

## Does Foreign Aid Act as an Instrument of Economic Growth in India and Sri Lanka?

*(Adakah Akta Bantuan Asing sebagai Instrumen Pertumbuhan Ekonomi di India dan Sri Lanka?)*

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### ABSTRACT

*Foreign aid is considered as an important instrument of the foreign policy of states. It acts as a major source of foreign exchange earnings for developing countries. Therefore, it is regarded as a basic pillar of developmental process. This study the trends and composition of foreign aid inflows in India and Sri Lanka. This study also empirically examines the relationship between foreign aid or Overseas Development Assistance (ODA) and economic growth for India and Sri Lanka using the annual data 1960-1961 to 2014-2015. Further, this study aims to test the causal relationship among foreign aid with other macroeconomic variables such as domestic investment, financial sector development and trade, and inflation rate of these countries. This study employed Johansen and Juselius (JJ) (Johansen & Juselius 1990) procedure of testing for the presence of multiple cointegrating vectors. This study also used Vector Error Correction (VECM)-Granger Causality test to find out the short run dynamic equilibrium relationship among the variables. The empirical results show that there are both short and long run equilibrium relationships existing between foreign aid and economic growth with other macroeconomic variables in both the countries. However, the direction of inter-linkage between foreign aid and economic growth contradicts to each other in case of India and Sri Lanka, both in short run and long run. The error correction term is positive and significant in selected macroeconomic variables indicating a long-run causality in India and Sri Lanka.*

*Keywords: Foreign aid; economic growth; India; Sri Lanka*

### ABSTRAK

*Bantuan asing dianggap sebagai instrumen penting bagi dasar negara asing. Ia bertindak sebagai sumber utama pendapatan pertukaran asing bagi negara membangun. Oleh itu, ia dianggap sebagai perkara asas bagi proses pembangunan. Kajian ini mengenai trend dan komposisi aliran masuk asing di India dan Sri Lanka. Kajian ini juga mengkaji secara empirikal hubungan antara bantuan luar asing atau Bantuan Pembangunan Luar Negara (ODA) dan pertumbuhan ekonomi bagi India dan Sri Lanka menggunakan data tahunan bagi tahun 1960-1961 hingga 2014-2015. Selanjutnya, kajian ini bertujuan untuk menguji hubungan kasual antara bantuan asing dengan pemboleh ubah makroekonomi lain seperti pelaburan domestik, kewangan sektor pembangunan dan perdagangan, dan kadar inflasi bagi negara-negara ini. Kajian ini menggunakan prosuder Johansen dan Juselius (JJ) (Johansen & Juselius 1990) untuk menguji kehadiran pelbagai vektor kointegrasi. Kajian ini juga menggunakan ujian Vector Error Correction (VECM)-Granger Causality untuk mengetahui hubungan keseimbangan dinamik jangka pendek antara pemboleh ubah. Keputusan empirikal menunjukkan bahawa terdapat hubungan antara keseimbangan jangka pendek dan panjang yang ada antara bantuan asing dan pertumbuhan ekonomi dengan pemboleh ubah makroekonomi lain bagi kedua-dua negara. Bagaimanapun, arah hubungan antara bantuan luar dan pertumbuhan ekonomi bercanggah antara satu sama lain dalam kes India dan Sri Lanka, dalam jangka pendek dan jangka panjang. Istilah pembedahan ralat adalah positif dan signifikan dalam pemboleh ubah makroekonomi terpilih yang menunjukkan kausaliti jangka panjang di India dan Sri Lanka.*

*Kata kunci: Bantuan asing; pertumbuhan ekonomi; India; Sri Lanka*



## INTRODUCTION

Foreign aid refers to external assistance from third parties, usually by the multilateral organizations and advanced economies to support a country's economic growth. The form of foreign aid is classified as humanitarian aid, where relief supplies and personnel are provided to support the immediate needs of a nation. This generally refers to the provision of emergency supplies of food and medicines in a war-torn or disaster-struck country. The second form of foreign aid is known as Official Development Assistance (ODA) which supports to alleviate poverty for a longer period. Typically, ODA comes in the form of financial or technical support that develops a country's physical infrastructure such as education and health sector. There have been some instances where the recipients of ODA have utilized these funds to develop the nation's primary industries or to spur sufficient structural changes to attain long-term economic growth and development. Feeny and McGillivray (2008) have suggested four major determinants that affect aid effectiveness, i.e., (a) aid has decreased returns; (b) aid effectiveness is influenced by external and climatic conditions; (c) aid effectiveness is influenced by political conditions; and (d) aid effectiveness depends on institutional quality. Foreign aid has played an important role in the economic growth several developing countries.

Economic growth is necessarily a holistic process for a country's survival. Currently, achieving a higher rate of economic growth is the ultimate objective of the national plans, programs and foreign policy of almost all the economies in the world. Foreign aid is considered as the major instrument for financing the developmental programs of the developing countries via supplementing domestic sources of finance, such

as savings, thus increasing the amount of investment and capital stock. There are a number of mechanisms through which aid can contribute to economic growth, for instance: (a) aid increases investment in physical and human capital; (b) aid increases the capacity to import capital goods or technology; (c) aid supplements the scarce domestic resources and acts as a source of foreign exchange earnings; (d) aid is associated with technology transfer that increases the productivity of capital and promotes indigenous technical change; and (e) aid also brings other crucial resources for development such as managerial skills, organizational capability, research ideas and market access (Morrissey 2001). The major contribution of foreign aid towards underdeveloped economies can be evaluated by its role in filling two major gaps; (1) saving- investment gap; and (2) export-import gap.

Foreign aid can be put into the following five major categories for the convenience of this study which is classified on the basis of its objectives, terms and conditions, time period, resources transfers, etc. All the five types of aid can take both the forms of loans and grants:

1. **Economic Aid:** It includes that assistance which is meant for the socio-economic and human development of the recipient country. It aims to increase the welfare of the society in the long run. This type of aid is mainly given to the developing countries having a strong economic foundation.
2. **Financial Aid:** It refers to that assistance which is meant to meet the financial crisis faced by the recipient country only for a temporary period. It is just meant to postpone the present problems to the future. Mainly this type of assistance is given to the under developed countries (UDCs) and the lower

TABLE 1. Classification of Aid Inflows

Sl. No.	Classification of Foreign Aid	Sub-groups	Area of Investment	Favorable	
				Donors	Recipient
1	Economic Aid	Development Aid ODA Humanitarian Aid	Socio-economic heads, Education, Research and Development, basic infrastructure, productive activity,	less	More
2	Financial Aid	Emergency Aid Budget Support	BoP deficit, Budget Constraint, Debt repayment, Capital Account deficit	More	Less
3	Technical Aid	Program aid Project aid	Building of any buildings, agricultural production, basic resources surveys, administrative services, health care services	Less	More
4	Military Aid	Military Aid Security Aid	Arms and ammunitions, defense sector	More	Less
5	Food Aid	Food Aid PL 480	Providing food and cash to fight against hunger	Less	More
6	Tied Aid	A certain percentage aid is spend on import from the donor country		More	Less
7	Untied Aid	The total aid amount spend by the recipient country		Less	More

Source: Author's Compilation

middle income countries in their initial stages of economic growth.

3. **Technical aid:** it refers to that assistance given to LDCs by international organizations such as the United Nations (UN) and individual governments, foundations, and institutions which aims to provide the basic expertise needed to promote growth.
4. **Military Aid:** it refers to that assistance which is provided to assist an ally in the defense sector to help fight against another country. It is given to the poor countries to maintain control over its own territory.
5. **Food Aid:** Food aid is given to countries in urgent need of food supplies, especially if they have just experienced a natural disaster.

Foreign aid is considered as an important instrument of the foreign policy of states. It acts as a major source of foreign exchange earnings for developing countries for this it is regarded as a basic pillar of the growth process. After the Second World War, foreign aid has been one of the major sources of external finance for developing countries. Even before the First World War, foreign capital was used as a profitable investment. However, it was only in the post war period that the flow of foreign aid began in a planned way, when developed western countries started contributing primarily for the growth of infrastructure, alleviation of poverty, emergency relief, peacekeeping efforts and socio-economic reconstruction programs of their war time allies.

South Asian region is the second poorest region in the world after Sub-Saharan Africa. It is the home of more than 1.59 billion populations (22.9% of total world population), which makes it both the most populous and most densely populated geographical region in the world (World Bank Report, 2011). It is home to the half of the world's poor. Most countries of this region depend on foreign capital, in general, and on foreign aid, in particular, for their growth process. Among these countries, India and Sri Lanka are the two major emerging developing nations of this region that attracted foreign aid. According to the World Bank, Sri Lanka has received a total of USD18.2 billion of net ODA since 1960. Despite the social improvements, especially with regard to health and education, Sri Lanka's economic growth lags behind that of many of its East Asian neighbors. Furthermore, there are pockets where poverty has become increasingly entrenched, thus making income inequality even more pronounced. This trend questions the role and the sustainability of ODA in Sri Lanka's future economic growth. Due to insufficient capital formation, both the countries fully or partially depend on foreign capital to accelerate the process of economic growth. Sri Lanka is getting major part of foreign aid both from multilateral and bilateral donors that focus on eradicating the chronic poverty. Foreign aid is part of the official investments in a country whose

ownership belongs to the non-residents. These countries suffer from many drawbacks such as extremely low saving rate, backward technology, shortage of foreign reserve, low per capita income, etc. Foreign Aid aims at improving these draw backs and as a result, these countries are turned into most attractive foreign capital destinations in South Asia. While considering both the positive and the negative aspects of foreign aid, it seems to be a controversial issue to identify whether foreign aid can be a decisive factor in the economic growth of India and Sri Lanka.

#### ROLE OF FOREIGN AID ON ECONOMIC GROWTH IN INDIA AND SRI LANKA

In the era of globalization and economic integration, the importance of foreign capital in accelerating the growth process of a developing country like India and Sri Lanka is essential and unique. The current wave of financial globalization and its aftermath has been marked by the huge transfer in international capital flows to the developing economies which assumes that huge amount of foreign capital inflows leads to high economic growth in the developing countries (Prasad et al. 2005).

#### ROLE OF FOREIGN AID IN INDIA

In the case of Indian economic growth, there was a sort of ideological and psychological barrier to the use of foreign aid in the pre-war period. In the postwar period, it is found that there is change in the attitude towards the utilization of foreign aid. The Industrial Policy Resolution of Government of India in 1948 opened the door to foreign capital. But there was one condition, that the major interest or ownership and adequate opportunities for training the Indian personnel were to be provided. The inflow of external economic assistance in India after independence began with drawings on the IMF in early 1948 to provide for hard currency needs. Later in 1949, the World Bank made its first loan to India for the expansion and modernization of the Indian Railways. The Colombo Plan came into existence in January 1950 for industrial and general economic growth of the south and South East Asian Countries. This plan came into operation on 30th June, 1951. India is one country which received large amount of aid through the Colombo Plan for its economic growth (A council for technical cooperation with headquarters in Colombo offers assistance in planning, Public Administration, Health Services, Scientific Research Agricultural and Industrial activities, and the training and equipment of personnel). Funds came from the common wealth countries, the United States and the International Bank for Reconstruction and Development.

## ROLE OF FOREIGN AID IN SRI LANKA

Sri Lanka has been for long recipient of foreign aid which has played an important role in contributing to the capital expenditure of the budget. The access to Official Development Assistance (ODA) was from international donors, primarily Japan, ADB and the World Bank, and this enabled the country to carry out development activity. As a result, the larger amount of foreign debt stock of Sri Lanka has long repayment horizons and therefore does not place substantial pressure on short term repayment. Nonetheless, Sri Lankan fiscal management over the years has been weak, which often is manifesting in unstable macroeconomic outcomes.

Sri Lankan government found itself in an unstable macroeconomic position in 2009 and early 2010, particularly in terms of its fiscal situation. As a result of which during the global economic crisis in 2008-09, the economy faced a significant downturn in government revenue and due to increase in public expenditure in 2009 the budget deficit reached 9.7 percent of the Gross domestic product (GDP). The Sri Lankan government entered a Stand by Arrangement (SBA) with IMF in July 2009 which stipulated that budget deficit for 2007 should be maintained at 7 to 7.5 percent of GDP.

The spending power of the Sri Lankan government is to a great extent curtailed by the fiscal environment. In such situation, borrowing becomes necessary. Domestic borrowing could be problematic since it could create upward pressure on interest rates, thereby narrowing private investment. According to Sri Lanka's technical MoU with the IMF, there is ceiling on domestic borrowing. External borrowing is the alternative and this could be achieved either through financial markets or concessionary borrowing from donors. The other external factor which influences the potential necessity of foreign aid in a post conflict economy creates the gap between the foreign exchange reserve requirements for post conflict reconstruction and foreign earnings. With recovery of global the economic crisis, the import intensity of reconstruction measures could be substantial. This may not be a major short run concern in Sri Lanka, as despite the fact that prospect for export earnings in the short run are not potential, foreign exchange inflows due to remittances and short

run capital flows have particularly supported the foreign exchange reserve position of Sri Lanka. At the same time, it should be kept in mind that such a situation was made possible due to the increased investor confidence in the Sri Lankan economy which was influenced by the Stand by Arrangement (SBA) and IMF.

## TRENDS AND COMPOSITION OF FOREIGN AID INFLOWS TO INDIA AND SRI LANKA: SOME STYLIZED FACTS

This section discusses about the trends and composition of foreign aid inflows to India and Sri Lanka. We have discussed about the composition, major donors, both bilateral and multilateral, and trends of inflows in detail. Due to unavailability of data, data up to 2007 and 2005 for India and Sri Lanka, respectively, has been used from officially trusted and published data sources.

## COMPOSITION OF FOREIGN AID INTO INDIA

Foreign aid is constituted by both loans and grants. In the initial periods of planning, a major portion of the foreign aid was coming in the form of loans, while only a small portion took the form of the grants element. During the first ten Five Year Plans, loan amount accounted for 90% of the total assistance while the rest 10% was in the form of grants. Major share of loan amount caused a significant reduction in the country's foreign exchange reserves due to the huge amount of external debt service. The grant amount increased to 13.39% during the Tenth Plan in comparison to 11% in the Second Plan Period. Up to the third plan period (1961-66), loans from multilateral donors accounted for only 19% while the rest 81% was accounted by the bilateral donors. Only after the 1970s, multilateral institutions began to improve their share in the foreign aid transfers to India (Sahoo & Sethi, 2013).

## MAJOR MULTILATERAL DONORS TO INDIA

Foreign aid is provided by both multilateral and bilateral donors to India which generally takes two forms, i.e., loans and grants. Multilateral aid is given through the mediation of an international organization, i.e., the

TABLE 2. Major Multilateral Donors (Rupees in Crores) Donor

Donor	Years						
	2000-01	2001-02	2002-03	2003-04	2004-05	2005-06	2006-07
World Bank (IDA)	4870.99	5728.09	4303.49	4178.27	4631.61	5363.48	4306.38
World Bank (IBRD)	3375.82	3636.12	3250.08	4087.42	3725.06	4199.73	4438.64
Asian Development Bank (ADB)	2145.11	1913.63	2588.04	2744.97	2148.58	2682.3	4060.31
Total Multilateral Assistance	10540.8	11530.2	10337.54	11137.63	10680.74	12466.03	13221.08

Source: Government of India. Indian Public Finance Statistics, various issues. Ministry of Finance, New Delhi.

World Bank, IMF, ADB, etc., which collects donations from rich countries' governments and then distributes them to the recipients at the time of need. Multilateral assistance constitutes nearly 70% of the total foreign aid inflows to India. The major multilateral donors of India are World Bank, IDA, IBRD, IMF and ADB. Out of total multilateral assistance, both IBRD and ADB accounted 64% of the total loan amount whereas the grant constituent a small portion. The following Table 2 shows the external assistance provided by the major multilateral donors to India.

The World Bank provides concessional lending through IDA and market based lending through the IBRD. The total assistance provided by IBRD in the form of loans to India was US\$ 31262.262 million as on December 2008. The main sectors for which IBRD assistance has been provided are roads and highways, energy, urban infrastructure (including water and sanitation), rural credit and the financial services sector. The total assistance provided by IDA in the form of credits to India was US\$ 32937.56 million as on December 2008. During the period from January 2009 to December 2009, another additional amount of US\$ 547 million was sanctioned to raise the total amount up to US\$ 33484.56 million. Health, education, agriculture and poverty reduction sectors are the major sectors of investment by the IDA. International Fund for Agricultural Development (IFAD) was set up in 1977. India is one of the original members of the IFAD. IFAD has sanctioned US\$ 656.4 million for 23 projects which includes agriculture, rural development, tribal development, women empowerment, natural resources management and rural finance sector. Out of 23 projects, 15 projects have already been completed. The Global Environment Facility (GEF) is a financial instrument that offers grants to developing countries to

promote sustainable livelihoods in local communities and to protect the global environment. Since 1991, India has been a major participant in the GEF and had already contributed US \$ 42 million to its core fund. Since after 1993, India has not taken any financial assistance from the IMF and it has already repaid all the loans from IMF by the end of May 2000.

#### MAJOR BILATERAL DONORS

Bilateral aid refers to the voluntary transfer of financial assistance from a donor government to a recipient country at the time of need. The donor party can provide this aid directly to the recipient government or any non-governmental institutions existing in the recipient country. The following Table 3 shows the foreign aid inflows to India from its major bilateral donors. The major bilateral donors of India are Japan, Russia, Germany, USA and United Kingdom. Among the bilateral donors, Japan has provided 98% of assistance in terms of loans, while countries like UK, EEC (East European Countries) and USA have sanctioned aid in terms of grants. Bilateral assistance has mostly come in the form of grants.

#### TRENDS OF FOREIGN AID IN SRI LANKA

Foreign aid plays an important role in the development of the Sri Lankan economy, particularly in terms of financing large scale infrastructure projects and also social services such as education, health and reduction of poverty. Aid has been vital for Sri Lanka in terms of financing of capital intensive government projects, however, Sri Lanka's government has continuously

TABLE 3. Major Bilateral Donors (Rupees in Crores)

Donor	2000-01	2001-02	2002-03	2003-04	2004-05	2005-06	2006-07
Japan	2729.78	3728.95	3328.88	3277.64	2971.18	2710.36	2097.62
U.K	307.3	808.37	778.73	1279.94	1506.93	1371.94	1310.32
Germany	386.69	444.66	381.16	333.41	121.18	188.24	278.32
EEC	36.28	181.89	326.03	147.54	426.31	820.51	397.88
USA	81.11	66.18	49.86	110.56	80.17	52.66	44.56
Russian Federation	130.09	23.03	316.06	771.71	1194.82	1106.83	1404.41
Total Bilateral Federation	3866.18	5624.77	5399.46	6218.05	6446.38	6309.14	5531.26

Source: Government of India. Indian Public Finance Statistics, various issues. Ministry of Finance, New Delhi.

TABLE 4. Contribution of foreign aid to Sri Lanka, 2005-09

Contribution	2005	2006	2007	2008	2009
Public Debt % of GDP	90.6	87.9	85	81.4	86.2
Foreign Debt % of GDP	39	37.5	37	32.8	36.5
Foreign Aid % of GDP	3.1	3.3	5.4	2.9	7.4
Foreign Aid % of Govt. Expenditure	9	9.4	16.2	9.2	20.3

Source: Central Bank of Sri Lanka (various issues)

failed to generate sufficient revenue to meet their current expenditure. In recent years, the contribution of foreign aid to Sri Lanka has increased in support of the post Tsunami reconstruction. The following table 4 gives the Public Debt component and also the foreign debt and aid contribution to the Sri Lankan economy.

Sri Lanka gets approximately 80 percent of foreign aid from Japan, Asian Development Bank (ADB) and World Bank. This has been associated with long repayment period and at concessional rates of interest. For instance, ADB special fund resources had 30 years' maturity having 0.5 percent interest per annum, and World Bank's loans had maturity of up to 40 years with 0.75 percent service cost (Kelegama & de Mel 2007). However, access of concessional finance from multilateral donors has declined as the economy has reached a higher level of per-capita income. A larger share of ADB loan are now from ordinary capital resource financing to Sri Lanka and World Bank loans have shorter repayment periods of 20 years (Sethi & Sahoo 2016).

From above Figure 1, it is found that, there has been a downward trend in multilateral aid receipts since 2003. Multilateral aid picked up again in 2008 and 2009 due to increased support for post Tsunami reconstruction.

Aid from Japan also declined from USD262 million in 2004 to USD200 million in 2007 and rose again in 2008 and 2009.

In recent times, there is declining trend in access to finance from the country's traditional donors. Sri Lanka's economy also faced a declining trend in aid due to certain western bilateral donors withdrawing support (Kelegama & de Mel 2007). In this context, Sri Lanka looked to non-traditional donors such as China and other eastern bilateral donors. Lending from China to Sri Lanka was very negligible prior to 2007 when it reached USD163.5 million. In 2009, China was the highest donor to Sri Lanka with aid amounting to USD292.8 million. In recent years, India has changed its policy for lending to Sri Lanka. However, Indian aid prior to 2009 was purely non-project based, however since 2009, project based lending has taken place as India has taken more interest in financing development projects in Sri Lanka. In 2009, India disbursed USD27.4 million in project financing. Unlike western bilateral donors who withdrew due to concern over alleged human right violation, India continues to assist Sri Lanka. This has made non-traditional bilateral donors more attractive to the Sri Lankan government in recent years, resulting

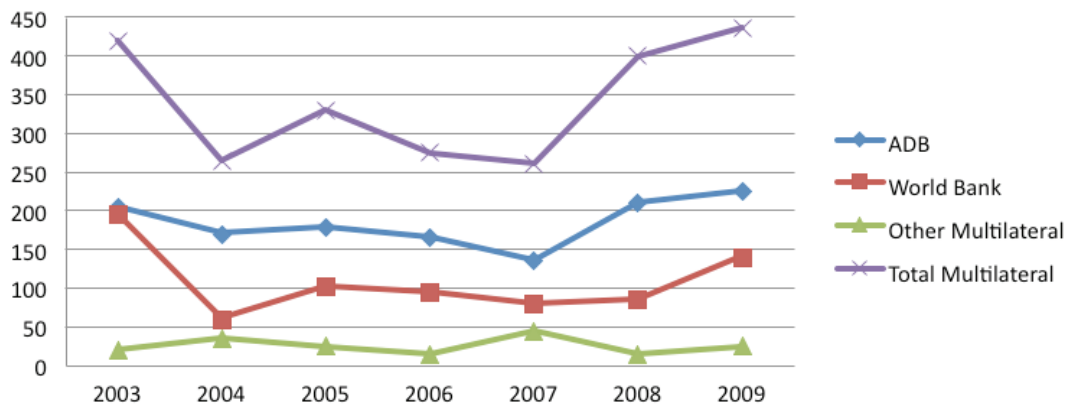


FIGURE 1. Multilateral Aid to Sri Lanka 2003-09 (US \$ Million)

Source: Central Bank of Sri Lanka (various issues)

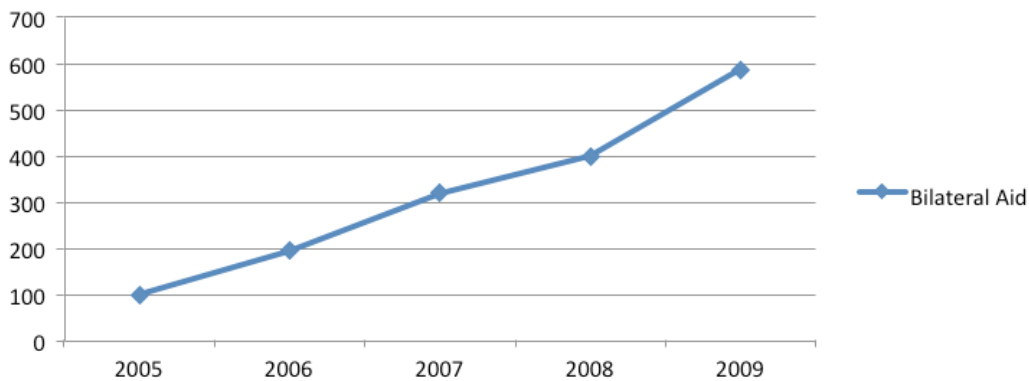


FIGURE 2. Bilateral Aid in Sri Lanka (Excluding Japan), 2005-09 (US \$ Million)

Source: Central Bank of Sri Lanka (various issues)

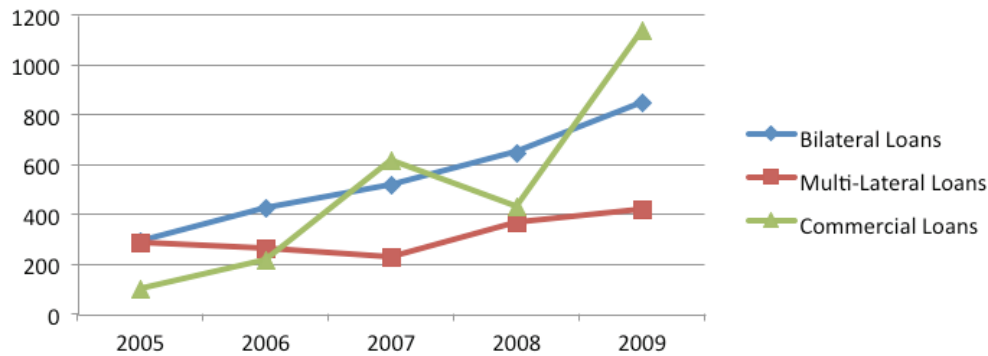


FIGURE 3. Trends in External Finance, 2005-09 (US \$ Million)

Source: Central Bank of Sri Lanka (various issues)

in higher inflows of bilateral aid into the country as shown in Figure 2.

In recent years, Sri Lanka's external borrowing tends to have increased by commercial borrowing. With a declining trend in concessional borrowings and withdrawal of certain donors due to concern relating to the conflict of Sri Lanka, while the government has resorted to increased commercial borrowing to roll over existing debt and financing of other development activities. However, the problem is that commercial borrowings entail far higher rates of interest. By using such types of borrowing for financing development projects, whose benefit will be realized in the long run, the project costs go up. In fact, Sri Lanka's recent Stand by Arrangement (SBA) with the IMF was to adopt a ceiling on foreign commercial borrowings.

In this context, the study empirically explores the relationship between foreign aid and economic growth in India and Sri Lanka. This paper is organized into seven sections including the introduction. Section 2 presents the review of literatures on aid vs. growth. Section 3 presents the Methodology with insights into the role of foreign aid on economic growth in India and Sri Lanka. Section 4 portrays the trends and composition of foreign aid flows to India and Sri Lanka with some stylized facts. Section 5 presents nature, sources and methodology of the study. Section 6 presents the analysis of the empirical results and its discussion and section 7 presents the summary and conclusion with some policy suggestions.

## REVIEW OF LITERATURE

A survey relating to the history, volume, composition and allocation of foreign aid has concluded that historically, aid has served a multitude of objectives. For some donors, aid is used as a commercial policy tool whereas some others use aid for their growth needs. The most important change in the aid architecture has been noticed after 1992 due to the historic upward trend in foreign capital inflows.

Papanek (1972), Dowling & Hiemenz (1982), Gupta & Islam (1983), Burnside & Dollar (1997), Hansen & Tarp (2000), Dalgaard et al. (2004), Gomanee et al. (2005) and Karras (2006) found that foreign aid positively affects economic growth of the recipient countries. Papanek (1972) has carried out a cross-country analysis by using regression approach for 34 countries in the 1950s and 51 countries in the 1960s, treating foreign aid, foreign investment, other flows and domestic savings as explanatory variables. They found foreign aid has a substantially greater positive effect on growth as it helps to fill the foreign exchange gap and the saving-investment gap. Papanek (1972, 1973), and then extended by Mosley et al. (1987) and Snyder (1993), who analyzed the relationship between foreign aid inflow and the growth rate of gross domestic product in 69 developing countries over three periods (the 1960s, the 1970s and 1980-1987), incorporating country size (measured by gross domestic product) in the model. They have found that when country size is not taken into consideration, the effects of aid are small and insignificant but when the same factor is taken into account, the coefficient of aid becomes positive and significant. Singh (1985) has found that foreign aid has strong positive impact on growth when the state intervention is not taken into consideration. Snyder (1993) has found a positive relation between aid and growth by considering the country size into account. Burnside and Dollar (1997) have examined the impact of foreign aid on economic growth in developing countries by using the data from 56 countries from 1970-1973 to 1990-1993. They have found that aid has a positive impact on growth in developing countries with good fiscal, monetary and trade policies but has little impact on countries where such policies are poor. Fayissa and El-Kaissy (1999) found that foreign aid positively affects economic growth in developing countries. Hansen and Tarp (2000) have examined the relationship between foreign aid and growth in real per capita GDP by using the modern cross-country growth regression. It has been shown that aid continues to have a positive

impact on growth through investment and this result is not conditional on good policy alone.

Furthermore, foreign aid does not just fill the foreign exchange gap but also provides the opportunity to access modern technology and managerial skills, and allows easier access to foreign markets (Chenery & Strout 1966; Gulati 1975; Gupta 1975; Over 1975; Levy 1988; Islam 1992). A study by Kosack (2003) has found that aid directly increases welfare but only in the presence of democratic structures. Building on recent developments in fiscal response, for the first time a new fiscal model has been developed incorporating the main four components of foreign aid, namely project aid, program aid, technical assistance and food aid. The disbursement of each category of foreign aid has been considered as a choice of government policy. Specifying the budget constraints, the first model was solved to obtain both the structural equations (capturing the direct impacts on the endogenous variables) and the reduced form equations (which capture the total impacts). Then the second model has been developed where aid is included in the aggregated form. This model has presented both the structural and reduced form equations. This study concluded that significant policy implications can be derived by comparing the results of aggregated aid and disaggregated aid models which will help to raise the effectiveness of aid inflows (Mavrotas & Ouattara 2003). Hatemi and Irandoust (2005) have investigated the long run relationship between foreign aid and real economic growth for a panel of six developing countries of Asia and Africa over the period from 1974 to 1996. The result of the co-integration test shows that foreign aid has a significant positive effect on economic growth by supplementing domestic savings.

Additionally, at times foreign aid assists to import inappropriate technology, distorts the domestic income distribution, and encourages a bigger, inefficient and corrupt government in developing countries (Griffin 1970; Griffin & Enos 1970; Weisskoff 1972a, b; Boone 1994; 1996; Easterly 1999). Using time series data on the country named Cameroon from 1971 to 1990, Mbaku (1993) has shown that domestic resources have a stronger impact on economic growth in Cameroon than foreign resources. The unproductive utilization of foreign aid for consumption purposes is one of the major factors responsible for aid ineffectiveness (Boone 1994). Pedersen (1996) has argued that it is not possible to conclude that foreign aid has a positive impact on economic growth. Using the game theory technique, the study has found that the impact of aid on growth is not positive. Svensson (1998) has argued that large aid flow help to raise the welfare gain as in certain cases large aid inflows result in high expectations which might cause rent seeking activities and reduce the expected quality of the public goods. Dollar and Easterly (1999) have found that aid neither helps to raise the investment nor induces policy reforms in Africa. The study concluded

that investment did not have a tight link to growth in the short run and not even much of a link in the long run in Africa.

Mallick and Moore (2006) have investigated the impact of external financial capital (both official and private capital flows) on economic growth for 60 developing countries from 1970-2003. They have concluded that private capital flows have favorable effects on the domestic capital formation across all income-group countries, whereas official financial flows contribute to increasing investment only in the middle income economies, not in the low income countries. Mallik (2008) has examined the effectiveness of foreign aid on economic growth in the six-poorest and highly aid dependent African countries by using the Johansen's co-integration tests. The empirical results have shown that aid as a percentage of GDP and the long run impact of aid on growth was found to be negative for most of the sample countries. Ekanayake and Chatrma (2010) have analyzed the effect of foreign aid on the economic growth of 85 developing countries covering Asia, Africa, Latin America and the Caribbean countries for the period between 1980 and 2007. They have concluded that foreign aid has mixed effects on economic growth in developing countries which depends on many factors like economic policies, geographic condition, human development and institutional efficiency, etc.

The literature review reveals the fact that the role of foreign aid on economic growth has left us with no accurate conclusion. Moreover, it is observed that aid effectiveness varies across countries due to a mismatch among the factors of aid effectiveness persist in different countries. The reasons of variation are ranging from poor policies, diversion of aid to unproductive consumption, corruption, uncertainty, weak institutions, adverse geographical condition, political instability, bureaucratic inefficiency, under developed socioeconomic infrastructure and backward technology. It is needless to say that these factors differ from region to region and even country to country. Hence, the role and achievement of foreign aid would differ from one place to another. Country specific or region specific studies might help to put more light on aid effectiveness.

## METHODOLOGY

This study attempts to analyze, the impact of foreign aid on economic growth of two aid recipient South Asian countries namely: India and Sri Lanka. In order to examine the impact of aid on development, annual time series data on some selected macroeconomic variables have been collected from 1960-61 to 2014-15 for the two countries. The variables included are, in case of India, Official Development Assistance (ODA) as foreign aid and Gross Capital Formation (GCF) as a proxy of domestic investment, Trade (TR), Per capita GDP (PcGDP) as an



indicator of economic growth, Wholesale Price Index (WPI) as a proxy of inflation rate and Bank Credit (BC) as the proxy of financial development. In case of Sri Lanka, the study uses the same variables except Gross Fixed capital formation (GFCF) as domestic investment and Consumer Price Index (CPI) as inflation rate. These countries are lower middle income developing nations of South Asian region and are dependent on foreign assistance for their economic development.

The data for the study have been collected from the secondary sources such as *World Development Indicator (WDI)* which is published by the World Bank. Annual time series data for India and Sri Lanka has been taken for the period 1960-61 to 2014-15, measured in US million Dollars and transferred into logarithm form.

In the light of the above discussion on the variables definition, the following equation is used as the basic model to examine the impact of foreign aid on economic growth of India and Sri Lanka.

For India,

$$\begin{aligned}
 & LODA = f(\text{LpGDP}, \text{LGCF}, \text{LWPI}, \text{LBC}, \text{LTR}) \\
 & LODA_t = \alpha_1 \text{LpGDP}_t + \alpha_2 \text{LGCF}_t + \alpha_3 \text{LWPI}_t + \alpha_4 \text{LBC}_t + \alpha_5 \text{LTR}_t + u_t \quad (1)
 \end{aligned}$$

For Sri Lanka,

$$\begin{aligned}
 & LODA = f(\text{LpGDP}, \text{LGFCF}, \text{LCPI}, \text{LBC}, \text{LTR}) \\
 & LODA_t = \alpha_1 \text{LpGDP}_t + \alpha_2 \text{LGFCF}_t + \alpha_3 \text{LCPI}_t + \alpha_4 \text{LBC}_t + \alpha_5 \text{LTR}_t + u_t \quad (2)
 \end{aligned}$$

Where  $t$  is the time period and  $u_t$  is the error term.

We have employed Johansen and Juselius (JJ) (Johansen and Juselius, 1990) procedure of testing for the presence of multiple cointegrating vectors. JJ method

of multivariate approach is a well-established model to trace out cointegrating relationship between the time series variables. We have used this approach to find out the cointegrating relationship between ODA, trade, bank credit, per capita GDP and WPI. We also have employed Granger Causality through the Vector Error Correction (VECM) procedure (Engle & Granger 1987) to find out the causal relationship between foreign aid and economic growth with other macroeconomic variables.

AUGMENTED DICKEY FULLER (ADF) TESTS

The Augmented Dickey Fuller (ADF) test (see Dickey & Fuller 1981) is based on the following regression:

$$\Delta Y_t = \alpha_0 + \alpha_1 X_t + \gamma Y_{t-1} + \sum_{i=1}^k \beta_i Y_{t-i} + \varepsilon_t \quad (3)$$

Where  $\Delta$  is the difference operator and  $\varepsilon_t$  is stationary random error. The null hypothesis is that  $X_t$  is non-stationary series and it is rejected when  $\beta$  is significantly negative. The constant and the trend terms are retained only if significantly different from zero. The optimal number of lags,  $k$ , is determined by minimizing the Akaike Information Criterion (AIC).

JOHANSEN'S METHOD OF COINTEGRATION

The maximum likelihood approach of Johansen and Juselius (1990) is used to establish whether there is a long-run relationship between the variables in the model. The model is based on the error correction representation given by:

$$\Delta X_t = \mu + \sum_{i=1}^{p-1} \Gamma_i \Delta X_{t-k} + \Pi X_{t-k} + \varepsilon_t \quad (4)$$

TABLE 5. Descriptions of the Variables and Expected Signs

Variables	Symbol	Indicator	Expected Sign	Data Source
<b>INDIA</b>				
<i>Dependent Variable</i>				
Foreign Aid	LODA	Official Development Assistance	Positive	WDI
<i>Independent Variables</i>				
Economic Growth	LpGDP	GDP per capita	Positive	WDI
Domestic Investment	LGCF	Gross Capital Formation	Positive	WDI
Inflation Rate	LWPI	Wholesale Price Index	Positive	WDI
Financial Development	LBC	Bank Credit	Positive	WDI
Trade	LTR	Trade Openness	Positive	WDI
<b>SRI LANKA</b>				
<i>Dependent Variable</i>				
Foreign Aid	LODA	Official Development Assistance	Positive	WDI
<i>Independent Variables</i>				
Economic Growth	LpGDP	GDP per capita	Positive	WDI
Domestic Investment	LGFCF	Gross Fixed Capital Formation	Positive	WDI
Inflation Rate	LCPI	Consumer Price Index	Positive	WDI
Financial Development	LBC	Bank Credit	Positive	WDI
Trade	LTR	Trade Openness	Positive	WDI

where  $X_t$  is an  $(n \times 1)$  column vector of  $p$  variables,  $\mu$  is an  $(n \times 1)$  vector of constant terms,  $\Gamma$  and  $\Pi$  represent coefficient matrices,  $\Delta$  is a difference operator,  $k$  denotes the lag length, and  $\varepsilon_t$  is a disturbance term independently and identically distributed with zero mean and constant variance. The coefficient matrix  $\Pi$  is known as the impact matrix and it contains information about the long-run relationships.

In order to apply Johansen's technique one is required to estimate the VAR equation (2). The residuals from the estimated equation are then used to compute two Likelihood Ratios (LR) test statistics that can be used in the determination of the unique cointegrating vectors of  $X_t$ . The first test, which considers the hypothesis that the rank of  $\Pi$  is less than or equal to  $r$  (the number of co-integrating vectors), is based on the trace test statistic ( $\lambda_{trace}$ ) given below:

$$\lambda_{trace}(r) = -T \sum_{i=r+1}^n \ln(1 - \lambda_i) \quad (5)$$

Where  $\lambda_i$  are the estimated values of characteristic roots or the eigen values,  $T$  is the number of observations and  $n$  is the number of variables. The second test statistic is known as the maximal eigen value test statistic ( $\lambda_{max}$ ) which tests the null hypothesis that there are exactly  $r$  cointegrating vectors in  $X_t$  and is given by:

$$\lambda_{max}(r + 1) = -T \ln(1 - \lambda_r) \quad (6)$$

The distributions for these test statistics are not given by the usual chi-squared distributions. The asymptotic critical values for these likelihood ratio tests are calculated via numerical simulations (see Johansen and Juselius 1990).

GRANGER CAUSALITY: THE VECTOR ERROR CORRECTION (VECM) PROCEDURE

Our next step is to ascertain the direction of causality between in foreign aid and economic growth. If all the variables are found to be integrated of the order one, vector error correction procedure can be used to see the direction of causality between foreign aid (ODA) and economic development (PcGDP) in India and Sri Lanka. If all the variables are found to be integrated of same order, Granger causality (Engle and Granger 1987) line can be used to see the direction of causality between output and infrastructure development in India. Since we found both GDP and infrastructure index are integrated of order one  $\{I(1)$ , see table 5}, we use vector error correction mechanism for testing the direction of causality. The general model for Granger causality for (1) (see Engle and Granger, 1987) variable is given as:

$$\Delta Y_t = \eta + \sum_{i=1}^{p-1} \alpha_i \Delta Y_{t-i} + \sum_{j=1}^{p-1} \beta_j \Delta X_{t-j} + \Theta(Y - \kappa X)_{t-1} + U_t \quad (7)$$

$$\Delta X_t = \eta' + \sum_{i=1}^{p-1} \gamma_i \Delta Y_{t-i} + \sum_{j=1}^{p-1} \delta_j \Delta X_{t-j} + \Phi(Y - \kappa X)_{t-1} + U_t' \quad (8)$$

Where the lagged Error Correction Term (ECM)  $(Y - \kappa X)_{t-1}$  are the lagged residuals from the co-integrating relation between  $Y$  and  $X$  (this term is not included in case the variables are not co-integrated). As Engle and Granger (1987) have argued, failure to include the ECM term will lead to miss-specified models which can lead to erroneous conclusions about the direction of causality. Thus, if  $Y_t$  and  $X_t$  are  $I(1)$  and cointegrated, Granger causality tests can be carried out using (5) and (6). However, there are now two sources of causation of  $Y_t$  by  $X_t$ , either through the lagged dynamic terms  $\Delta X_t$  if all the  $\beta_i$  are not equal to zero, or through the lagged ECM term if  $\theta$  is non-zero (the latter is also the test of weak exogeneity of  $Y$ , see Engle *et al.* (1983)). Similarly,  $X_t$  is Granger caused by  $Y_t$  either through the lagged dynamic terms  $\Delta X_t$  if all the  $\gamma_i$  are not equal to zero, or through the lagged ECM term if  $\Phi$  is non-zero. Thus, this procedure has the additional advantage that the source of causation can be identified in the form of either short run dynamics or dis-equilibrium adjustment.

EMPIRICAL RESULTS AND DISCUSSION

In this section, we present results of our empirical analysis. We attempt to answer the following four empirical hypotheses or questions:

- Hypothesis 1: Does causal relationship exist between foreign aid (ODA) and economic growth (PcGDP)?*
- Hypothesis 2: Does causal relationship exist between foreign aid (ODA) and financial development (BC)?*
- Hypothesis 3: Does causal relationship exist between foreign aid (ODA) and trade (TR)?*
- Hypothesis 4: Does causal relationship exist between foreign aid (ODA) and domestic investment (GCF)?*

Since the empirical literature on the nexus between foreign aid and economic growth has been debatable, we look at the direction of feedback by using Granger causality (Engle & Granger 1987) methodology. Since PcGDP and ODA are  $I(1)$  (see Table 6), we use Vector Error Correction Method (VECM) to find causality between the two. To set the stage of causality test, the order of integration of the variable is initially determined using the ADF test. The testing procedures of ADF are based on the null hypothesis that a unit root exists in the autoregressive representation of the series. The result of unit root for all the variables in India and Sri Lanka are

TABLE 6. Test for Unit Root Test Applying Augmented Dickey-Fuller (ADF)

Variables	Optimal lag (AIC)	ADF-test Statistics (level)	Optimal lag (AIC)	ADF-test Statistics (1st difference)	Order of Integration
India					
LBC	1	0.1357	1	-5.7199*	I (1)
LGCF	1	0.5251	1	-7.6042*	I (1)
LODA	1	-2.1987	1	-7.9958*	I (1)
LPCGDP	1	2.0223	1	-3.6962*	I (1)
LTr	1	1.8524	1	-6.1729*	I (1)
LWPI	1	-0.9669	1	-5.4490*	I (1)
Sri Lanka					
LBC	1	-2.5000	1	-7.7069*	I (1)
LCP	1	1.1629	1	-4.2260*	I (1)
LGFCF	1	-0.4616	1	-6.3656*	I (1)
LODA	1	-2.4858	1	-7.6485*	I (1)
LPCGDP	1	-1.1600	1	-4.9476*	I (1)
LTr	1	-0.6429	1	-6.4407*	I (1)

Note: \* Denotes that the null hypothesis that the variable concerned is non-stationary can be rejected at 5% significance level. Asymptotic cut off values for 5% significance level are -3.41 when the trend term is included and -2.86 when the trend term is not included.

reported in Table 6. It is clear that all the variables of the two countries are non-stationary at levels and become stationary at first difference. Hence, all variables are integrated of order I(1).

Since all the variables are integrated with the first order or I(1), Johansen multivariate cointegration test is applied for finding the order of cointegration  $d(max)$  for India and Sri Lanka separately. The results of cointegration test for the two countries are reported separately in Table 6. Using the maximum eigen value test as well as trace test, we find for two cointegrating relationship for India and Sri Lanka. Therefore, the results support the hypothesis of cointegration between ODA, PCGDP, BC, Trade, WPI and GFCF. We can conclude that there exists a long run equilibrium relationship among all variables and all these variables move together in the long run in case of these two countries.

Having established the long run relationship, that is, presence of cointegration relationship between the variables suggests that there exists a causal relationship

between ODA, BC, Trade and GCF at least in one direction and possibly in both directions (Engle and Granger 1987) the next subsequent step for our analysis is to estimate causal relationships between our sample variables. In doing so, we have to employ Vector Error Correction Method (VECM) to find causality between the two. Before that it is necessary to select the optimal lag length by using different criteria. While determining lag length, econometricians have either fixed the lag length arbitrarily or chosen it through some statistical procedure. It is advisable to choose the lag length by using some criterion. Here, the study uses five lag order selection criterion such as Likelihood Ratio (LR), Final Prediction Error (FPE), Akaike Information Criterion (AIC), Schwarz Information Criterion (SIC) and Hannan-Quinn Information Criterion (HQIC) which is shown in table 8. Except LogL, all other criteria unanimously select lag order 2, and thus we take that as optimum lag length. A lag of two years seems appropriate for an analysis of foreign aid and some macroeconomic variables because

TABLE 7. Johansen Cointegration Test (Maximal Eigenvalue and Trace)

Null Hypothesis	Test Statistics (Maximal Eigenvalue)	Critical Value (5%)	Test Statistics (Trace Test)	Critical Value
India				
$r=0$	48.646*	40.077	127.168*	95.753
$r \leq 1$	32.308	33.876	78.522*	69.818
$r \leq 2$	22.898	27.584	46.213	47.856
Sri Lanka				
$r=0$	53.775*	44.497	142.972*	117.708
$r \leq 1$	30.003	38.331	89.196*	88.803
$r \leq 2$	24.836	32.118	59.192	63.876

Note:  $r$  is the number of cointegration vector under null hypothesis of no cointegration.

We are assuming a linear deterministic trend

\*Denotes rejection of null hypothesis of no cointegration at 5% level.

TABLE 8. Lag order selection by different criteria  
Optimum Lag Order Selection Criterion

INDIA						
Lag	LogL	LR	FPE	AIC	SC	HQ
0	-112.62	NA	0.001	7.35	7.58	7.42
1	70.65	30.91	2.99	-0.97	1.54	-0.14
2	70.65	259.53*	2.42*	-1.07*	0.31*	-0.61*
SRI LANKA						
Lag	LogL	LR	FPE	AIC	SC	HQ
0	-134.94	NA	1.27	5.75	5.98	5.84
1	200.82	46.09	2.90	-5.01	-2.00	-3.87
2	169.46	521.83*	2.24*	-5.20*	-3.58*	-4.59*

\* indicates lag order selected by the criterion

LR: sequential modified LR test statistic (each test at 5% level)

FPE: Final prediction error

AIC: Akaike information criterion

SC: Schwarz information criterion

HQ: Hannan-Quinn information criterion

Source: Author's Calculation

the external sector policy or monetary policy is revised twice every year in India and Sri Lanka. During the period of study, policy changes have become frequent in a bid to deregulate the economy and strengthen the market forces. Under such circumstances lag of two years is justifiable.

Since the empirical literature on the nexus between foreign aid and economic growth has been debatable, we look at the direction of feedback by using Granger causality (Engle and Granger, 1987) methodology. Since PcGDP and ODA are I(1) we use Vector Error Correction Method (VECM) to find causality between the two. It is found that the causality runs from ODA to PcGDP. The error correction term is positive and significant at 5% level indicating long-run causality from ODA to PcGDP. However, we do not find reverse causality running from PcGDP to ODA (see Table 9).

From the above Table 9, we find a causal relationship between foreign aid and economic growth. The error correction term is positive and significant at 5% level indicating long-run causality from ODA to PcGDP. Increase of ODA influences economic growth positively and significantly. However, we did not find reverse causality running from PcGDP to ODA. We can conclude that economic growth in India fails to attract ODA. Similarly, foreign aid influences financial development of the country as increase of aid flow influences the financial development of the country. We find there is bi-directional causality between ODA and financial development. Greater financial development of the country attracts more foreign aid flows to any country. In case of India, there is a significant growth of financial development which enables it to attract more ODA inflows. However, ODA flows could not attract more trade flows. But trade performance through export promotion and import substitution attract more ODA flows into India. Further,

ODA flows are unable to influence domestic investment and on the other hand domestic investment in India attracts more ODA flows. Increase of ODA flows in to India affects inflation rate positively. We did not find reverse causality from WPI to ODA. We find that a long run causality exists among few macroeconomic variables like trade (TR), Financial development (BC), Domestic investment (GFC), Inflation rate (WPI) with ODA and PcGDP. However, we have found the error correction term is positive and significant in selected macroeconomic variables indicating a long-run causality.

Thus, ODA inflows into India are not motivated automatically, but rather motivated by pull factors, i.e., the development financial infrastructure and liberalized external sector policy. Third, we find there is bidirectional causality between trade (TR) and ODA. These results also support our theory. It shows that, more ODA inflows encourage trade performance of a country. The trade liberalization and trade performance of the country has attracted more ODA inflows in the last two decade. Fourth, the result of Granger causality test between the domestic investment (GCF) and foreign aid (ODA) for India indicates that there exists unidirectional causality between the two. However, the causality between GCF and ODA indicates that the domestic investment is stronger in India which helps to attract more ODA inflows. On the other hand, an ODA inflow into India does not have much significant impact on domestic investment.

#### SHORT-RUN ANALYSIS

The final step in this analysis involved estimating short-run relationship between ODA and PcGDP. The short-run model serves several important purposes. Firstly, it can be used to identify whether government expenditure effects are permanent or temporary. Second, the Error Correction

TABLE 9. VECM-Granger Causality test for India

Direction of Causality	No. of Lags	$\Theta = 0$ : t-statistic (ECM term) (P-value)	$\Sigma\beta_i = 0$ : F-statistic (P-value)
Granger causality between Foreign Aid (ODA) and Economic Growth (PcGDP)			
Foreign Aid (ODA) → PcGDP	2	2.82** (0.00)	0.42 (0.51)
PcGDP → Foreign Aid(ODA)	2	1.35 (0.18)	0.76 (0.39)
Granger causality between Foreign Aid (ODA) and Financial Development (BC)			
Foreign Aid (ODA) → Financial Development (BC)	2	3.78** (0.01)	0.41 (0.50)
Financial Development (BC) → Foreign Aid (ODA)	2	3.21** (0.01)	0.76 (0.41)
Granger causality between Foreign Aid (ODA) and Trade (TR)			
Foreign Aid (ODA) → Trade (TR)	2	0.98 (1.32)	0.25 (0.32)
Trade (TR) → Foreign Aid (ODA)	2	5.66** (0.00)	0.82 (0.78)
Granger causality between Foreign Aid (ODA) and Domestic Investment (GCF)			
Foreign Aid (ODA) → Domestic Investment (GCF)	2	1.05 (1.66)	0.63 (0.15)
Domestic Investment (GCF) → Foreign Aid (ODA)	2	2.68** (0.001)	0.36 (0.66)
Granger causality Foreign Aid (ODA) and Inflation Rate (WPI)			
Foreign Aid (ODA) → Inflation Rate (WPI)	2	3.22** (0.00)	0.92 (0.18)
Inflation Rate (WPI) → Foreign Aid (ODA)	2	1.25 (0.10)	0.81 (0.15)

Notes: \*\* denotes significant at 5% level

Model (ECM) procedure can be used to confirm the outcome of cointegration equation. According to Granger representation theorem, for any integration of order one I(1) variables, error correction and cointegration are equivalent representations (Enders 2003). Finally, ECM provides information about the speed of adjustment in response to a deviation from the long run equilibrium, which can be very useful for the policy analysis. We used the ECM suggested by Engle and Granger (1987) in this analysis.

Once the existence of long run model is established, it is easy to estimate the short run model by applying the standard ECM procedure. If  $y_t$  and  $z_t$  are cointegrated (1,1) then the variables have ECM in the form given by equation (9).

$$\Delta y_t = \alpha_1 + \alpha_y \hat{e}_{t-1} + \alpha_2 \Delta z_t + \varepsilon_t \quad (9)$$

All the regressors, except the error correction term, are expressed in the first difference form. ECM term is nothing more than a one-year lag residual obtained from the cointegration equation. The results are presented in Table 10.

Significant error correction term confirms our findings regarding the cointegration relationship. Testing the significance of the speed of adjustment

coefficient is simply another way to show that the model converges towards a steady-state solution (Harris & Sollis 2003). The ECM term suggests that if we insert a shock into the model through one of these variables, approximately 33 per cent of the deviation is corrected within the first year. This is a rather slow adjustment process. It is empirically found that both economic growth (PcGDP) and inflation (WPI) have positive and significant impacts on foreign aid in the short run, while trade openness (TR) has an adverse significant effect on aid. On the other hand, although both capital

TABLE 10. Short-run analysis of Variables

Variables	Coefficients	t-ratio
Constant**	57.71	6.29
LPCGDP*	11.57	2.51
LGCF	-0.980	-0.42
WPI**	2.712	3.29
LBC	-0.942	-0.82
LTR**	-5.202	-4.16
ECM Term**	-0.33	-2.62

\*\* Significant at 5% level,  $R^2 = 0.92$ , S.E of Regression 0.015, DW statistics 1.97.

formation (GCF) and financial development (BC) are negatively influencing the foreign aid but their effects are insignificant. Moreover, the positive effects of growth and inflation on foreign aid could be due to the presence of better economic environment.

*Long run Equation:*

$$\text{LODA}_t = 57.71 + \frac{11.57}{(2.51)} \text{LPcGDP}_{t-1} - \frac{0.980}{(-0.42)} \text{LGCF}_{t-1} + \frac{2.712}{(3.29)} \text{LWPI}_{t-1} - \frac{0.942}{(-0.82)} \text{LBC}_{t-1} - \frac{5.202}{(-4.16)} \text{LTR}_{t-1} \quad (10)$$

The results in equation 10 denote the long run relationships between foreign aid and explanatory variables. It is empirically found that both economic growth (PcGDP) and inflation (WPI) have positive and significant impacts on foreign aid in the long run, while trade openness (TR) has an adverse significant effect on aid. On the other hand, although both capital formation (GCF) and financial development (BC) are negatively influencing the foreign aid flows but their effects are insignificant. Moreover, the positive effects of growth and inflation on foreign aid could be due to the presence of better economic environment.

The above table 11 describes the VECM-Granger causality test for Sri Lanka. We find there is existence of causal relationship between ODA with economic growth and with other few macroeconomic variables such as ODA with financial development (BC), trade (TR), domestic investment (GFCF) and inflation rate (Consumer Price Index CPI) in Sri Lanka. The error correction term is positive and significant at 5% level indicating long run causality from ODA to PcGDP, financial development (BC), Trade (TR), domestic investment (GFCF) and inflation rate (CPI). Our empirical results find the unidirectional causal relationship between ODA and economic growth and with other few macroeconomic variables. We find the similar results like India because both the countries have some similar characteristics. The empirical results find that ODA is highly and positively influencing economic growth in Sri Lanka because being a developing country it's partially depends on foreign capital for faster development. ODA flows also help for the growth of financial sector performance in terms of banking sector performance, simultaneously also influencing the trade performance of the country. Not only does foreign aid boost the country's economic growth but it also boosts the domestic investment. We have also observed that high inflows of ODA to a country influences the inflation

TABLE 11. VECM-Granger Causality test for Sri Lanka

Direction of Causality	No. of Lags	$\Theta = 0$ : t-statistic (ECM term) (P-value)	$\Sigma\beta_i = 0$ : F-statistic (P-value)
Granger causality between Foreign Aid (ODA) and Economic Growth (PcGDP)			
Foreign Aid (ODA) → PcGDP	2	4.05** (0.00)	0.85 (0.64)
PcGDP → Foreign Aid (ODA)	2	0.65 (0.22)	0.66 (0.45)
Granger causality between Foreign Aid (ODA) and Financial Development (BC)			
Foreign Aid (ODA) → Financial Development (BC)	2	2.25** (0.01)	0.45 (0.65)
Financial Development (BC) → Foreign Aid (ODA)	2	1.66 (0.001)	0.86 (0.65)
Granger causality between Foreign Aid (ODA) and Trade (TR)			
Foreign Aid (ODA) → Trade (TR)	2	5.62** (0.00)	0.95 (0.38)
Trade (TR) → Foreign Aid (ODA)	2		
Granger causality between Foreign Aid (ODA) and Domestic Investment (GFCF)			
Foreign Aid (ODA) → Domestic Investment (GFCF)	2	3.22** (0.00)	0.46 (0.16)
Domestic Investment (GFCF) → Foreign Aid (ODA)	2	0.96 (0.13)	0.26 (0.66)
Granger causality Foreign Aid (ODA) and Inflation Rate (CPI)			
Foreign Aid (ODA) → Inflation Rate (CPI)	2	2.78** (0.00)	0.95 (0.18)
Inflation Rate (CPI) → Foreign Aid (ODA)	2	1.05 (0.15)	0.66 (0.45)

Notes: \*\*denotes significant at 5% level

TABLE 12. Short-run analysis of Variables

Variables	Coefficients	t-ratio
Constant**	46.05	5.98
LPCGDP	8.56	1.51
LGFCF**	6.25	2.33
LCPI**	2.12	3.29
LBC**	-2.78	-2.46
LTR**	4.20	2.16
ECM Term**	-0.67	-1.52

\*\* Significant at 5% level,  $R^2 = 0.68$ , S.E of Regression 0.012, DW statistics 1.67.

rate highly. We conclude that there is a presence of both short run dynamic and equilibrium relationship between ODA with PcGDP, trade, financial development (BC) and inflation rate (CPI).

From Table 12, it is clear that in the short run ODA does not have any significant impact on growth in Sri Lanka. However, it has positive effect on trade (TR) and inflation rate. As ODA inflows are high into the country, it induces the inflation rate in the short run and subsequently it has also a positive effect on trade performance of the country. In case of Sri Lanka, the ODA inflows have had a significant negative effect on the financial sector performance in the short run. Overall, in the short run it has a positive effect on growth and macroeconomic performance.

#### Long Run Equation

$$\begin{aligned} \text{LODA}_t = & 131.60 - \frac{5.43 \text{ LPCGDP}_{t-1}}{(-1.33)} - \frac{4.40 \text{ LGFCF}_{t-1}}{(-3.75)} + \\ & \frac{5.89 \text{ LCPI}_{t-1}}{(4.15)} + \frac{5.80 \text{ LBC}_{t-1}}{(3.99)} - \frac{2.71 \text{ LTR}_{t-1}}{(-1.69)} \quad (11) \end{aligned}$$

The result in equation (9) explains how the foreign aid (ODA) has a positive and significant effect on financial development, inflation rate (CPI) and negative effect on capital formation (GFCF) and trade in the long run. Higher foreign aid inflows help to influence more financial development and as a result induce inflation rate (CPI) in the country. More foreign aid inflows have negative and significant effect on capital formation of the Sri Lankan economy. This result is very interesting and supports the theories of foreign aid on development. However, foreign aid (ODA) negatively affects the economic growth (PcGDP) and trade openness (TR) of the country in the long run.

#### CONCLUSION

It is clear that foreign aid is one of the major factors contributing to the development process of India and Sri Lanka. Both the countries need to maintain a high rate of

growth to create more employment opportunities and to reduce poverty. Considering the long run causal linkage among foreign aid, trade performance, financial sector development, domestic investment and economic growth, the countries should focus on the efficient utilization of foreign aid where the rate of return should be greater than rate of investment.

The empirical results for India reveal that long run causality exists among few macroeconomic variables like trade (TR), Financial development (BC), Domestic investment (GFC), Inflation rate (WPI) with ODA and PcGDP. However, we have found the error correction term is positive and significant in selected macroeconomic variables indicating long-run causality. On the other hand, the empirical result shows that foreign aid has significant positive impact on economic growth of Sri Lanka. The result also shows that higher amount of foreign aid inflows lead to higher economic growth, better trade performance, development of financial sector and supplements to domestic investment in Sri Lanka in the long run. Finally, we conclude that, foreign aid has a positive and significant impact on economic growth both in short run and long run. However, in Sri Lanka, foreign aid has had only a positive and significant impact on growth in long run but not in the short run. Both Johansen and Juselius (1990) cointegration test confirms that, there is the presence of long run equilibrium relationship among the variables and Vector Error Correction Method (VECM) - Granger causality (Engle & Granger 1987) method also confirms the presence of short run dynamic relationship among the variables considered during the study period.

Our study suggests that the government has to be more concerned about its efficient utilization rather than its amount of inflows. The government of India should further try to raise its growth rate and liberalize its external sector to attract foreign capital, i.e., foreign aid and FDI inflows. The government of Sri Lanka should focus on the efficient utilization of foreign aid in some productive activities, directly linked with the welfare of the people. The countries should adopt outward-looking development strategies through appropriate measures such as more flexible labor market, political stability, infrastructural facilities, human capital generation, institutional efficiency and good macroeconomic policies to attract more foreign capital in the country. Our study also suggests that the governments should make efforts in employing proper monetary and fiscal policies in order to stabilize the domestic economic cycle as well as external economic transformation. A proper tax system is needed to be employed. Sound macroeconomic policies along with liberalization policy will help in spreading of knowledge and facilitate more investment and imports of high tech products. All this will make the economy more competitive, leading to a stable growth and increase the living standards of the country.

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