includes human capital and increasing returns to scale. This model includes the main variables that affect growth used in Barro (1991) and includes foreign aid as an explanatory variable to avoid the problem of poorly specified models that prevail in many studies in the literature (see Durbarry *et al.*, 1998). A panel data fixed-effects model[5] is conducted for each sample (Africa and Asia) in the period between 1980 and 2015. Panel data are employed because this model has more advantages than cross-sectional and time series. It provides more informative data, more degrees of freedom, reducing collinearity

Table V.
Fourth-phase studies

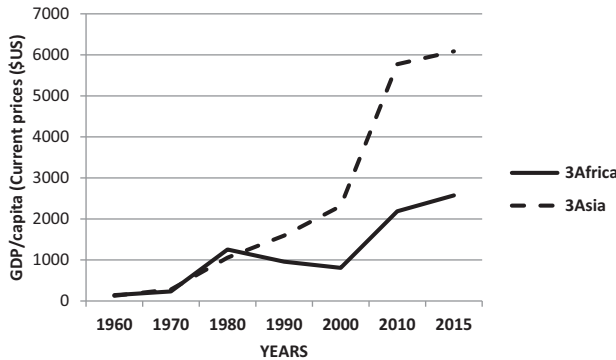
Studies	Countries	Time period	Different types of aid has different impacts on growth?
Clemens <i>et al.</i> (2004)	Sub-Saharan Africa	1990s	Yes
Mallik (2008)	Six African countries	-----	Yes
Nilsson (2013)	Sub-Saharan Africa	1995–2011	Yes

Table VI.
Average GDP per capita (\$US, current prices) – both samples

Year	World	Africa 3	% world	Asia 3	% world
1960	517	143	28	127	25
1970	920	234	25	282	31
1980*	2,346	1,256	54	1,056	45
1990	4,577	959	21	1,594	35
2000	5,368	808	15	2,314	43
2010	8,915	2,187	25	5,771	65
2015	9,806	2,574	26	6,086	62

Note(s): (*) The rapid increase from 1970 is due to a combination of high inflation in the 1970s and very high inflation in a number of commodities such as rubber, cocoa and of course oil

Source(s): World Bank and IMF (various years)



Source(s): Derived from Table IV

Figure 2.
Growth divergence
between the two
samples (1960–2015)

which leads to more efficient estimates (Kudlyak, 2002). The general representation of a panel fixed model is:

$$Y_{it} = \beta_0 + \beta_1 X_{it} + \dots + \beta_K X_{it} + \mu_i + U_{it}$$

Where t represents time, i represents cross section and μ represents the individual effect of each country.

The model can be written as follows:

$$GDP_{it} = \beta_0 + \beta_1 ODA_{it} + \beta_2 SAV_{it} + \beta_3 School_{it} + \beta_4 Trad_{it} + \beta_5 Inf_{it} + \beta_6 FDI_{it} + \beta_7 POP_{it} + \beta_8 CORR_{it} + U_{it}$$

Where i represents the number of countries and t represents years.

$$i = 1, 2, 3$$

$$t = 1980, 1981, 1982, \dots, 2015$$

The variables are described in the Appendix 1 to the paper.

The Levin, Lin and Chu test [6] was conducted to check the stationarity of the variables in both samples to ensure that the data does not have a unit root problem. It is found that School, Trade, Corruption, FDI and Savings are not stationary in both the African and Asian samples at the 5 per cent significance level (Table VII). The Kao residual co-integration test [7] was conducted to determine if there is a long-run relationship between the variables of the study. It is found that the variables are co-integrated in the African sample at a 10 per cent significance level and in the Asian sample at a 5 per cent significance level implying that there is a long-run relation between the study variables (Table VII). The correlation matrix (Table VIII) shows no multicollinearity, but there is a (very) weak insignificant relationship between aid and growth in both Asia and Africa. This is also reflected in the Granger test [8].

4.1 Asia sample (results and discussion)

With respect to the Asia sample, it can be observed from Table VIII that ODA as % of GDP has a negative relationship with economic growth (see Table IX).

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Table VII.
Levin and Chu test
results and the Kao test
results

Variables	<i>p</i> -value (Asian sample)	<i>p</i> -value (African sample)
GDP per capita growth	0.0000*	0.0016*
ODA	0.3478	0.006*
FDI	0.2745	0.2677
Corruption	0.3686	0.6572
Inflation	0.0000*	0.0005*
Population	0.0002*	0.0000*
Savings	0.1500	0.0830**
School	0.9621	0.9968
Trade	0.2941	0.2191
Kao test (<i>p</i> -value)	0.0000*	0.09**
Note(s): *Significant at 5% level; **Significant at 10% level		

Table VIII.
The correlation matrix
for Asia and Africa

Probability	GDP capita growth
ODA – GDP	–0.029 Asia (0.756) 0.0838 Africa (0.388)

This result is inconsistent with the expected positive signs of foreign aid theories (see aforementioned). But the negative result is consistent with several empirical studies such as [Griffin and Enos \(1970\)](#), [Weisskopf \(1972\)](#), [Papanek \(1972\)](#) from old literature and [Mallik \(2008\)](#), [Gitaru \(2015\)](#), [Mitra and Hossain \(2013\)](#), [Albiman \(2016\)](#) and [Ferreria and Simoes \(2013\)](#) from the recent literature. This negative growth effect could be due to several reasons: first as observed by [Burnside and Dollar \(2004\)](#), foreign aid can negatively affect growth in the absence of good policies and second, as observed by [Mallik \(2008\)](#), foreign aid is more likely to have a negative impact on growth if it is directed to more humanitarian aid rather than aid directed to production sectors. However, in this case the negative aid–growth relationship is more likely to be consistent with [Mallik’s \(2008\)](#) justification since the three Asian countries faced a declining trend in aid directed to both social infrastructure and production sectors over the entire period (see [Figures 3 and 4](#)).

Table IX.
Model results – Asia
sample

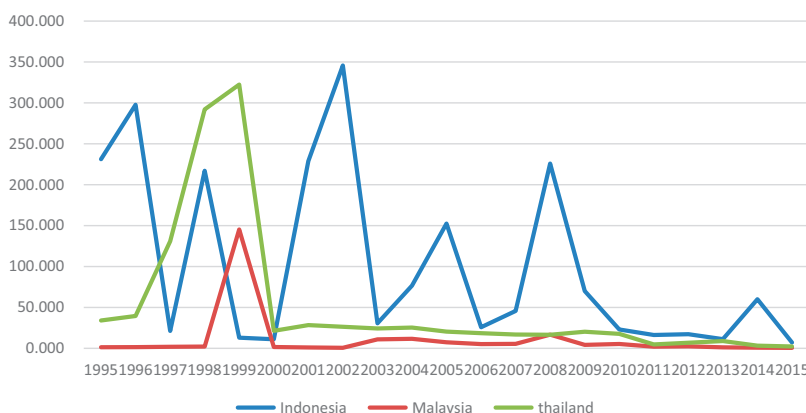
Variables	Coefficient	<i>p</i> -value
Dependent variable	GDP per capita growth	
ODA (% of GDP)	–1.470291	0.1127
Inflation	–0.277329	0.0000*
Population	–2.808912	0.0000*
Savings	0.072935	0.0378
School	–0.086701	0.0000*
Trade	–0.006280	0.7367
Corruption	–0.849350	0.0001*
FDI	0.200109	0.1778
<i>R</i> -square		47%
Prob. (<i>F</i> -statistic)		0.00000
No. of observations		108
Durbin–Watson statistic		1.58
Note(s): *significant at 5% significance level		

As reported in 2009, 45 per cent of aid was directed to social sectors and the production sector only receives 8 per cent (Quy, 2016). However, it is observed that this negative result is insignificant in the selected sample which is consistent with Mosely (1980) and Dimanche's (2010) findings. This might be as a result of the declining total amount of official development assistance directed to these countries which makes aid represent a negligible percentage of the growing GDP per capita of these countries (OECD, 2018) (see Figure 5).

However, this result contradicts Burnside and Dollar's observation because foreign aid did not affect growth in these selected countries even though they enjoy "good" policy (see World Bank, 2018a). The overall picture of these governance indicators shows that the selected Asian countries have a good (and stable) policies in place and in fact have been improving on most of these since the early 1990s. Inflation has an expected negative significant relationship with economic growth in the Asian sample. It is consistent with the expected signs retrieved from both the theory and the empirical studies.

Population growth has a negative significant relationship with economic growth. This is consistent with both theory and Morrell's empirical study in 2006 [9]. It affects the economy negatively through increasing government expenditure on education, health care as argued by Morrell. Over the time period of this study, this result indicates that the elderly have grown to occupy a larger portion of the population of the Asian sample than working people (World Bank, 2018b). Savings have a positive significant relationship with economic growth. This result is consistent with theory and some of the empirical studies such as Papanek (1973) and Jagadeesh (2015) [10]. The negative coefficient for "school" is a surprise and inconsistent with the theoretical literature; however, as argued by Abdullah (2013), this may well be due to the fact that it may not be a factor of production that leads to growth in the short run.

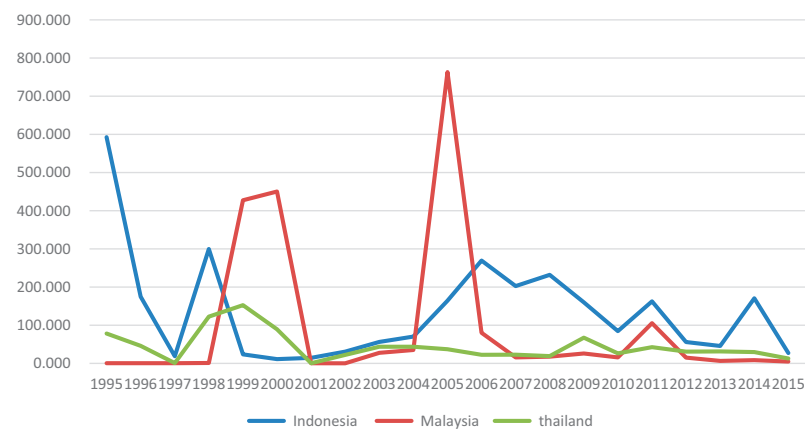
Trade has a negative insignificant relationship with economic growth and is also unexpected (although the coefficient is itself trivial). Of course trade openness is not a guarantee for growth, and this could be attributed to the limitations associated with the measure of trade openness indicators. For instance, if trade (% of GDP) is used as measure of trade openness as conducted in this study, for countries that depend more on imports than exports, higher trade openness might not lead to growth (See Mitra and Hossain, 2013). In addition, a close examination of this particular data reveals that, for the selected Asian countries, both exports and imports have been decreasing in the period of 1980–2015, and this is likely to be one important reason contributing to the negative insignificant trade–growth relationship (World Bank, 2018b).



Source(s): (OECD, 2018)

Figure 3.
Total ODA directed to
production sectors in
the Asian sample
(1980–2015) (US\$
millions)

Figure 4.
Total official
development
assistance (ODA)
directed to social
infrastructure in the
Asian sample (1980–
2015) (US\$ millions)



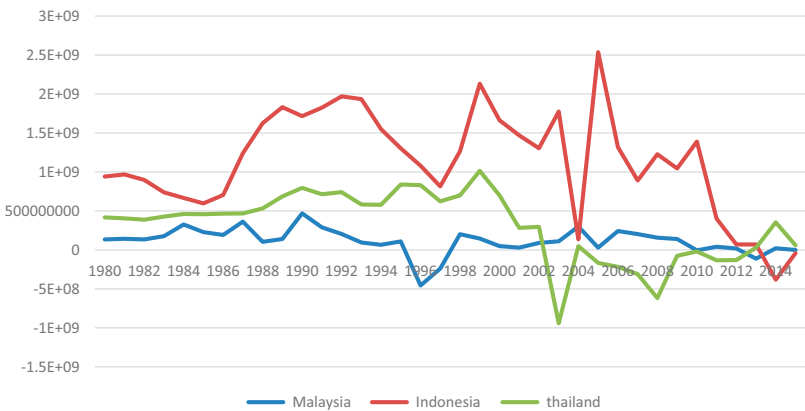
Source(s): (OECD, 2018)

Corruption has a negative significant relationship with economic growth. This is consistent with the expected sign in theory and some of the empirical work such as [Murphy and Tresp \(2006\)](#). FDI has a positive insignificant relationship with economic growth and is consistent with [Stoneman \(1975\)](#). Finally, the independent variables used in the model succeed in explaining 47 per cent of the variation in the dependent variable (GDP per capita growth). The model overall is significant (Prob statistic of 0.0000 at $\alpha = 0.05$) and the Durbin–Watson statistic is 1.58 indicating little autocorrelation present in the time series. We now move to the model results for the African sample.

4.2 Africa sample (results and discussion)

As with the Asia sample, the aforementioned shows a negative relationship between aid and growth and is also insignificant even though the three African countries received considerably more aid during the period of study (see [Table X](#)).

Figure 5.
Total official
development
assistance (ODA)
received by the Asian
sample (current US\$)
(in millions)



Source(s): (OECD, 2018)

Variables	Coefficient	<i>p</i> -value	Foreign aid contribution to economic growth
Dependent variable	GDP per capita growth		
ODA (% of GDP)	−0.029388	0.7237	261
Inflation	−0.060695	0.0000*	
Population	−0.275443	0.7846	
Savings	−0.22765	0.3800	
School	0.002136	0.9790	
Trade	0.050231	0.0001*	
Corruption	−0.393847	0.0470*	
FDI	0.316509	0.0000*	
<i>R</i> -square		33%	
Prob. (<i>F</i> -statistic)		0.00000	
No. of observations		108	Table X. Model results – Africa sample
Durbin–Watson statistic		1.7	
Note(s): *Significant at 5% significance level			

However, this could be as a result of the declining trend of aid directed to production sectors while increasing amounts of aid were directed to humanitarian purposes (OECD, 2018) (see Figures 6 and 7).

In contrast to the Asian sample results, the argument of Burnside and Dollar does hold significant sway in the African case. This is because, on almost all elements of the governance spectrum, the African sample demonstrates steep declines. All three African countries have become worse in terms of government effectiveness and rule of law, and only two countries have improved in terms of control of corruption, but by a negligible amount (World Bank, 2018b). A poor policy environment may well have contributed strongly to a failure to properly use it. The authors conducted a very careful examination of the WB governance index from 1996 to 2018 and found, disappointingly, that the continent as a whole has actually regressed on all indicators (see Figure 8).

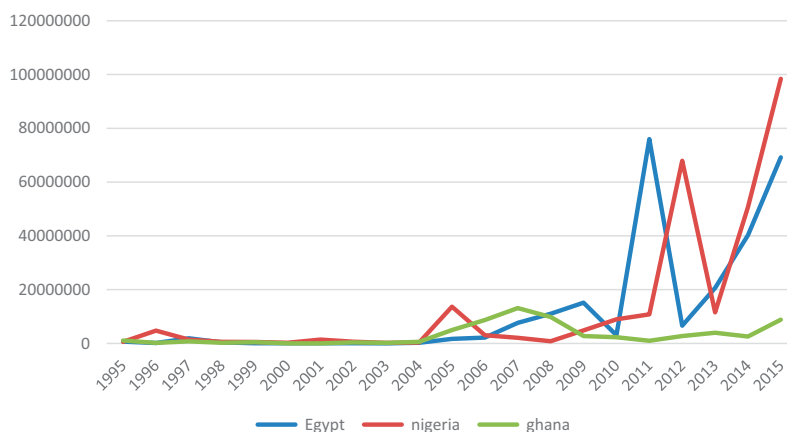
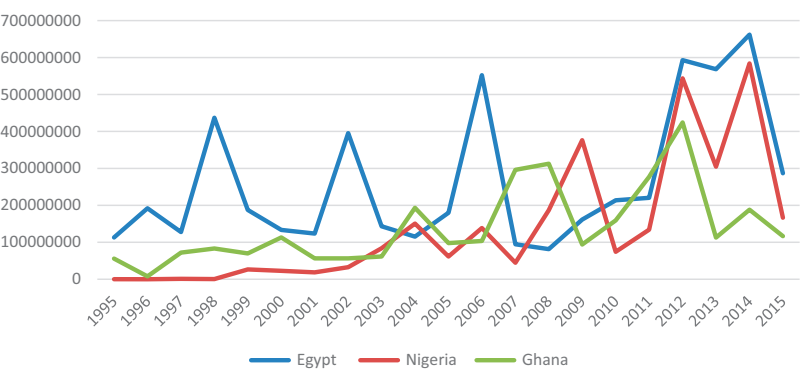


Figure 6.
Humanitarian aid in
the African sample
(1995–2015)

Source(s): (OECD, 2018)

Figure 7.
Total ODA directed to
production sector in the
African sample
(1995–2015)



Source(s): (OECD, 2018)

The contrast with Asia could not be greater. In this continent, the majority of countries have improved on all three of these indicators. The strong decline in Africa may well go some way to explain why aid flows became more of the humanitarian type than productive type in the 2000s. And, as pointed out earlier, taking any other three African countries as the sample actually makes no difference to the model results. Population growth has a negative but insignificant relationship with economic growth. This is in agreement with the empirical works of [Grier and Tullock \(1989\)](#) [11] and [Morrell \(2006\)](#) [12]. This puts pressure on governments to provide social infrastructure especially that in Africa the quality of the provided public services whether education or health care is poor, and even this investment

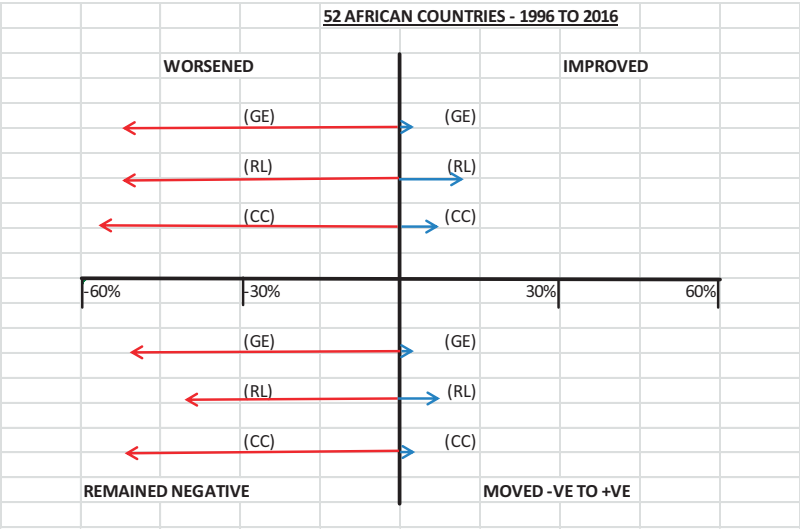


Figure 8.
Negative trend of
governance in Africa
over 20 years

Note(s): GE=government effectiveness; RL=rule of law; CC=control of corruption
Source(s): Calculated from World Bank (2018a)

means that it will not be reflected in a productive labour force who can contribute to the economy in the future (Thuku *et al.*, 2013). However, this result is insignificant to growth in Africa, and the variation in population growth should not necessarily be associated with the variation in economic growth (see Kling *et al.*, 1994). Savings have a negative insignificant relationship with economic growth. This result is inconsistent with the theory, but it is consistent with some empirical studies such as Hailu (2015) [13]. This result could be because gross savings as percentage of GDP for the three African countries remained extremely low even by the 1980s, only began increasing in the late 1990s and have continued to fall since 2012 (World Bank, 2018b).

School exhibits a positive but insignificant relationship with GDP per capita. This result is insignificant in Africa because the poor quality of education prevents it from contributing to growth in the three selected African countries (see Duc, 2006). Trade has a positive significant relationship with economic growth. The more the trade increases by 1 per cent, the more the trade increases on average by 0.05 and is similar to the findings of Durbarry *et al.* (1998). Corruption exhibits a negative significant relationship with economic growth as expected in the model (see also Murphy and Tresp, 2006). FDI exhibits a positive and significant relationship with economic growth in the African sample as expected.

Finally, the independent variables used in the model succeeded in explaining 33 per cent of the variation in the dependent variable. The model overall is significant (Prob statistic of 0.0000 at $\alpha = 0.05$). The Durbin–Watson statistic is 1.7; therefore, there is little autocorrelation. The *R*-square values for both samples are consistent with the *R*-square prevailing in the literature which averages between 30 and 62 per cent. After testing for the impact of aid on both the Africa and Asia samples, it is clearly evident that foreign aid has a negative although insignificant impact on both of their growth paths. Consequently, it has not contributed to the growth divergence between Asian and African economies.

5. Conclusion

This paper finds that foreign aid has had *no* impact on growth in both the Asia and Africa samples. The fixed-effects panel model found that foreign aid, in fact, has a negative but insignificant impact on growth in both Asia and Africa. This result is consistent with other empirical studies, but the latter were conducted over a much shorter time series. This negative insignificant result is attributed to many reasons in both regions. First with respect to Africa, most of the aid directed to these countries is directed to sectors that do not contribute to growth and also could be due to the misuse of aid as a result of the poor institutional quality prevalent in these countries and evidently becoming worse. The strong and negative significant corruption coefficient in the African sample is testament to this. Second with respect to Asia, aid flows have been decreasing in these countries over most of the time span of the study and thus have had a negligible impact on growth. Finally, since aid has no impact on growth in both regions, this means that foreign aid is not one of the factors that contribute to either growth *or* growth divergence between Asia and Africa during the period of 1980–2015.

This result cannot be generalised because it only focuses on six countries but as demonstrated in the paper, other possible samples (from both regions) actually make no difference to the results. It could also be argued (given the comprehensive literature analysis presented here) that it is not essential to have a theoretical relationship between aid and growth because aid is given to different countries with very different characteristics, needs, governance and policy environments. Aid programmes are also distributed by different donors with different strategic or political motives.

In order to improve the effectiveness of foreign aid, especially in Africa which receives a large flow of aid, we recommend the following: for donor countries (and multi-lateral sources

of aid), much greater attention needs to be paid to their supervisory role to ensure that aid flows are directed to the right channels in the recipient countries. The “one size” aid programmes do not fit all countries and donors need to properly study the recipient countries closely to determine their essential needs and problems and tailor their aid programmes and projects to be more consistent with these. This cannot be done effectively unless it is done in partnership with receiving countries. The donors have to make sure that aid flows go to the countries who need it for development purposes and not because the donors need it for political and/or strategic purposes. Aid should be given to countries which have some degree of macroeconomic stability and a good policy environment to avoid waste, while at the same time it needs to include incentives to ensure it is effectively applied where it is intended. In this respect, the sectoral distribution of aid requires much closer attention. As evidenced in this paper, there has been a systematic reduction in aid flows to the production sectors (especially in Africa) but a rapid expansion to social sectors.

To complement the aforementioned, recipient countries have to improve the allocation of aid through directing aid flows to the sectors that contribute to growth such as economic infrastructure, industry and agriculture and reverse the trend of poorer governance (in Africa) in order to prevent misuse of aid. Relatedly it is of paramount importance that they achieve and maintain a level of accountability and transparency for their institutions all of which need to have clear and effective policies to manage aid flows and measure their performance through time. The volatility of aid flows also presents a problem for many recipient countries such that a shift away from aid dependency has to become the number one strategic objective at least in the medium term.

Notes

1. DAC (Development Assistance Committee) of the OECD. China is not a member of the DAC, but its aid to Africa as opposed to investment is extremely small over the analysis period. According to the Chinese Foreign Ministry, over 94 per cent of China aid is in fact development finance.
2. Papanek (1973) obtained, $Y = 1.5 + 0.20 S + 0.39 \text{ Aid} + 0.17 \text{ FPI} + 0.19 \text{ OFI}$, where S is savings, FPI is the foreign private investment and OFI is other capital inflows. R^2 equals 0.37 (Papanek, 1973).
3. Mosely (1980) obtained, $\text{Growth} = 5.00 - 1.08 (\text{Aid/GNP})_{t-5} - 0.34 (\text{Otherforeignflows/GNP})_{t-5} + 0.10 \text{ savings}$, R^2 equals 0.28 (Mosely, 1980).
4. Which is consistent with the prediction of the endogenous growth model (See Section 2).
5. Fixed regression is used because the selected countries in each sample have common characteristics.
6. Levin, Lin and Chu test is a panel unit root test, Null: there is a unit root, Alternative: there is no unit root.
7. The Kao test is a panel co-integration test. Null: not co-integrated, Alternative: the variables are co-integrated.
8. In the preparation phase of the model, the Granger causality test was applied, and it was found that there is no reverse causation in the model. The tests results are not reported in the paper simply because there is no evidence in the data of any kind of forward or feedback effects.
9. A study on the factors that contribute to the divergence of economic performance between Asia and Africa. He found that population growth contributes negatively to growth in both regions (Morrell, 2006)
10. Jagadeesh (2015) conducted a study on Botswana in the period between 1980 and 2013 and found that savings have a positive impact on economic growth (Jagadeesh, 2015).
11. Grier and Tullock (1989) found that population growth is insignificant to economic growth in Africa in the period between 1980 and 1995 (Grier and Tullock, 1989).

12. Morrell (2006) found that population growth has a negative impact on economic growth in Africa (Morrell, 2006).
13. He conducted a study in Ethiopia in the period between 1975 and 2013 to determine the relation between savings and economic growth concluding that savings have a negative insignificant relationship with economic growth in Ethiopia (Hailu, 2015)

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Appendix 1

Variable descriptions

The following table provides an accurate explanation for the adopted variables and how they are calculated by the reporting organisations

Variable name and symbol	Explanation and calculations
GDP per capita growth (annual %) – GDP Source: World Bank	(1) Annual % growth rate of GDP per capita based on constant 2010 US\$. GDP per capita is the gross domestic product divided by midyear population
Net official development assistance received (as % of GDP) – ODA Source: Organisation for Economic Cooperation and Development (OECD)	(1) Net official development assistance (current US\$) consists of disbursements of loans made on concessional terms and grants by the official agencies of the Development Assistance Committee (DAC) members, by multilateral institutions and by non-DAC countries to DAC list of ODA recipients countries (2) It is calculated as % of GDP by the author through divided by the net official development assistance received (current US\$) by GDP (current US\$) then multiplied by 100
Gross Savings (% of GDP) SAV Source: World Bank	(1) It is the difference between disposable income and consumption. It is calculated as gross total income minus total consumption plus net transfers
Gross enrollment ratio, secondary, both sexes (%) – school Source: World Bank	(1) It is the ratio of total enrollment to the population of the age group that officially corresponds to the level of secondary education (2) Secondary education completes the basic education that is started in the primary level and provides the foundations for life-long learning and human development (3) It is used in the literature as a proxy for human capital
Trade (% of GDP) – Trad Source: World Bank	(1) Is the sum of exports and imports of goods and services measured as a share of gross domestic product
Inflation, consumer prices (annual %) – INF Source: World Bank	(1) Inflation as measured by the consumer price index reflects the annual percentage change in the cost to the average consumer of acquiring a basket of goods and services that may be fixed or changed at specified intervals, such as yearly. The Laspeyres formula is generally used
Foreign direct investment, net inflows (Bop, current US\$) – FDI Source: World Bank	(1) It refers to direct investment equity flows in the reporting economy. It is the sum of equity capital, reinvestment of earnings and other capital (2) Direct investment is a category of cross-border investment associated with a resident in one economy having control or a significant degree of influence on the management of an enterprise that is located in another economy (3) Ownership of 10 per cent or more of the ordinary shares of voting stock is the criterion for determining the existence of a direct investment relationship. Data are in current US dollars

(continued)

Variable name and symbol	Explanation and calculations
Population growth (annual %) – PoP Source: World Bank	(1) Annual population growth rate for year t is the exponential rate of growth of mid-year population from year $t-1$ to t , expressed as a percentage. Population is based on the de facto definition of population, which counts all residents regardless of legal status or citizenship
Corruption perceptions index (CPI) – CORR Source: Transparency International	(1) The Corruption Perceptions Index (CPI) annually ranking countries by their perceived levels of corruption, as determined by expert assessments and opinion surveys (2) It ranks from 100 (very clean) to 0 (highly corrupt) (3) It defines corruption as “the misuse of public power for private benefit”

Corresponding author
John Adams can be contacted at: j.adams@hw.ac.uk