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The Effect of Foreign Aid on Trade and Income Levels

A dissertation submitted in partial fulfillment of the requirement for the degree of Doctor of Philosophy at George Mason University

By

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ABSTRACT

THE EFFECT OF FOREIGN AID ON TRADE AND INCOME LEVELS

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The inability of foreign aid to increase recipients' living standards casts doubt on its effectiveness as a vehicle of economic development. This motivates examination of potential contributors to this dismal experience. Understanding the empirical link between foreign aid and trade and consequently economic performance provides a testable hypothesis in evaluating foreign aid's negative outcome. Whereas the advocacy of free trade and foreign aid has proliferated on both theoretical and empirical grounds, two questions remain: what factors help or hinder a country's capacity to trade, and what factors affect dependence on foreign aid? This dissertation stresses these issues and explores the determinants of foreign aid, trade, and their effect on income and on each other using rigorous econometric techniques. The empirical analysis of 151 countries for the years 1975 to 1998 indicates that government-government foreign aid has a significant and negative impact on trade and on recipient's living standards as measured by GDP per worker.

Chapter One

Introduction

The fact that so many countries register low per capita income after receiving enormous amounts of foreign aid questions foreign aid's effectiveness. Moreover, despite the world's massive movement toward trade liberalization both in goods and services and financial services, foreign aid recipients remain stagnated by lack of trade, restrictive trade policies, and low per capita income. The impact of foreign aid on trade and living standards is ultimately an empirical question, and one that I address in this study.

This dissertation focuses on three factors that potentially affect a country's progress or failure: reliance on foreign aid, the importance of trade, and the effects of each on economic performance and on each other. It specifically investigates various channels through which foreign aid could potentially affect a country's ability to trade and subsequently affects its living standards. The study uses annual observations for 151 countries for the period 1995 to 1998 and captures the dynamic relationship between foreign aid, trade and development and lessens the problem of causality among the variables.

While the belief that foreign aid promotes economic growth is reasonable, it has been difficult to verify empirically. Despite extensive research devoted to the impact of foreign aid on economic development, lack of data, improper measurement of official aid, endogeneity problems, and poorly specified models diminish the importance of these studies and have produced only mixed results.[1]

This dissertation scrutinizes a previously unconsidered issue: empirical investigation that takes into account the simultaneity among international trade, foreign aid, and economic performance. Single-equation models overlooked much of the interdependence that exists in the world today. The best approach for understanding these interdependencies is to model them explicitly with feedback loops. This means using simultaneous equations instead of looking at one equation at a time, the approach in prior studies. This study uses Two-Stage and Three-Stage Least Squares estimation approach and investigates different models including income models, a trade model and a foreign aid model.

The empirical analysis will examine why foreign aid failed to increase the well-being of aid recipients and will scrutinize the potential contributors to these disappointing results. This dissertation hypothesizes that the substantial difference in economic achievement across countries may be due in part to dependence on foreign aid,

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[1] Most models either use incorrect specifications, such as using income as a function of capital only, or use single equation models that fail to capture the feedback effects many variables have on one another. Others concentrate solely on cross sections that fail to show the dynamic interactions among foreign aid, income, and other control variables over time. For a retrospective assessment see Papanek (1973), Griffin (1970), or Voivodos (1973). However, some current studies have added econometric sophistication to the analyses. For example, Boone (1996) used panel data analysis to measure the impact of foreign aid on political regimes.

impediments to free trade, and the strangulation of private initiatives. Although institutional dynamics can change over time, what constitutes efficient economic organization or good governance remains unchanged.

The dissertation is organized into seven chapters. The remainder of Chapter One discusses the scope of the study. Chapter Two surveys the literature and examines the theoretical and empirical underpinnings of alternative views of the effect of foreign aid on economic performance. It undertakes a thorough examination of the actual process through which foreign aid is disbursed. Understanding the misperception that government failure is less prevalent than market failure provides an additional insight in evaluating the theoretical underpinnings and impediments to income-promoting policies that characterizes most aid recipient nations.

It surveys the public choice literature and examines the distortions attributable to foreign aid, and highlights the relationship between good policy, foreign aid and economic performance. It builds upon the collective choice theory of Olson, the public choice theory of Buchanan and Tullock, and the trade and development school of Krueger, Magee, Brocks and Young, as well as the time-inconsistency and durability literature of Kydland and Prescott, Landes and Posner, and Crain and Tollison.

Chapter Three investigates the theoretical and empirical literature of foreign aid and trade. This chapter hypothesizes that the net value of foreign aid is likely to be negative if all its adverse externalities are taken into account[2]. It predicts that foreign aid

[2] Western Europe in general and England in particular attained their economic growth through a process of private enterprise, with a noticeable lack of foreign aid. Douglas North (1973) also claims that Spain tried to dominate the world with foreign revenues but failed to do so. Gill (1963) argues that Russia imposed

constrains a country's capacity to engage in trade. It also incorporates Tullock's "Transitional Gains Trap" in that despite the aid's negative results, it has been difficult to curb government-to-government foreign aid even after it stops yielding income-promoting results.

Chapters Four, Five and Six present empirical analyses that provide the key quantitative findings. The analyses use newly constructed data on foreign aid, instead of the conventional aid data, the Official Development Assistance (ODA) that combines together grants and loans and employs a new approach developed by Chang, Fernadez-Arias, and Serven (1998) that uses Effective Development Assistance (EDA) covering the years 1975 to 1995 for 133 countries. The empirical specifications follow Frankel and Romer (1999) to correct for the simultaneity of trade and income using country specific geographic characteristics such as size and population as instruments.

Chapter Four specifically attempts to highlight quantitatively the determinants of trade. The importance of trade in economic development enjoys wide recognition among economists of various ideological backgrounds. Even though the ability of trade to enhance competition and economic performance is a stylized fact, current literature falls short in identifying the empirical relationship between foreign aid and trade. This chapter fills the gap by identifying empirically the factors that help or hurt a country's ability to trade and thus its economic success. It tries to shed some light on the possible transmission channels through which these variables affect trade. More importantly, Chapter Four attempts to understand whether foreign aid helps or hurts a country's

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tariffs to protect domestic industries, borrowed heavily through foreign loans, and imposed excessive taxation on the peasantry.

trading capacity. A Two-Stage Least Squares approach is used to account for the endogeneity of aid, trade and income.

Chapter Five attempts to identify the determinants of foreign aid. It scrutinizes the extent to which taxes on international trade and the scope of government activities, ethnicity, private credit, and education determine foreign aid. The key empirical question is whether taxes on international trade affect foreign aid. It uses alterative equations that endogenize government consumption, taxes on trade, GDP per worker, and trade to capture their interrelationship. It theoretically builds upon Bauer (1972), who stressed the lack of free trade among aid-recipients. Chapter Five examines empirically the relationship between protective trade policies and foreign aid and thus attempts to apply Bauer's theoretical framework to the data.

Chapter Six focuses on why some countries grow at a remarkable pace while others stagnate or decline. It builds upon the results of the previous sections that empirically identified the possible transmission mechanisms through which trade and foreign aid affect living standards. This chapter presents empirical evidence linking trade, foreign aid, private credit and fiscal policy, and economic performance. It relies on a novel approach to assess a country's productivity and to account for the interdependences among income, trade, and foreign aid. It deals with two specification issues. First, the proxy for living standards is GDP per worker as opposed to growth rates. Hall and Jones (1997) argued that government policies affect economic levels rather than growth rates. Foreign aid and trade are both government policies that are likely to account for the difference in income levels as opposed to growth. Second,

Chapter Six specifies a system of three equations that estimate GDP per worker, trade and foreign aid simultaneously. A number of previous studies specified single equations models.

In Chapter Six, the models divide financial linkages into two broad sections: public financial linkages (that is, the foreign aid) and private financial linkages, which includes foreign direct investment and private credit. It examines whether foreign aid crowds out private financial linkages. Chapter Seven presents summary and conclusions.

Chapter Two

Alternative Views of the Effect of Foreign Aid on Economic Performance

The notion that foreign aid increases economic performance and generates economic growth is based on Chenery and Strout's dual gap model. Chenery and Strout (1966) claimed that foreign aid promotes development by adding to domestic savings as well as to foreign exchange availability, thus helping to close either the savings-investment gap or the export-import gap. Chenery and Strout (1966) pioneered the so-called Financial Two Gap Approach, which is an extension of the Harrod-Domar thesis. This approach is used to calculate the amount of foreign aid needed to complement the foreign exchange and domestic savings needs of developing countries.[3]

The Financial Two Gap Approach assumed that a gap exists either between saving and investment or between exports and imports. It posited that developing countries could not overcome the shortage of savings and foreign exchange on their own due to their limited resources. Thus, the rationale of the Financial Two Gap Approach is

[3] Domar (1946) extended a well-known growth model 'Capital Expansion, Rate of Growth, and Employment'. The model is inappropriate for explaining the long-run growth of developing countries. Domar's model explained short-term recessions and investment for the US. Nevertheless, early literature on economic development adopted Domar's model to justify the role and significance of foreign aid on economic growth in developing countries. Domar himself later asserted that his model was useless and inapplicable to the economies of developing countries. Yet, the model is still used by development institutions to allocate foreign aid Easterly (1998).

that foreign aid should make up the differences between either the saving-investment gap or the export-import gap. Lal (1997) eloquently notes that both the prediction and the practical application of the Financial Two Gap Approach proved to be unsuccessful. The Financial Two Gap Approach model is based on rigid assumptions, and its theory is filled with various myths that are not borne out by the experiences of many East Asian economies that renounced the theory early on. Policies that were crucial to the success of East Asian economies (openness to trade, stable government, and private capital flows), were lacking from South-East Asian, African and Latin American economies. Differences in income levels among East Asian, South East Asia, Africa and Latin American economies are theoretically explained by differences in openness to trade, design of public policy and dependence on foreign aid.

Papanek (1973) examined empirically the relationship between foreign aid, saving, and foreign private investment. He argued that foreign aid should be channeled to those countries that have a balance of payments constraint. His findings conclude that foreign aid, unlike foreign direct investment and domestic saving, can fill the foreign exchange and saving gap.

In contrast, Lal (1997) claimed that the proclaimed harmful effect of free trade and foreign direct investment on income is misguided. He notes that foreign direct investment increases domestic income and is socially beneficial. Eaton (1989) noted that "foreign direct investment, unlike an indemnity payment or aid, usually does not involve the transfer of wealth between nations, but arises from wealth-holders' willingness to search for high returns for their money." Additionally, the investors control and assume

direct responsibility in the production and the profitability of their investment. Since they have transferable private right and they are the residual claimants of their investment, they are encouraged to maximize the present value of those resources. This motivates them to protect and enhance the long-term prospects of their investment. Foreign aid lacks that institutional matrix. Ultimately the impact of foreign aid, trade and foreign direct investment on income is an empirical question that will be tested later.

Papanek (1973) finds a positive and significant relationship between foreign aid as a percentage of national income and growth. Nevertheless, Papanek's study remains controversial and incorporates many econometric anomalies, such as simultaneity and measurement problems. Similarly, Mosley, Hudson and Horrel (1987) find a positive correlation between foreign aid and economic growth; however, their coefficient on aid was insignificant. Levy (1987b) reports that foreign aid in low-income countries raised investment in a one-to-one ratio. Chaudhuri (1978) finds similar results in his study of India. Roemer (1989) suggests foreign aid relaxes the foreign exchange bottleneck and therefore increases output.

Newlyn (1990) also claimed that foreign aid is effective, while noting that foreign aid's positive effects are offset by negative oil shocks, debt crisis, and other exogenous variables. Easterly (1998) renounced the validity of these studies and asserted that foreign aid failed to increase investment. He noted that the Financial Two Gap Approach calculation produced distorted incentive for aid- "the lower a country's domestic saving, the larger the gap and the more the aid a country is expected to receive."

Adam and O'Connell (1999) showed that conditional aid crowds-in productive domestic capital formation and relieve the burden of distortionary taxation. However, they find that unconditional aid is subject to diminishing returns. A sufficiently large inflow of foreign aid induces transfers to favored groups with no change in taxes. Further, foreign aid allows governments to channel resources to non-productive economic activities.

Burnside and Dollar (2000) employed models that consider the endogeneity between foreign aid and economic growth. They found that foreign aid *per se* has no impact on economic performance. However, when aid interacts with certain policy variables, they found that foreign aid could be effective in a good policy environment. This study neglects the importance of private capital flows.

Steinberg (1985) suggested that US aid to South Korea in the 1950s contributed to its development in the 1960s. Davenport (1970) found a positive and significant relationship between aid and GNP per capita, contrary to the popular notion that aid is allocated preferentially to poor countries. This supports the perception that aid is a political tool of donor governments. Donors prefer to aid stable governments that are inclined towards the West irrespective of recipient's need. Similarly, McKinley and Little (1978a and 1979) found no logical relationship between aid and growth. They suggest that aid distribution reflects the foreign policy interests of the donor country. Cold war considerations and, primarily, the political importance of the recipient to the donor, predominantly determine US and French bilateral aid. Using cross country regressions for the periods 1969-1970 and 1978-1980, Maizels and Nissanke (1984) find

that while bilateral aid allocations are made largely on the basis of economic and political interests of donor countries, aid from multilateral agencies is essentially allocated commensurately to the economic and welfare needs of recipients.

Conversely, the proposition that foreign aid is inimical to economic growth is based on the presumption that it will strengthen the power of predatory governments and thus undermine the emergence of the private sector (Friedman 1958 and Bauer 1972). Krauss (1997) claimed that Taiwan's high growth rate was mainly encouraged by the loss of American aid in early 1960. As the foreign aid was withheld, Taiwan had no option but to abandon its protectionist trade policy that was previously sustained by foreign aid. Griffin (1970) argued that foreign aid displaces savings, which in turn retards investment and consequently economic growth.

Furthermore, Griffin and Enos (1970) reported a negative relationship between a country's savings rate and capital inflows as a proportion of national income. Levy (1984) found that the negative impact of foreign aid on public savings as government reduces tax levels or tax efforts, is not completely offset by its positive impact on income. Likewise, Pillai (1982) found that 60 percent of foreign aid in Jordan was used to finance investment while the remaining 40 percent was used either to reduce taxes or slacken revenue collection.

Mosley, Hudson, and Horrell, (1987) corroborated that foreign aid does not relieve severe bottlenecks, furnish absent skills, or enhance technological transfer. Their empirical results fail to show a positive correlation between economic performance and

foreign aid. Voivodas (1973) found a negative but insignificant relationship between growth and aid for 22 developing countries from 1956 to 1968.

Casella and Eichengreen (1994) claimed that the expectation of foreign aid could essentially intensify the delay in stabilization processes and allow interest groups to resist growth-enhancing reforms. Pack and Pack (1993) asserted that proponents and opponents of foreign aid alike acknowledge the fact that foreign aid is fungible. Due to the fungibility of foreign aid, an increase in government income in the form of foreign aid will be crowded out by rent dissipation and misguided policy mistakes. Svensson(1996) argued that the simple expectation of more foreign aid increases rent dissipation and delays efficient economic policy. Ranis and Mahmood (1992) claimed that foreign aid resources retard a country's ability to adhere to responsible policy.

Further studies claimed that there is no general relationship between foreign aid and economic growth. Rather, these studies argued that the specific effect of foreign aid depends on other factors. Foreign aid, coupled with good economic policies, has a strong positive effect on growth. However, when donor interests overwhelm good policies and geopolitical considerations, foreign aid can have a disastrous effect on economic performance. Mosley (1980) found that the effectiveness of aid depends on other tax policies. He found that foreign aid is positively and significantly correlated with economic growth when the ability for the government to tax is high.

Dowling and Hiemenz (1982) suggested that good economic policies enhance the ability of aid to increase growth. Yet, the paradox remains that most foreign aid recipients adopt policies that are diametrically opposed to sustainable economic

development, while the notion that good policies and institutions are conducive to economic performance has been with us since Adam Smith.

The empirical literature on foreign aid and income is plagued by simultaneity problems; i.e., aid may be both a determinant on economic performance as well as determined by economic performance. As noted earlier, foreign aid affects other variables that can influence the growth rate such as tax policies, savings, trade, and investment. However, these factors also respond to changes in other variables, making it difficult to disentangle the effect of foreign aid from that of other equally important variables.

Boone (1996) overturned the positive results of Dowling and Hiemenz (1982) and Levy (1988) by using instrument techniques and panel data. He finds that foreign aid has no impact on investment and economic growth. Rather, he found that foreign aid increased the scope of government activities. He also noted that only wealthy and powerful groups gain from foreign aid. Analogously, Burnside and Dollar (2000) found that foreign aid *per se* does not impact the economic growth of aid recipient nations. However, the authors found that when aid interacts with policy variables, it has a positive effect on growth in an environment of good policies. Their result is robust to different specifications of the model. They found that foreign aid was more effective in those countries with high budget surpluses, low inflation, and free trade.

Burnside and Dollar (2000) did not incorporate all sources of other financing in their models. Furthermore, the endogeneity between foreign aid and trade is left unexamined. Therefore a model that corrects for simultaneity among international trade,

aid and economic performance explicitly might shed light on the interdependence and feedback loops inherent in such models. A model that incorporates all non-aid sources of financial flows might also illuminate the effect of aid on trade and income. This study takes that approach.

Yano and Nugent (1999) listed stylized facts about foreign aid. They argued that tariffs are very important in aid recipient both as revenue generation and industry protection. Their study found evidence that foreign aid has a negative effect on economic performance. They use official development assistance in 44 countries as a proxy for foreign aid. Unlike Yano and Nugent, this dissertation uses a newly constructed and superior estimate of foreign aid called Effective Development Assistance (hereafter referred to as EDA). This newly constructed data avoids the pitfall of conventional aid data called Official Development Assistance (ODA) that combines together grants and loans.

If foreign aid alleviates either constraint (saving or foreign exchange) but reduces the saving rate, the effect of aid on growth is negative (Papanek 1972, 1973; Riddell, 1987; and Mosley *et. al* 1987). If the association of government spending and foreign is positive, the results are lower domestic saving, the attempt of Financial Two Gap Approach's attempt to supplement domestic saving is not practicable. Furthermore, Easterly (1998), a World Bank scholar, asserted that foreign aid failed to add to investment because, according to the permanent income theory of consumption, countries consumed rather than invested permanent flow of aid. The inability of foreign aid to

achieve desired meaningful outcome over the years is eloquently summarized by Easterly (1998) using the following analogy:

> "A modern version of the quest story is the movie The Wizard of Oz. A tornado blows Dorothy into the land of Oz. She is desperate to get back home, and the inhabitants inform her that the Wizard of Oz can help her. She embarks on a dangerous Journey to meet the Wizard of Oz. The Wizard tells her to fetch the magical broomstick of the Wicked Witch of the West. Alas, the Wizard turns out to be a fraud and the broomstick is worth no more than your standard K-mart broom. However Glinda, the Good Witch of the North, tells Dorothy that she has had the power within her to return home all along. All she has to do is click her heels together 3 times and repeat, there's no place like home."

Policies such Smith's Poor Laws, welfare systems in the 20th Century, and foreign aid have one thing in common. They did not help the poor achieve their full potential and self-determination due to the fact that they lack of incentives to do so. The study hypothesizes that both the theory and practice of foreign aid failed to produce desired outcome. Both recipient and donor countries sustained outdated and misguided policies, which distorted incentives and remained unsuccessful to improve the living standards of those who were highly dependent on it. For example, Africa and some Asian countries are regarded as the poorest and the most aid-dependent economies in the world. Kamath (1994) argued that India, which received more foreign aid than any other country in the developing world, has the lowest growth rates. Bhalla and Bhalla (1997) and Mallampally and Sauvant(1999) noted that foreign direct investment has been a significant contributor to a country 's national income.

Even so, the distribution of foreign direct investment has been uneven. African countries received one percent of foreign direct investment, Latin American and the

Caribbean 14 percent, and finally Asia received 22 percent. Foreign direct investment has bypassed many aid recipient nations like Africa, South Asia and Latin American countries. On the contrary, the distribution of foreign aid has also been uneven and is dispersed as follows: in 1990 for instance US$16,810 million of foreign aid went to Africa. East Asia and South Asia received US$7,771 million, and US$6147 million respectively. By far, the largest contribution of official aid accrues to sub-Saharan countries.

Easterly (1998) noted that foreign aid grew from US$5 billion annually in 1960 to US$45 billion in 1990, which summed in 1990 to $1 trillion. Nonetheless, the Financial Two Gap Approach projected a one-to-one rise in investment and income with foreign aid, the evidence showed that only six out of the 88 countries tested borne out this prediction. It is not coincidental that most aid-dependent countries have been marginalized and failed to assume their share of world trade and foreign direct investment.

A Public Choice Perspective

Poor countries receiving substantial amounts of foreign aid have consistently registered negative growth rates. This section attempts to explain this devastating result by examining the underlying process by which foreign aid dollars are granted and distributed. This is a topic neglected by the earlier literature. The unfounded belief that market failures overshadow government failures provides an additional insight to judge and evaluate the unworkable economic policies and deteriorating economic performance that characterizes most of the aid recipient nations. The institutional infrastructure of foreign aid entails central planning, trade barriers, and distributive rent seeking.

The proponents of foreign aid fail to acknowledge the role of incentives in both private and public activities. While they recognized aid's intrinsic fungibility, they have underestimated its consequences. Since most foreign aid is government-to-government, one must understand how rulers allocate foreign aid resources. Whether or not foreign aid is invested in productive or unproductive activities is important; foreign aid might lack the positive externalities that come from hard work and self-reliance.

The study predicts that relationship between foreign aid, learning, and entrepreneurship may not be positive. Foreign aid does not add to human capital and, in some cases human capital formation, has been eroded. This is because people compete not on their level knowledge and skills, but on their level craftiness and dishonesty. Two hundred years ago, Adam Smith postulated that by nurturing entrepreneurship, individuals seeking to enhance their private interest would ultimately bring socially useful ends due to the efficiency and competition that private enterprise entails. Foreign

aid entails institution whereby the effective mechanism of learning and transmission of knowledge is eliminated. Entrepreneurial skills and learning are lacking in many aid recipient countries because individuals do not have an incentive to educate themselves and acquire skills necessary for the betterment of their well-being, thereby eroding social capital and creating a pattern of work ethic that is less conducive to learning, entrepreneurial activates and innovation. Foreign aid recipients experience both human ("brain-drained") and capital flight as people and investors find it difficult to maximize the present value of their both human and capital resources. Due to the nature of the institutions that associated with foreign aid, foreign aid has not reached its intended mandate of helping the poor to achieve self-sufficiency. Buchanan (1980) explained that when non-market institutions are present, individuals would engage in activities that support the diversion rather than the creation of wealth. Rational individuals will act on their own behalf in both market and non-market institutions. The difference is that in non-market institutions, individuals might engage in activities that benefit them, while simultaneously producing nationally wasteful activities. Non-market institutions characterize most aid-recipient economies, and this might partially explain the deteriorating economic conditions many aid-recipients experience.

Rowley (1998) attempted to explain why some African countries are worse off economically today than they were before the onset of foreign aid. He suggested that many African rulers lack the entrepreneurial experience necessary for production, and the only avenue for wealth accumulation is the diversion of resources (often provided through multilateral agencies) from productive economic activity to bank accounts in

foreign countries. This further supports the hypothesis that foreign aid is simply a transfer of wealth rather than a creation wealth that can be quickly dissipated into distributive activities.

The effect of foreign aid on government's opportunities and constraints is also important; it may induce a negative externality that engages individuals and entrepreneurs in rent seeking activities. Buchanan and Lee (1982) postulated that politicians face motives and political incentives biased toward short-term political gains. Therefore one should consider time preferences and bureau objectives. The theory of rent seeking advocated by Tullock (1967, 1971, 1975, 1987 and 1993) explained the rent seeking and rent extraction that characterizes political markets in developed countries.

Rowley (1998) noted that "If there is free entry into rent seeking, if all rent-seekers are risk neutral, if there are constant returns to scale in rent seeking and if rational expectations apply, rent seeking behavior will be efficient in the very special sense that rent seeking outlays will approximate the discounted present value of the rents available from the political process." This description might closely approximate the competitive political systems that prevail in the Western world. However, in many developing countries conditions exit that make rent seeking activities excessively costly. This study characterizes foreign aid as inherently distributive, and therefore, bad for economic performance, especially under settings where efficient political and economic systems do not prevail. It further notes that foreign aid exacerbates the political bias toward short-run gains from foreign aid resources. Since no one expects to reap the future profitability

of aid, in such settings, rulers might adopt policies that benefit them in the short term but hurt the nation in the long run.

Where exclusive proprietorship is absent, the incentive to exploit foreign aid dollars in a way that not only eliminates future profitability but also entails socially and economically wasteful activities is pervasive. Krauss (1997) commented that "by temporally moderating the symptoms of policy mistakes, foreign aid perpetuates the mistakes and thus the poverty that result from them." Krauss also noted that foreign aid failed to alleviate, and at times lengthened and exacerbated, the poverty it was intended to mitigate.

This dissertation characterizes foreign aid as a communally owned resource that greatly suffers from the classical phenomenon, labeled the "tragedy of the commons." Rulers do not take into account the present value and the productivity of foreign aid resources due to the inherent lack of incentives, well-established institutions of property rights and the rule of law. Ruling parties with no residual claimants will use foreign aid dollars in a selfish and destructive manner, and rational individuals will squander the foreign aid money as soon as it is received.

Svensson (1996) claimed, "the mere expectation of aid tends to promote inefficient policies." He asserted that when rulers expect more foreign assistance, they quickly increase rent dissipation and thereby diminish the period of time effective policies can be adhered to. Foreign aid may contribute to relaxing government budget constraints and thus increasing government consumption. If foreign aid contributes to *productive* government consumption such as enhancing education, building rural and

urban infrastructure, protecting private property, and reducing trade risks, it results in a net benefit to economic performance, and countries that receive more aid should expect increase in their well-being. Nevertheless, growing poverty and indebtedness characterizes the economies of many of aid-recipient countries.

Laffont and Guessan (1998) found empirically that corruption increases with foreign aid and is negatively related to trade. While African countries remain highly dependent on foreign aid, there is nowhere else in the world where such devastating negative growth rates have occurred. McPherson and Nieswiadomy (2000) suggested that in many of these African countries, rulers have seized power ruthlessly and after an eventual challenge will flee, taking their wealth with them. Millions in aid money failed to bring sustainable economic performance. It may be that foreign aid reflects the fundamental dichotomy between securing property rights in privately owned resources and securing property rights in communal property.

The systematic failure of foreign aid is not confined to Africa. Leon (1994) claimed that despite the $ 400 billion of foreign aid channeled into Latin America, it merely financed unproductive institutions. Landes (1998) argued that excessive borrowing from the World Bank and the IMF failed to promote economic growth because most of the resources went to secret banks in the USA and Switzerland.

Foreign aid's inability to increase economic performance stems from its lack of market institutions with well-defined property rights that encourage people to use their resources and skills in the most efficient manner. Not only are people the residual claimants of their resources with market institutions, but they also have transferable

rights for their capital, which allows them to capitalize on the value of their capital and labor. This leads to cooperation and social harmony, which ultimately benefits society at large.

North (1980) identified factors that have helped or hampered economic progress historically. He concludes that the lack of financial resources never prevented nations from growing but the lack of proper institutions and policies hindered economic performance. North (1990) further postulated that economic development is a function of, among other things, institutional apparatus, which depends on incentive structures and the information available to society. He argued that the type and pattern of institutions in the development process determine the structure of property rights and, together with the standard constraints of economic theory, determine the opportunities available in a society. This study hypothesizes that foreign aid institutions lack the type, the pattern, the incentives, and, information necessary for private individuals to engage in productive exchange. This creates a property rights structure based on distributive rent seeking and not wealth generation.

The following section undertakes a thorough examination of the actual process through which foreign aid is distributed. Understanding the misconceptions that government failure is less prevalent than market failure provides an additional insight in evaluating the ineffectiveness of foreign aid in reaching its intended recipients. The two rationales for government intervention are equity and efficiency. Welfare economics culminated in the elaboration of the theory of second best to describe the optimality of some policy inefficiencies and its application to the economies of developing nations.

Post-depression conventional wisdom assumed government-to-government official aid was welfare improving and second best to markets enterprises.

Development economists generally assume that developing countries are different from developed countries in that markets do not function. Baran (1957) asserted that, "the dominant fact of our time is that the institution of private property in the means of production has now come into irreconcilable contradiction with the economic and social advancement of the people in the underdeveloped countries." Nobel Laureate Myrdal (1956) also claimed that foreign aid, central planning, and trade restrictions were necessary conditions for economic development.

The onset of foreign aid transfers to supplement the resources of underdeveloped nations coincided with the time when the Keynesian model of big government as benevolent and social welfare maximizing was prevalent.[4] Consequently, government-to-government foreign aid, state ownership, infant industry argument and centralization of both economic and political power became common features in the economies of aid-recipient nations. Despite the misperception that government eliminates all social ills, significant economic backwardness characterizes those economies where governments dominates economic activities.

Contrary to the conventional approach, Krueger (1990) notes, "there is no evidence that living standards fell in the now-developing countries prior to 1950, a time which many observers associate with a period of laissez-faire. In many African countries, however, living standards have been falling- in some cases precipitously-

[4] For retrospective assessment, refer to Myrdal (1956), Hirschman (1981), and Rosentein-Rodan (1984).

since." Government intervention entails policy distortions and bureaucratic failure, which could produce what might be called the theory of the second worst, rather than the theory of second best. Government intervention results in various policy distortions that are inferior to free market enterprise. Obviously falling living standards resulted not from too little foreign aid but from foreign aid-induced policy distortions.

The similarities between Nobel Laureate Douglas North and Adam Smith are clearly seen in their emphasis on the importance of institutions such as incentive structures, regimes, property rights, rules of law and good policies for economic prosperity. Market enterprise and exchange inject incentives into the market and nurtures innovation and private investment, which may in turn enhance the internal dynamics of the economic system. Private markets, however, are not diametrically opposed to the existence of the government. Obviously, basic economic textbooks tell us that exchange and specialization are the core elements of a free market enterprise and cannot exist without the proper role of government.

The theory of public goods explains why markets cannot provide certain activities. People will demand certain kinds of government actions because they are productive. Potential sources of market failures include externalities, public goods, monopolies and information asymmetries. An additional source of market failure in developing countries appears to be a lack of capital resources for economic development. Foreign aid is supposed to fill this vacuum. However, foreign aid is often provided government-to-government. This means that the government assumes a commanding and controlling role in the ownership, organization, distribution and allocation of foreign

aid resources. Unfortunately, this process provides little opportunity for the enhancement and development of private enterprises.

Friedman (1958) and Bauer (1974) criticized foreign aid as an institution that creates a wedge between the public sector and the private sector. Bates (1983), Collier (1991), and Adam and O'Connell (1999) also supported the argument that African governments, in effect, set themselves up as competitors with the private sector. In contrast, East Asian countries grew quickly through their outward-looking policies, which led them towards a virtuous cycle of trade and foreign direct investment. Many Latin American and African countries failed to expand trade, depended highly on foreign aid and invested their effort in rent seeking and diversion of resources (Bhalla and Bhalla 1997).

What is not coincidental about the economic performance of African, Latin American and East Asian countries is that each responds to economic efficiency and growth promoting institutions differently. The success of East Asian countries is a direct result of their responsiveness of the changes in social, political and economic institutions. Any attempt to elucidate the rapid growth of East Asian countries emphasizes trade, to invest in physical and human capital, political stability, and less entrenched interest groups. It also relates to fiscal discipline and existence of well-defined and transferable property right that constrains both private and public entities.

Government-to-government foreign aid that attempts to alleviate problems arising from shortages of capital and market failure entails an enormous amount of government intervention. However, there are categories of activities that public choice theory

predicts government will do poorly. The result is government failure *and* market failure. Government failure is present when the political process leads to economic inefficiency and wasted resources. Attempts by aid-funded governments to mitigate the adverse consequences of economic change have been costly and poorly administered.

As a result, government-to-government foreign aid actually slows rather than speeds up the process of economic development. This is because excessive government intervention undermines efficiency due to lack of information, ownership structure and incentive mechanism.

Niskanen (1976) argued that politicians' economic options are led by their political choices and are determined by their own political and economic interests. In such a setting, individuals and groups seek out activities that bring personal advantages at the expense of others. If public bureaus have discretion over the provision of some public goods as Shleifer and Vishny (1993) claimed, foreign aid may thereby affect the incentive structure and information available to interest groups in a manner not conducive to wealth generation. Foreign aid may also affect bureaucrats in both development institutions and aid-recipient nations. Government-to-government official transfers allow public bureaus discretion over the provision of foreign aid dollars and, consequently, the head of the state in many developing countries designates the recipients of foreign aid dollars.

Adam Smith, long ago proffered the idea that public bureaus perform less industrious activities, unless their compensation is proportional to their efforts. Public bureaus in aid-recipient nations derive revenue either from domestic taxation and

borrowing or from foreign aid. Since their performance cannot be monitored, government-to-government foreign aid makes the principal-agent problem more difficult to control. Moreover, their performance cannot be easily identified, and without private incentives and ownership, efficiency is unlikely to be the outcome. Like national bureaus in national governments, the output and efficiency of aid-dispersing international bureaus is hard to measure. They both ignore the incentives and information necessary to produce efficiently. Complexities involving differences in institutions, interests and motivations between donors and aid recipients have made matters worse.

The World Bank (1983a), Srinivasan (1985) Krueger (1990), concluded that government failure significantly outweighs market failure in the economies of developing countries. Krueger (1990) and Lal (1997) argued that government intervention in many aid-recipient nations not only increased the income disparity between the rich and the poor, but also reduced overall economic productivity. Public choice theory might explain why state-led, aid-ridden economies failed to attain meaningful economic performances and, in many instances, experienced negative growth rates.

Crain (1998) noted that "public choice nourished the reunion of economic and political science, a discipline that had become increasingly detached during the first half of the Twentieth Century." While public choice literature transformed and connected the logical relationship between the economy and the government, development economists failed to incorporate public choice impediments in their analyses and continued to assume governments that are efficient, benevolent and represent all citizens.

Decisions in both market transactions and political transactions are made on the basis of the information and incentives originating from the institutions within which the individuals, either private or public, exist. Nevertheless, Landes and Posner (1975) postulated that political transactions lack the institutional matrix that determines how commitments are enforced (the court), since governments are among the parties that engage in exchange and might determine which rules to implement and which rules not to implement.

They also note that government serves economically powerful groups who create situations that facilitate rent seeking activities using the political rules. Landes and Posner conclude that lack of permanence increases short-run rent seeking. Models that assume the competitive political market structure of Becker (1983) do not apply to many aid-recipient developing countries. Short-term political gains are higher in aid-recipient countries than in the one postulated by Becker, Landes and Posner.

Lack of commitment and accountability encourages aid-recipient countries to behave differently than political markets in developed economies. Powerful rulers have discretion over how foreign aid is used and/or distributed. Since they have a complete monopoly on political markets, voter choices do not determine how resources are allocated or to whom. In such circumstances, those who command more power will exploit the commons. Given their short-term political interests and time preferences, they will coincide the end of their term with the full dissipation of foreign aid resources. Consequently, while durability of institutions is important in enforcing the law, it can

also impose devastating inflexibility that sustains growth-retarding institutions and keeps ineffective governments in place.

Kydland and Prescott (1977) discussed the optimal policy and concluded that a government might not act in accordance with the interest of its people, creating a time-consistency problem. This is due to the fact that governments will renege on their promises but that private people will recognize this and act according to what they think the government would do. Inappropriate policies, lack of enforceability and a top-down approach negate any beneficial effect of foreign aid on income performance. Development institutions adopted a top-down approach to development, which exacerbated the lack of sustainable growth in aid-recipient countries.

For example, not only did development institutions prescribe erroneous policies such as import-substitution and high marginal trade tax rates, they also failed to enforce their conditional clauses. High marginal taxes on international transactions necessitated by protectionist trade policies provoked distortions, inefficiencies and diminished trade. Most of these institutions constrain a country's capacity to engage in trade and therefore produce a pattern of development that is not conducive to sustainable economic development.

The history of trade protection around the world has not been impressive. It appears that there exists a negative relationship among the success of trade protection and the rate of economic performance. Olson (1965), Pincus (1967), Resnick (1975), Bates (1988), Krueger (1990) and Bauer (1991) explained the channels through which protectionism hurts the economy. Protectionism increases the strategic behavior of

entrepreneurs, allows unproductive firms to exist, prevents free trade, increases corruption, and inhibits competition.

Trade protection and foreign aid changed the fundamental institutions and social incentives and offered less for development, as it failed to absorb the most abundant resource – unskilled labor Lal (1997). Moreover, these policies exacerbate rather than eliminate balance of payment problems. And finally, by restricting trade, the policy fails to add to the acquisition of skills and knowledge that could have been learned through international competition.

Even though both the policies and prescriptions of development institutions have changed over the years, many aid-recipient countries still support protectionist trade policies that encourage public enterprises and adopt a top-down approach to development (Nugent and Yano 1999). Over the past two decades, the IMF and the World Bank have conditioned their loans on the enforcement of trade liberalization and various other free market enterprise systems. However, as they are referred to as "loans with no influence," development institutions fail to enforce the conditional clauses in their loans and grants. Edwards (1997) claimed that, in many instances, the full amount of loans was disbursed despite the fact that not a single liberalization condition was implemented.

Magee, Brook, and Young (1989) articulate the two ways people might accumulate wealth: by either producing it or by simply taking it away from others. To create wealth, individuals must make hard choices and be responsive to changing economic conditions, making necessary adjustments. On the other hand, foreign aid is inherently a transfer of wealth that is likely to increase rent seeking and may discourage

efforts for people to generate wealth. Tullock (1980b) postulated that rent seeking activities are at minimum zero-sum games and perhaps negative sum games, as they merely involve shifting money between people.

Comparing free trade and foreign aid illuminates how competition and efficiency of each affect the resource allocation. Their respective influences can be seen in their respective outcomes. Aid-recipient economies may become more politically efficient, but remain economically and socially inefficient. Although the foreign aid was originally designed to relieve the foreign exchange and saving bottlenecks, it remains a vexing social and economic problem that undermines the productive capacity of aid-recipient countries. Instead, entrepreneurs and individuals tend to engage in rent seeking behavior, trying to capture the right to receive foreign aid from the government.

A developing country's limited resources can be wasted through this kind of behavior with virtually all of the economy's precious resources vanishing into an economic "black hole". Magee, Brook and Young (1989) defined a black hole as a situation where economic resources are allocated into redistributive rent seeking and 100 percent of economic resources goes into these activities. A substantial amount of government-to-government transfers generates neither gains from improved efficiency nor a tendency toward less economic inequality. Rather, it generates rent seeking behavior that may involve economic resources in excess of the value of foreign aid. It is likely that foreign aid is fully dissipated before received (Svensson, 1996).

Tullock (1967) elaborated on the negative sum game of rent seeking by identifying the opportunity cost of the resources used in rent seeking activities. He also noted that rent seeking activities are not merely transfers; they also shift resources from productive use to non-productive uses, which might be socially costly. Rent seeking is even more harmful when applied to aid-recipient nations that do not have the proper institutional infrastructure in place.

Moreover, Tollison (1997) described rent seeking as a socially costly wealth redistribution endeavor. He further noted that rent seeking might be even more costly in a society where government ownership characterizes all aspects of economic activities. In developing countries where societies are highly fragmented, different ethnic groups vie for their share of foreign aid, and rent seeking becomes a costly pursuit. Evidence points to the fact that many rulers in less-developed countries use government power to accumulate personal wealth and enrich their ethnic group.[5] In such a setting foreign aid facilitates the diversion of resources to a powerful ruling elite and its constituents whether they represent clan members or political favors. Therefore, the countries with diverse ethnic groups diminish the effectiveness of foreign aid.

This impact of foreign aid on economic performance is eventually an empirical question, and one that I address in Chapter Six. Conceptually, while foreign aid might produce short-run benefits for some, it increases long-run costs for the majority. This is because the people who are competing for foreign aid do not bear the full costs of foreign aid, but aid-recipient countries must eventually pay the interest and the principal for the

[5] See for example Landes (1998) or Boone (1996).

foreign aid dollars they receive. These interest rates are higher than the rates the eventual recipients of foreign aid would be willing to pay themselves, if forced to borrow at the market rate (Eaton 1989). The result is the worst of both worlds: both dependency and indebtedness increase dramatically.

Empirical evidence shows that in many countries a substantial share of national output is devoted to rent seeking. Krueger (1974) claimed that 7 percent of Indian GNP and 15 percent of Turkish GNP were engrossed in competitive rent seeking activities. Mohammad and Whally (1984) showed that redistribute activities consume 20 to 40 percent of Indian output. Ross (1984) indicated that rent seeking activity comprises about 38 percent of Kenya's GDP. In such economies, rent seeking activities account for a huge amount of their meager income, which given their limited resources will eventually reduce their economic performance. It is interesting to note both Kenya and India receive enormous amount of foreign aid.

Foreign assistance may have negative externalities since it affects the incentives and information available to interest groups. It also has some aspects of common ownership due to lack of private property right. Institutions that facilitate competition and lower transaction costs might attract private capital and might increase wealth of nations. Foreign aid neither enhances competition nor lowers transaction costs. Rather, foreign aid facilitates central planning, corruption, misguided policies and retarded economic performance.

Chapter Three

The link between Foreign Aid and Free Trade

Two contrasting events happened after the Great Depression. Foreign aid and international trade (financial and goods services) have emerged as the two primary aspects of global interdependence. International trade has expanded the volume of goods and services since World War II. The importance of international trade on economic performance has a long history in economic thought. The evidence overwhelmingly indicates that trade promotes economic performance.[6] International trade enhances productivity and specialization by permitting nations to produce the goods and services they can produce with the least cost given their resources and technology. After the Great Depression, international trade theory suffered from various myths and misrepresentations, which diminished its importance.[7] Yet, since 1970, the importance of international trade has gained momentum in economic development literature, resuscitating interest in economic performance and trade.

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[6] Kravis (1970) argues that trade was the most important factor in 19th century Europe's economic performance. Also, see Keesing (1967), Edwards (1993), Fischer (1993), and Levine and Renelt (1992).

[7] The Balanced Growth Approach, Planning Models, infant industry protection, import substitution, and fallacy that developing countries cannot gain from trade proved erroneous but became stylized facts for many decades.

Foreign aid, by the other hand, has increased since 1950s and 1960s. Foreign aid has been presumed to mitigate the shortage of capital, relieve foreign exchange and saving bottlenecks, reduce income disparity, and finally help countries achieve sustainable economic performance. Foreign aid provision is justified both on equity and efficiency grounds. On the efficiency side, foreign aid proponents claimed it might complement the saving and foreign exchange gaps of developing nations. Developing countries could thereby increase their domestic investment and thus their economic performance. On the equity side, foreign aid may reduce the income disparities between the "haves and the "have-nots".

Chapter Three investigates the link between trade and foreign aid. It shows that foreign aid is one of the factors that might constrain a country's capacity to engage in trade. It also claims that foreign direct investment is one potential factor that increases a country's capacity to engage in international trade. It predicts that foreign aid is negatively correlated with trade; conversely, it predicts that foreign direct investment is positively correlated with trade. It also provides a public choice perspective, which attempts to understand the process underlying trade and foreign aid.

Development economists from the left and the right vehemently oppose foreign aid as a source of productive capital, though for different reasons.[8] Those who subscribe to the dependency theory oppose foreign aid on the grounds of the neo-imperialism it implies. Conversely, those of the right claim that government-to-government aid

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[8] For a retrospective analysis for opponents of foreign aid, see Friedman (1958), Griffin (1978) and Bauer (1981); for the proponents, refer to Myrdal (1957) and Rosentein-Roden (1968).

increases rent seeking, increases income inequalities, reduces trade, increases dependency, and delays necessary economic progress.

Conventional development economics following the Great Depression called for an autarkic model of trade. The conventional wisdom at the time believed that the liberal trade policy advocated by Adam Smith was not relevant to the developing world. Myrdal (1956) claimed that central planning and trade protection through tariffs and subsidies, along with proficient and informed bureaus, would bring about sustainable economic and human development for developing countries. He also argued that developed countries could help by providing foreign aid to developing countries. [9]

Many developing nations implemented these erroneous policy prescriptions and soon became increasingly aware of the deleterious effect they have on economic performance. East Asian countries soon switched from inward looking to outward looking economic policies. While this policy prescription proved useless and unworkable, many aid-recipient nations still follow these policies (Krueger 1990,1997, Lal (1997) and Yano and Nugent 1999).

Myrdal's predictions about international trade and development seem inappropriate. Bauer (1972 and 1991) criticized and attacked Myrdal's strategy of economic development. In Bauer's view, the development process rests on voluntary responses, efficient domestic and international markets, and an economic system that is

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[9] Myrdal's view on international trade has been purely autarkic since he viewed international trade as a negative sum game institution, where developed countries gain at the expense of poor economies. He recommended trade protectionism and trade subsidies to protect poor nations from the vagaries of free international trade. He also supported the claim that foreign direct investment was inimical to economic performance.

unfettered and free to all society. Bauer disapproves of foreign aid because it impedes international trade, increases government intervention, and creates unequal access to economic activity.

Development economists have continued to argue for and against foreign aid based on either Mydral's or Bauer's premises.[10] Though Bauer's intuition is still relevant today, the lack of empirical evidence diminishes his claim. Moreover, lack of reliable data, measurement problems, ideological differences, and simultaneity problems limit the objectives and empirical analyses of the impact of foreign aid on trade and economic activities.

The empirical evidence showing foreign aid might not increase a country's ability to trade is based on Transfer Paradox[11]. A trade theoretic perspective of the effect of aid on economic performance suggests that the inflow of foreign aid increases the value of domestic currency. This appreciation of domestic currency reduces the competitiveness of the export sector, making the recipient country more dependent on foreign aid as a source of foreign exchange (Van Wijnbergen 1985). International economists argue that the welfare effect of a transfer (whether it is foreign aid or a windfall from the discovery of natural resources) might be negative. The negative effect of the transfer may result from various sources.

Johnson (1967) built a theoretical model that suggested that in a tariff-distorted economy, the import-competing sector displaces the exports sector. Both large and small

[10] Friedman (1956), Griffin (1970), Bauer (1992, 1981,1972), Papanek (1972, 1973), Levy (1987), Andy (1979), McKinley and Little (1979), Mosley (1980), and Boone (1996).

[11] Transfer Paradox can occur if a transfer given to a country has potential deleterious effect on economic performance.

economies experience welfare loss due to a tariff-distorted trade policy. This process is exacerbated by industrial policy favoring the trade protection and import substitutions. However, many developing countries lack both the human and physical capital to produce capital goods domestically.

Corden and Neary (1982) analyzed a case in which a transfer given to a large country results in a mixed blessing. This is because it distorts the sectoral balance of the economy by increasing prices in the non-tradable sector (capital goods) and contracting prices in the tradable sector. The "Classical Dutch Disease" literature posits that a transfer given to a large country expands the demand for non-traded goods and thus reduces its competitiveness in the world market. As both the price of traded goods and demand for non-traded goods increases, domestic currency appreciates and thus the traded good sector looses its competitiveness. Transfer-induced increases in the demand for non-traded goods thereby cause de-industrialization.

Yano & Nugent (1999) empirically examined the aid-induced expansion of non-traded goods and provided evidence that foreign aid could be a source of Transfer Paradox. They claim "the aid-induced expansion of the non-traded goods sector could be a source of the Transfer Paradox when countries protect their import-competing industries by tariffs." Their finding offered some support for the transfer paradox literature, but they add that the Transfer Paradox can arise not only as result of a transfer given to a large country, but also through aid-induced distortion to small economies.

Formal tying exemplifies the most obvious relationship between trade and foreign aid. Bhagwati (1967) described a geometric process of tying aid and noted that tying

foreign aid diminishes the real benefit of its assistance. This because tying foreign aid requires that foreign aid-recipients purchase goods and services from the donors. Cassen and Associates (1987) found that tying foreign aid to donors' exports reduces the real benefit of foreign assistance by 20 percent. Informal tying of foreign aid also requires that donors direct their aid money to projects, industries, and nations in which they have a competitive advantage.

Whether foreign aid funds projects necessitate goods to be imported from donor countries or it entails debt repayment services, foreign aid hardly ever involves pure form of money granted. There has been dramatic increase of servicing the debt for aid-recipient countries; for example, Africa's percentage of the GDP devoted to debt services had substantially skyrocketed for the past four decades.

It is also likely that tying foreign aid prevents recipient nations from purchasing the goods and services that serve their needs, rather than the donor's interest. Pincus (1967), Bauer (1991) and Cho (1995), argued along these same lines that foreign aid retards international trade, though lack of empirical evidence diminishes their argument. Bauer (1991) contends that many aid-recipient countries follow policies that are diametrically opposed to increasing welfare of the poor. By suppressing the private trade and restricting the inflow of capital, such policies are likely to deprive countries not only of capital, but also of the enterprise and valuable skills they need to develop.

Mosley et al., (1987) argues that given the fungibility of foreign aid, it might increase the price of investment goods and reduce economic performance. If donors require counterpart funds, similar negative results can arise from the provision of foreign

aid. This is because recipients must raise taxes and public borrowing in order to meet the counterpart funds. Yet, this increases interest rates and crowds out private investments that could have been undertaken if these conditions were not imposed.

Foreign Aid: A Transitional Losses Trap

An assertion that is at odds with the empirical evidence is that foreign aid contributes positively to complementing the scarce resources developing countries.[12] The empirical results in this dissertation suggested that government-to-government foreign aid fails to complement developing countries' resources and, in many instances, interrupts the internal dynamics of a would-be efficient economic system.

When the opportunity cost of foreign aid resources is taken into account (capital resources and policy distortions), it symbolizes a cost that has outweighed its benefit in present value. This due to lost of forgone opportunities of wealth creation, self-reliance and less distorted government policies. This section nurtures and elaborates the link between trade and foreign aid and asserts that the pessimism about free trade culminated with the Financial Two Gap Approach, which resulted in a massive inflow of government-to-government foreign aid Lal (1998). Nevertheless, this approach prescribed polices which are anathemas to free trade.

This section also builds upon the idea of Tullock's Transitional Gains Trap to examine ineffectiveness of foreign aid, in particular its impact on free trade. Tullock argues that redistributive rent seeking resulting from trade barriers can lead to a maximum level of economic waste. However, this study differs slightly from Tullock's

[12] Economist (1999) and Boone (1996).

in that it incorporates the interplay between foreign aid and trade. In addition, foreign aid distortions lead to more waste than Tullock envisioned in the Transitional Gains Trap.

Tullock (1975) described a "Transitional Gains Trap" consistent with protective trade policy in developed economies. He explained the Transitional Gains Trap as a process whereby lobbying for certain activities increases even when the activities yield income-reducing results. This study argues an economic parallel between the Tullock's Transitional Gains Trap and the provision of foreign aid. Official aid transferred through government-to-government may inflict a worse Transitional Gains Trap than commonly observed in developed economies. Hence, the Transitional Gains Trap becomes a "Transitional Losses Trap." With foreign aid and a lack of property right it is very likely that rent seeking activities will create a matrix of complex institutions that might have put countries into what I called aid's "Transitional Loses Trap."

Tullock's model deals with economies that have advanced institutions and effective political systems. He assumes perfectly informed rational economic agents who transact at zero cost. Tullock broadens his Transitional Gains Trap theory to include imperfect information. The study extends his theory to aid-recipient countries. It attempts to explain why foreign aid remains a main source of capital flow in the developing countries, while its negative consequences have been widely recognized.

Foreign aid did not emerge in the way many of its proponents idealized. It has been characterized by a great deal of unpleasantness and some squabbling among self-interested, powerful and myopic groups. Indeed, aid-recipients become highly indebted

and dependent on donor nations, thus reducing their ability to achieve meaningful economic performance.

Conversely, the attempts to minimize foreign aid's deleterious effect encountered a great deal of resistance even after it ceased yielding income-promoting results. One cannot ignore the resistance of interests groups including industrialists, urban dwellers, labor unions and powerful individuals in maintaining their livelihood from the foreign and its associated policy distortion. These groups engage in activities that confer private benefits but produce wasteful outcomes. This study asserts that in most aid-recipient countries, distributive activities preponderate and that such unworkable and inefficient policy mistakes become difficult to reverse. However, the design of public policies such free trade and foreign and the response of economic agents are key factors shaping a country's economic progress. North (1997) vividly stated:

> Economics is characterized by innumerable statistics on their demographic, economic, technological, and institutional features, but what one really needs to know is the interplay among all these features that makes them work over time. The foundation of that interplay at any moment of time is three: demography, which describes the quantity and the quality of human beings; the stock of knowledge that the society possesses which determines the human command over nature and the institutional framework that determines the rules of the game. The democratic characteristics include not only the fertility, mortality, and migration characteristics and labor force composition, but also the stock of human capital. The stock of the knowledge determines the potential upper bound of the well being of the society. The institutional framework determines the incentive structures of the society. It is the interplay among these three that shapes the performance of the economy."

By smoothening the process and interplay among institutions, technology, and incentive structures, governments can play an important role in the provision of limited resources in a manner that maximizes their productive uses. Governments can either

assist in the efficient allocation of these resources using well-defined institutions or they can themselves compete for these limited resources. Where they are competitors, growth and development are restricted.[13] North (1980) also noted that "now given the tendency of polities to produce inefficient property rights, economic decline or stagnation can persist since they will not typically develop a feedback that will create organization with the incentive to invest in productive activities." The institutional apparatus that evolves from such counter-productive activities remains a normal way of transacting and exchanging, but makes every one worse-off by increasing transaction costs and uncertainty.

Government-to-government foreign aid undermines the institutional framework that establishes the incentive structure of a given economy. The inability of foreign aid institutions to achieve the desired results confirms that non-market institutions replace other market institutions, such as international trade and private capital flow, which could have contributed to sustainable economic performance.

Foreign aid institutions are, in essence, non-market institutions that confer private benefit but also public harm. Foreign aid is a commonly owned resource, with rights assigned by the government. Powerful individuals and state heads might, in essence, establish property rights in this system. Moreover, individuals with special privileges in the distributive activities of official aid create property rights in their respective

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[13] Historical experience shows that countries that nurtured free market economies, promoted respect for law, and adopted limited government activities have achieved sustainable economic growth. In contrast, countries with excessive government ownership and intervention remained poorer relative to others with a moderate or a limited government intervention. Examples include China, Russia, South Korea, Eastern European countries, and many of the African countries appear to be consistent with the hypothesis that excessive government ownership hinders economic growth.

governments and, as a result, rent extractors expend resources resisting deregulation that attempts to remove that privilege.

The net value added of foreign aid is likely to be negative if all its adverse externalities are taken into account. In any given society, self-interest motivates individual actions, which leads to either a pattern of mutual hostility or mutual cooperation. Foreign aid symbolizes a cost in terms of forgone activities and resources, both physical and human, which are employed in such rent seeking, rent dissipating rent protecting activities. It is likely that scarce resources are expended until both capital and labor values exceed the original foreign aid value and thus are wasted into a black hole.

Foreign aid increases the strategic behavior of entrepreneurs and induces them to shift resources from higher value uses to lower productivity and lesser yield. Foreign aid in effect replaces domestic resources that could increase wealth creation and creates merely a transfer-a negative sum game.

Smith's invisible hand represents the hidden benefits that economic competition confers on the organization of economic activities. In contrast, Magee, Brook and Young (1989) outlined an invisible foot that signifies the hidden costs that redistributive activity inflicts on an economy. Olson (1982) further claimed that output in invisible economies might decline over time for two reasons: adverse economic policies and nonproductive use of economic resources. Both lead to economic sclerosis and inefficiency. Foreign aid institutions are likely to lead to even worse economic sclerosis and waste than originally hypothesized in non-foreign aid setting.

As individuals increase their rent-extracting activities, a complete dissipation of foreign aid dollars can occur. Foreign aid would hurt all parties because it introduces and maintains continuous dissipation of economic resources, and given the imperfect information, this dissipation is less identifiable to everyone.

Stiglitz (1997) delineated various ways that official aid can be counterproductive. He notes that foreign aid has added to poverty by robbing the poor of their source of revenue. For example, by depressing agriculture prices, food aid transfers wealth from small farmers that do not have political clout to urban industrialists who have to preserve their livelihood through government protection. While the objective is to abolish the massive food surpluses that result from the misguided and distorted agriculture policies adopted by many developed countries, it actually contributes to the poverty of food aid-recipients.

At the international level, foreign aid creates dependency and indebtedness. Foreign aid has created dependency and prevented countries from helping themselves. Many developing countries are considered to be highly indebted. While the rationale for foreign aid is to complement domestic saving and investment, foreign aid resources actually thwart domestic productive activities such, as saving and investing, from taking part in the economy. Furthermore, foreign aid in the form of loans must be repaid. Tied foreign aid in the form of food discourages the agricultural sector, increases balance of payment crises and diminishes foreign exchange resources (Cho 1995). And, more importantly, foreign aid distorts efficiency and incentives and leads to a pattern that is not conducive to wealth creation.

Unlike foreign aid, international trade complements economic efficiency and income-generating activities. The importance of international trade to income is stylized facts that receive full recognition. It is an institution that gained rapid and wide acceptance from economists of wide ideological differences. Nevertheless, its practical application counters a wide resistance to powerful interest groups. Kravis (1970) argued that the most important function of international trade is to enhance the internal forces that determine economic performance.

International trade brings about efficient use of resources and makes countries specialize in the goods and services they can produce efficiently. International trade may also destroy exclusive monopoly of specific enterprises and forces nations to withstand the severity of international competition. This might eliminate costly industry that failed to mature despite endless government's subsidies. Nonetheless, it interesting to note two-policy divergence that divided intellectual consensus and failed to attract the attention of early development economists. Free trade remained a principal contributor to improved living standards in developed economies, but the same principle was absent in developing countries that prescribed protectionist trade policy and massive inflow of government-to-government aid, thus distorting income-enhancing incentives. A host of misguided theories, which is anathema to free trade, is the main cause of such divergence. The following chapter examines the empirical relationship between trade and foreign aid.

Chapter Four

The Determinants of Trade Model (Two-Stage Least Squares)

This chapter attempts to determine and understand which factors determine trade. It stresses these issues by exploring whether foreign aid is related to the way in which a country trades. Frankel and Romer (1999) successfully integrated the simultaneity problem inherent in income and factors that influence trade by taking into account demographic variables such size and population.

This dissertation augments Frankel and Romer's model by adding foreign aid on the trade equation to examine if foreign aid exerts a significant influence on trade. It empirically tests the hypothesis that foreign aid might retard income levels by discouraging international trade. It also considers the possibility that aid and trade are simultaneously determined by other factors, such as income and demographic variables like population and size of the country. A key hypothesis is that foreign aid acts as a substitute and foreign direct investment acts as a complement for income generating trade.

Section 4.1 sketches the model. It also describes the variables. Section 4.2 presents and interprets the empirical results. Section 4.3 provides a summary of the key findings.

4.1 Trade Model

Equation 4-1 $\textbf{Trade} = \Psi_1 + \textbf{B}_1\textbf{Aid}^{14} + \textbf{B}_2\textbf{Land Area} + \textbf{B}_3\textbf{Pop} + \textbf{B}_4\textbf{Fdi} + \textbf{B}_5\textbf{Exchange} + \textbf{B}_6\textbf{Edu} + \textbf{B}_7\textbf{Pgdp} + \textbf{B}_8\textbf{Liqidity} + \underline{\textbf{R}_9}\textbf{(Vector of regional Dummies)} + \delta_1$

The dependent variable, **Trade,** is the log of trade expressed as the sum of exports and imports divided by the GDP. The key independent variable in Equation 4-1 **(Aid)** consists of the log of six alternative ways to measure this variable. The model strives to empirically evaluate the effect of six alternative measures of **Aid**. It consists of the following:

Aidgdp and **Ofas** are official development assistance as percentage of GDP and the log of official assistance expressed in levels, respectively. Chang, Fernandez and Serven (1998) explained the differences among different measures of aid: "These measures lump together the net increase in loans, which entails future interest and repayment obligations, with grants, that do not; further, they include certain loans at full value totally exclude others; finally, the selection of which loans to include is based on a calculation of their grant element that, among other simplifications, makes use

[14] Measures of official aid used include levels (Oafs), aggregate (Eda), bilateral and multilateral, official assistance as a percentage of GDP and IMF credit. A test of simultaneity between trade and aid provides evidence that there exist simultaneity bias.

	of an arbitrary discount rate set at 10 percent." (Source: WDI, 1999, 2000).
Bilateral	**Bilateral Effective Development** is the log of bilateral aid, which is the transfer of public funds from one government to another or agreement between two countries labeled donor-recipient countries (Source: Chang, Fernandez and Serven (1998)).
Multilateral Aid	**Multilateral effective development** is the log of multilateral aid. It is the contribution made to international institutions on behalf of a recipient and the transfer of public resources through institutions such as the World Bank (Source: Chang, Fernandez and Serven (1998)).
Eda	is the log Effective Development Assistance as percentage of GDP, which consists of Bilateral and Multilateral effective development. According to Chang, Fernandez and Serven (1998) **EDA, Bilateral,** and **Multilateral aid** "measure official aid flows as the sum of grants and the grant equivalent of official loans. The grant equivalent of a financial inflow is the amount that, at the time of its commitment, is not expected to be repaid, i.e., the amount

subsidized through below-market terms at the time of commitment. These resources take the forms of either loans or grants. The use of Effective Development as opposed to other measures of foreign aid is that it based on adjusted grant-equivalent constructed using discount rates sensitive to market conditions along several dimensions-timing, currency and maturity of the loan- unlike the conventional grant based on the arbitrary 10 percent discount. Therefore this measure does not overstate grant element and therefore measures the true aid content of foreign aid." The authors also noted "conventional aid measure is very misleading if one attempts to compare across recipients and donors." (Source: Chang, Fernandez and Serven, (1998).

Imfcredit is credit or is the transfer of public funds through the IMF. The study hypothesizes that there exists a negative relationship between trade and all measures of foreign aid (Source: World Financial Indicators, 1999, 2000).

Equation 4-1 includes nine control variables that are commonly used to proxy the determinants of trade, foreign aid, and economic performance.[15] **Fdi** is the measure of foreign direct investment as percentage of GDP (1975-1998). It is used as a proxy for

[15] For a retrospective analysis of these variables, refer to Levine and Renelt (1992), Mauro (1995), Sachs and Warner (1995), Boone (1996), Yano and Nugent (1999), and Frankel and Romer (1999).

private capital flows, and explicitly reflects the importance of the private financial system on trade and subsequently on economic performance. Thus, the study predicts that foreign direct investment complements international trade and therefore helps economic development. The study hypothesizes that **Fdi** enhances private ownership and property rights and may be a transitional channel signaling a country's institutional setting and government's accountability. The presence or absence of foreign direct investment signals also whether or not leaders are credible and transparent and are able to conduct their business in fair and free manner. The study predicts a positive relationship between trade and foreign direct investment as it reflects an institution whereby rulers signal good policy for profit seeking private capital. (**Source**: WDI 1999,2000).

Liquidity is the liquid liability of the financial system normalized by GDP from 1975 to 1998. **Liquidity** is a measure of financial depth in a given country. The functioning of financial markets is important for trade and in turn for economic development. This variable attempts to explain the ease and speed with which economic agents can convert assets into purchasing power at agreed price. Liquidity risk, informational asymmetries and high transaction cost inhibit liquidity and might intensify financial crisis. Thus study predicts that, other things being equal, the higher the financial depth as measured by **Liquidity**, the easier it is to trade due to lower uncertainties. (**Sources**: WDI (1999 and 2000 and World Bank Macro Time serious Data).

Edu is proxy for human capital and is hypothesized to have positive association with trade. A large pool of educated people might have the ability to innovate and

assimilate and support the transfer of technology from international markets. Levine and Renelt (1992), Bhalla and Lau (1992), and Edwards (1992) all postulate that countries with abundant human capital are better able to assimilate and transfer knowledge and hence, the association between trade, economic development and Edu is expected to be positive. (**Source:** WDI (2000) and World Bank Macro Time serious Data).

Exchange is the real effective exchange rate index (1995 = 100). **Exchange** is a proxy for volatility of the exchange rate associated with international trade. The study hypothesizes a negative relationship between the log of trade and exchange rate volatility as trading with other countries become less certain. (**Source**: World Bank Macroeconomic Time Series Data.)

The model further includes three indicators of country size; **Land Area** is the log of country size in thousands of square miles; **Pop** is the log of the level of population in millions, and **Pgdp** is the log of GDP levels expressed in purchasing power parity. **Pgdp** is proxy for the size of a country and scale economies (**Source**: WDI (1999) and 2000 and Macroeconomic Time Series Data.)

Finally Equation 4-1 employs as explanatory variables a vector of regional dummies to capture the qualitative effect of different regions on trade. **Afr-dum** is an African dummy variable that equals one for African countries and zero for other nations. **Oecd-dum** is a dummy variable that accounts the sample size of the countries of the 22 OECD countries with population greater than one million. **Latd-dum** is a dummy that equals one for Latin American countries and zero for other nations. (**Source**: Mankiw,

Romer and Weil, 1992). Ψ_I is the intercept term and δ_I is a error term, which is assumed to be normally distributed with a zero mean.

I estimate equation 4-1 using two-stage least squares. The reason is that income, foreign aid, and trade might be endogenously determined. Income is assumed to have an effect on trade and aid. Countries with lower income levels might attract more foreign aid. Moreover, both foreign aid and trade might be endogenously determined. For example, donors might give foreign aid to enhance their trade. If the objective of foreign aid is either to promote donor's trade or to increase country's capacity to trade to engage in trade, then there exists a systematic relationship among income, trade and foreign aid. If one fails to correct for simultaneity bias, the estimated coefficients are inconsistent. As result I utilize two-stage least square that might mitigate the inconsistency inherent in single equation and OLS models.[16]

The model utilizes three instrumental variables to scrutinize empirically the simultaneity problems that plague the current literature on trade, aid, and income levels. The first and second instruments are the logarithm of population and country size. Frankel and Romer (1999) claim that geographic and demographic variables (such as size and population) are important instruments for correcting the simultaneity of trade and

[16] Instrumental variable regression (IVREG) or two-stage least squares assumes that you want to estimate a single equation from a system of equations. An advantage of IVREG is that you can estimate a single equation of a multiple-equation system without specifying the functional form of the remaining equation. See Stata (122-133). A test of simultaneity among income, trade and aid provides evidence that there exist simultaneity bias, which supports the use of instrumental variable technique.

income. Population and country size determine both trade and foreign aid; small countries receive more foreign aid. [17]

The third instrument is ethnolinguistic fractionalization, which is the probability that two randomly selected individuals will not belong to the same ethnolinguistic group or speak the same language. No apparent link exists between trade and ethnolinguistic fractionalization. However, in highly fragmented societies, different ethnic groups vie for their share of foreign aid. Evidence points to the fact that many rulers in developing countries use government power to accumulate their personal and ethnic wealth. [18] Ethnolinguistic fractionalization[19], size and population are commonly used instrument in the literature.

The estimation of equation 4-1 corrects for heteroskedasticity. Heteroskedasticity can be a problem since both cross-country and time series data is used. The standard errors are corrected as a result.[20] Table 4.1 provides summary statistics including the mean, standard deviation, and the maximum and minimum values of variables in the trade model and some additional variables used in the literature. Table 4.2 summarizes the correlation matrix of variable used to estimate equation 4-1.

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[17] Yano and Nugent (1999) list stylized facts about aid and claim that most recipient countries are small countries.

[18] See Krauss (1997), Landes (1998) and Rowley (1998)

[19] Alesina, Baqir and Easterly (1996) claim that transfer and patronage may be positively related to ethnic fragmentation. Diverse ethnic groups compete over the distribution of foreign aid and this is likely to reduce the likelihood of having proper infrastructure and provision of public goods.

[20] Robustness requires that Huber/White Sandwich estimator of variance be used instead of the traditional calculation. This alternative variance estimator produces constant standard error even if the data are weighted or the residuals are not identically distributed. For further information refer to STATA manual H-O.

4.2 Results

The results of estimating equation 4-1 are presented in Table 4.3. The coefficients of all measures of foreign aid are negative and significant as predicted. The results strongly suggest that foreign aid reduces trade. The observed negative relationship holds between trade and all six measures of foreign aid. The coefficient of the log of effective development assistance (**Eda**) has a negative and statistically significant effect, as expected. On the basis of this model, a 10 percent increases in effective development assistance, results in a 0.66 percent decline in trade.

Both the coefficient of **bilateral aid** and **multilateral aid** are negative and statistically significant. Nonetheless **Bilateral aid** has a worse impact on trade. For instance, a 10 percent increase in effective **bilateral aid**, reduces trade by one percent. Whereas, a one percent increases in multilateral aid, results a 0.0036 percent decline in trade, which is small but in the right direction. A plausible explanation may be that donors provide foreign aid to improve their own trade rather than recipient's own trade.

If the objective of foreign aid is to promote the donor's trade, rather than increasing a recipient's capacity to engage in income generating trade, it is likely that both the magnitude and sign of **bilateral aid** will be higher than **multilateral aid**. Both the magnitude and sign of alternative foreign aid measures are consistent with foreign aid as a channel through which trade and competition are diminished. The rest of alternative

aid variables are consistent with the earlier predication that that are negatively related to trade.[21]

Foreign direct investment (Fdi) is among the nine control variables on Equation 4-1 the model estimates. It is a proxy that captures the importance of private capital on trade and development. The results strongly suggest that foreign direct investment, unlike foreign aid, enhances country's trading capacity. The results show a positive and statistically significant relationship between foreign direct investment and trade. A 10 percent increase in foreign direct investment leads to between 0.35 and 0.91 percent increase in trade.

The regression results strongly point to the importance of liquidity in a country's trade capacity. The coefficient **Liquidity** is a proxy for functioning financial markets, is positive and statistically significant as expected. Both the magnitude and the sign of the **Liquidity** coefficient remain unchanged with the inclusion of different measures of foreign aid and other explanatory variables.

The estimated coefficient on **Edu**, the proxy for human capital, is positive and statistically significant in all models in Table 4.3. Countries with high levels of education are open to new ideas and are therefore able to assimilate the new ideas that accompany trade. The coefficient of **Exchange** has the expected negative sign and is statistically significant in all models. Trade diminishes as the exchange rate (**Exchange**) uncertainty increases.

[21] Chapter Six deals with causality issues between trade and foreign aid.

The model includes three indicators of country size, **Land Area, Pop** and **Pgdp**. The coefficient of all these variables is negative and statistically significant. The results strongly confirm that countries with great economies of scale engage in less trade relative to less diversified small economies. The equation 4-1 includes regional dummies as explanatory variables to capture the qualitative effect of different regions on trade. The results show that the coefficient of the **Oecd-dum** is negative and highly significant, while the coefficients of Africa dummy is positive and statistically significant.

4.3 Summary of the Key Findings

An empirical regularity from the regression strongly indicates that foreign aid undermines a country's capacity to trade. The results show a negative and statistically significant relationship between five measures of foreign aid and trade. It verifies that foreign aid not only determines a country's ability to trade, but also acts as a substitute for income generating trade activities. This result remains statistically significant to the inclusion of various aid variables such as bilateral aid, multilateral aid, overall level of aid, and IMF credit. The results corroborate the hypothesis presented in Chapter Three that foreign aid is unproductive. While it produces short-run gains for some, it increases long-run costs for the majority, simultaneously reducing trade and thus economic performance.

The regression results strongly indicate the paramount importance of foreign direct investment on trade. Foreign direct investment has a positive and statistical significant relationship on trade. The empirical results confirmed is that mutually reinforcing positive relationship that exists between trade and human capital, and

financial depth. The findings of this chapter concluded that foreign aid constrains country capacity to trade, while foreign direct investment enhances country's trade capacity. This concurs with the theory developed in earlier chapters.

Table 4.1 Descriptive Statistics of the Variables

	2,862	3.837372	0.4996402	2.624512	4.908655
	3,121	1.791227	0.2742054	0.3770958	2.643053
	3,135	1.280202	1.031363	-4.108873	3.656388
	3,129	36.22589	31.38287	1.31E-08	208.9421
	2,221	51.5769	32.58911	1.2	152.7
	2,428	-0.0853066	0.6794811	-3.16135	2.161764
	2,237	28.65836	12.30668	0.00	100.9059
	2,300	18.47697	17.17113	0.00	77.22317
	3,360	1.743825	1.012821	-0.9136401	3.934518
	3,571	6.69178	0.8576341	4.610873	9.092931
	3,425	0.2123513	0.4018968	-2.390536	1.251895
	2,868	52.88335	597.8004	-36.74	23773.13
	2,767	119.4283	101.3004	11.86	2410.61
	3,135	0.8305386	0.8702534	-4.103414	3.146878
	3,135	1.164142	0.970302	-4.108873	3.648472
	2,712	41.14159	29.75038	0.00	93
	3,456	4.080572	4.02677	0.00	10.28635
	3,233	7.073973	12.1937	-0.5687567	210.4855
	3,497	223,000,000	406000000	-457,000,000	5.44E+09
	2,430	96.81	1087.22	-89.2	100.91
	3,307	0.76	0.19	0.37	1.21

Table 4.2 Correlation Matrix of the Trade Model

	1.00														
	-0.13	1.00													
	-0.54	0.07	1.00												
	0.46	-0.14	-0.37	1.00											
	0.00	-0.57	0.03	0.24	1.00										
	0.09	-0.63	0.19	0.17	0.64	1.00									
	0.60	0.12	-0.49	0.39	-0.28	-0.24	1.00								
	-0.32	0.50	0.28	-0.36	-0.28	-0.28	-0.31	1.00							
	0.57	-0.30	-0.56	0.53	0.04	0.10	0.57	-0.44	1.00						
	-0.68	0.15	0.63	-0.47	-0.07	0.03	-0.66	0.42	-0.67	1.00					
	0.07	-0.21	-0.16	0.07	0.01	-0.01	0.02	0.01	0.16	-0.10	1.00				
	0.16	-0.31	-0.22	0.25	0.08	0.05	0.19	-0.21	0.35	-0.22	0.55	1.00			
	-0.32	0.27	0.71	-0.42	-0.21	0.07	-0.34	0.51	-0.50	0.55	-0.04	-0.16	1.00		
	-0.10	0.32	0.12	-0.06	-0.02	-0.15	-0.06	0.22	-0.20	0.12	-0.08	-0.10	0.15	1.00	
	-0.75	0.17	0.64	-0.56	0.02	-0.04	-0.68	0.37	-0.83	0.84	-0.10	-0.26	0.52	0.20	1.00

Table 4.3 Two-Stage Least Squares Estimation Results of the Trade Model Dependent variable (Trade) is the log of (exports + imports/GDP) 1975-1998

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible] Variables	Trade	Trade	Trade	Trade	Trade	Trade
[illegible]	-0.066					
[illegible]	(-3.069)					
[illegible]		-0.105				
[illegible]		(-4.340)				
[illegible]			-0.00036			
[illegible]			(-3.109)			
[illegible]				-0.027		
[illegible]				(-3.78)		
[illegible]					-1.60E-10	
[illegible]					(-4.29)	
[illegible]						-0.025
[illegible]						(-2.729)
[illegible] variables						
[illegible]	0.035	0.092	0.081	0.089	0.091	0.086
[illegible]	(8.98)	(9.41)	(7.59)	(9.50)	(10.14)	(8.71)
[illegible]	0.004	0.005	0.0051	0.005	0.006	0.004
[illegible]	(15.22)	(14.50)	(16.24)	(16.62)	(16.57)	(6.36)
[illegible]	0.001	0.001	0.001	0.001	0.001	0.001
[illegible]	(3.30)	(3.93)	(2.74)	(4.41)	(2.91)	(3.01)
[illegible]	-0.0004	-0.019	-0.001	-0.001	-0.0001	-0.001
[illegible]	(-3.53)	(-14.40)	(-17.77)	(-11.89)	(-15.05)	(-11.59)
[illegible]	-0.153	-0.124	-0.086	-0.028	-0.07	-0.12
[illegible]	(-10.66)	(-7.84)	(-4.24)	(-3.49)	(-3.61)	(-5.69)
[illegible]	-0.04	-0.05	-0.08	-0.04	-0.05	-0.07
[illegible]	(-4.4)	(-3.38)	(-6.62)	(-3.32)	(-4.63)	(-6.67)
[illegible]	1061	846	889	840	957	946
[illegible]	0.6	0.63	0.67	0.64	0.6	0.56
[illegible]	156	127	174	135	152	145
[illegible]	0.000	0.000	0.000	0.000	0.000	0.000

Explanatory Notes: the following variables are entered as a logarithmic transformation: Trade, Aid variables, Land Area and, Fdi, Credit and liquid liability. The model includes regional dummy variables for Africa, Oecd, Latd, Inter and dummies. T-values listed in parentheses.

Chapter 5
The Determinants of Foreign Aid Model (Two-Stage Least Squares)

This Chapter attempts to identify the determinants of foreign aid. It scrutinizes the extent to which taxes on international trade, and scope of government activities, ethnicity, private credit, and education determine foreign aid. Section 5.1 sketches the foreign aid model. It also describes the variables and logical connections among them. Section 5.2 analyses the regression results, and Section 5.3 summarizes the main findings.

5.1 The Foreign Aid Model

Equation 5-1 $$\mathbf{Eda} = \eta_1 + \mathbf{B}_1\mathbf{Taxes\ on\ Trade} + \mathbf{B}_2\mathbf{GDP\ Per\ Worker} + \mathbf{B}_3\mathbf{Trade} + \mathbf{B}_4\mathbf{Gov} + \mathbf{B}_5\mathbf{Fdi} + \mathbf{B}_6\mathbf{Credit} + \mathbf{B}_7\mathbf{Ethno} + \mathbf{B}_8\mathbf{Edu} + \mathbf{B}_9\mathbf{Pop} + \mathbf{B}_{10}\mathbf{Land\ Area} + \nu_1$$

The dependent variable (**Eda**) in Equation 5-1 is the log of foreign aid expressed as percentage of GDP.[22] The key independent variable in this equation is the log of Taxes on Trade, which measures tax revenues from international trade as a percent of GDP.

The study uses Taxes on Trade to capture the inherent paradox that characterizes the provision of foreign aid on one the hand and protective trade policy on the other hand. Taxes on trade play an important role in developing economies, whether their intent is revenue generation or domestic industry protection. In effect, at least in part, there is

[22] The other five foreign aid variables produced similar results. Results using the other aid variables are provided in Appendix A and Appendix B. Eda is better measure than other aid variables.

interdependence between foreign aid and a country's tax policies. Doug Bandow explained the interdependence of foreign aid and taxes on trade as fellows: "as a condition for he loan, the IMF will, for instance, demand that nation reduce its current account deficit so the borrower restricts imports." Nevertheless, given an aid-recipient's lack of other revenue sources except for taxes on trade, this policy adversely affects economic performance.

Yano and Nugent (1999) and Krueger (1997) listed the characteristics of aid-recipient countries. They argued that tariffs are very important in aid-recipient countries both as revenue generation and domestic industry protection. This view is stated eloquently by Melvyn Krauass (1997): "Foreign aid and trade protectionism are more closely related than commonly understood." An increase in trade protection is associated with an increase in foreign aid provision. Therefore the model hypothesizes that higher Taxes **on Trade** lead to higher provision of foreign aid [23]

The model uses seven control variables. Two of these are indicators of private capital: **Fdi** is foreign direct investment and **Credit** is private credit. Both measures are expressed as a percentage of GDP. The study hypothesizes that countries that depend on private capital tend to attract less foreign aid. Therefore the relationship between foreign aid and private capital is predicted to be negative. **Fdi** and **Credit** encourages institutions and productive ventures and is likely to drive out overly managed government-to-government foreign aid. **Gov** is the ratio of government consumption expenditures to

[23] For retrospective analysis refer to Cashel-Cordo and Craig (1986) and Booth (1998)

GDP, which controls for the size and scope of government. The model stresses that aid goes to government, and increases in government consumption amplify foreign aid, which in turn deters economic performance.[24] It attempts to examine the extent to which the government consumption determines the foreign aid and hypothesizes a positive relationship between foreign aid and the size of government.

Ethno is an index of ethnolingusitic fractionalization. It measures the probability that two randomly selected individuals from a given country will not belong to the same ethnolinguistic group (**Source**: Mauro, 1995). Alesina, Easterly and Baqir (1996) argued that ethnic diversity raises decision-making costs. Bates (1999) noted that ethnic conflict leads to social ills and costly acts of disorder and violence Easterly and Levine (1996) empirically found that enthnolinguistic fractionalization is associated with poor policies that lower economic growth. The possibility that foreign aid is itself a function of trade and income creates a potential endogeneity bias. It is possible that countries receive more foreign aid because of lower income. An index of ethnolinguistic fractionalization serves as the instrument to correct for endogeneity bias. Ethnolinguistic fractionalization is exogenous to trade but positively and significantly with correlated with foreign aid.

Ethnic diversity predictably increases foreign aid for two reasons. First, diversity means that more interest groups are seeking funding for their pet projects. Second, governments may attempt to use foreign aid to obtain interest group support. In that case, the cost of obtaining a majority support rises with ethnic diversity. For example, the support of a single tribe or clan is less costly than the support of two or more tribes or

[24] Lal (1997) claimed that government-to-government foreign assistance augments central planning, state ownership and interventionist policies.

clans. Each ethnic group might attempt to enrich their constituents, class and clan members putting foreign aid money into a "black hole" of distributive activities. As a result greater ethnic diversity leads to an increase in foreign aid.

Equation 5-1 includes two indicators of size, **Land Area** and **Pop**. It also includes two endogenous variables, Gdpw the log of GDP per worker, and **Trade**, the log of trade. I estimate equation 5-1 using two-stage least squares. Gdpw is endogenous because foreign aid is given to relatively poor countries. Foreign aid has negative effect on trade as shown in Chapter Four. The model also considers the possibility that aid and trade are simultaneously determined by donor interest. Do donors give foreign aid to expand their own trade or do they give foreign aid to increase recipient's income? For instance, a donor country may give foreign aid with the understanding that the recipient country will in turn increase its imports from the donor country. In that instance, trade would increase with foreign aid. Conversely, if higher trade leads to lower foreign aid, we expect a negative relationship. This is because as countries engage in more trade, their dependence on foreign aid may diminish.

5.2 Results

Table 5.1 shows the correlation matrix of the foreign aid determinants. Table 5.2 presents the results of estimating equation 5-1. The dependent variable is the foreign aid expressed as percentage of GDP. Equation 5-1 also endogenizes trade and GDP per worker to account for simultaneity among aid, income and trade. All of the coefficients of model 1 in table 5.2 are statistically significant and have the expected sign.

The key independent variable in equation 5-1 is the **Taxes on Trade**. Table 5.2 shows the coefficient of **Taxes on Trade** is positive and statistically significant. On the basis of Table 5.2, a one percent increase in **Taxes on Trade** leads between 0.17 to 0.29 percent increase in foreign aid. The findings strongly point to the fact that fiscal distortions increase country's dependency on foreign aid. The observed positive relationship holds as we vary control variables. It also holds whether or not **Taxes on Trade** is treated as exogenous or endogenous variable.

A negative and statistically significant relationship exists between GDP per worker (**Gdpw**) and foreign aid variable (**Eda**). The results show that a 10 percent increase in a country's productivity or GDP per worker decreases foreign aid between 4 to 9 percent. This finding is consistent with the recipient need model in that foreign aid is given to low-income countries.

The coefficient of **Trade** is negative and highly significant, as expected. On the basis of this Table 5.2 a 10 percent increase in trade reduces foreign aid between 5 and 11 percent. The results strongly suggest that trade reduces country's dependency on foreign aid. The model 2 in Table 5.2 is the same as model 1, except it includes **Land Area**, which is a proxy for country size. All previous coefficients maintain their sign and significance when **Land Area** is included. As expected, **Land Area** has a negative association with foreign aid. The results on control variables are consistent with existing literature. Large countries receive less foreign aid.

The model 3 in Table 5.2 includes **Gov**, which controls for the size and scope government. The results strongly show that the scope of government activities increase

dependence on foreign aid. The coefficient of **Gov** is positive and highly significant, as expected. A ten percent increase in government consumption increases foreign aid between 0.24 to 0.37 percent. This result is consistent with the prediction that higher government consumption leads to more foreign aid, and confirms the fungiblity of foreign aid.

Model four in Table 5.2 includes (Fdi), which is foreign direct investment. The results reveal that foreign direct investment has a negative and statistically significant relationship with foreign aid. This confirms the prior hypothesis that foreign direct investment crowds out foreign aid. A ten percent increase in foreign direct investment decreases foreign aid by 1.8 percent. The regression results confirm that foreign direct investment reduces country's dependency on foreign aid.

Model five in Table 5.2 adds (**Credit**) private credit as percentage of GDP. **Credit** is a proxy and an alternative additional explanatory variable capturing private capital. The variables continue to have the expected sign and statistical significance. The results strongly suggest that private credit reduces country's dependency on foreign aid. The coefficient of private credit is negative and statistically significant. The results show that a 10 percent increase in private credit reduces foreign aid by 0.033 percent. While the private credit has a small negative effect on trade, it is in the right direction supporting the hypothesis that private credit crowds out foreign aid.

The estimated coefficient in all models on **Edu**, the proxy for human capital, is negative and statistically significant. The implication is that as the learning and entrepreneurial activity increases, country's dependency on foreign aid diminishes. This

implies that increasing human capital formation might reduce country's dependency on foreign aid. The regression results show a positive and statistically significant relationship between **Ethno** and **Eda**. It also indicates that greater the ethnic diversity leads to an increase in foreign aid. Cost of buying interest-group supports rises with diversity and thus ethnic diversity exacerbates foreign aid dependency. In highly fragmented societies, different ethnic groups vie for their share of foreign aid.

5.3 Summary of the Key Findings

This chapter specifies and estimates a model that explains the allocation of foreign aid among 151 countries over the period 1975 to 1998. The key empirical finding suggests that **Taxes on Trade** increases foreign aid dependency. Moreover, trade, private credit, foreign direct investment, GDP per worker, and government consumption are other variables that determine foreign aid. The factors that appear to decrease foreign aid include: years of schooling, private credit, trade, and GDP per worker. The factors that appear to increase foreign aid include: taxes on international trade, ethnolinguistic fractionalization, and government consumption.

Table 5.1 Correlation Matrix of the Foreign Aid Model

	1.00														
	-0.13	1.00													
	-0.54	0.07	1.00												
	0.46	-0.14	-0.37	1.00											
	0.00	-0.57	0.03	0.24	1.00										
	0.09	-0.63	0.19	0.17	0.64	1.00									
	0.60	0.12	-0.49	0.39	-0.28	-0.24	1.00								
	-0.32	0.50	0.28	-0.36	-0.28	-0.28	-0.31	1.00							
	0.57	-0.30	-0.56	0.53	0.04	0.10	0.57	-0.44	1.00						
	-0.68	0.15	0.63	-0.47	-0.07	0.03	-0.66	0.42	-0.67	1.00					
	0.07	-0.21	-0.16	0.07	0.01	-0.01	0.02	0.01	0.16	-0.10	1.00				
	0.16	-0.31	-0.22	0.25	0.08	0.05	0.19	-0.21	0.35	-0.22	0.55	1.00			
	-0.32	0.27	0.71	-0.42	-0.21	0.07	-0.34	0.51	-0.50	0.55	-0.04	-0.16	1.00		
	-0.10	0.32	0.12	-0.06	-0.02	-0.15	-0.06	0.22	-0.20	0.12	-0.08	-0.10	0.15	1.00	
	-0.75	0.17	0.64	-0.56	0.02	-0.04	-0.68	0.37	-0.83	0.84	-0.10	-0.26	0.52	0.20	1.00

Table 5.2 Two-Stage Least Squares Estimation Results of the Foreign Aid Model

Dependent Variable (Aid) is log of Effective Development Assistance

as percentage of GDP

Variables	Aid	Aid	Aid	Aid	Aid
	0.029	0.023	0.021	0.0251	0.0175
	(4.31)	(2.27)	(5.06)	(5.76)	(5.11)
	-0.58	-0.75	-0.96	-0.493	-0.40
	(-2.43)	(-3.16)	(-2.70)	(-2.10)	(-2.26)
	-0.57	-0.94	-1.14	-0.52	-0.81
	(-2.78)	(-2.87)	(-3.68)	(-1.80)	(-3.06)
			0.02	0.037	0.03
			(2.49)	(3.94)	(2.628)
				-0.18	
				(-3.11)	
					-0.003
					(-3.17)
	0.003	0.006	0.003	0.002	0.003
	(2.19)	(3.46)	(2.36)	(1.52)	(2.42)
	-0.001	-0.01	-0.007	-0.006	-0.005
	(-3.19)	(-4.20)	(-2.07)	(-2.31)	(-2.55)
				1.111	0.953
				(8.19)	(9.06)
		-3.67			
		(-3.61)			
	4.408	3.45	6.30	2.82	3.38
	(5.29)	(6.78)	(5.17)	(3.17)	(5.50)
	733	723	907	694	868
	0.55	0.5	0.51	0.56	0.54
	288	177	173	204	251
	0.000	0.000	0.000	0.000	0.000

Explanatory Notes: the following variables are entered as a logarithmic transformation: Trade, Aid variables, Land Area and, Fdi, and Credit. The model includes regional dummy variables for Africa, Oecd, Latd, Inter and dummies. T-values listed in parentheses.

Chapter Six
The Determinants of GDP per Worker: Three-Stage Least Squares

Chapter Six documents empirical evidence that explains why some countries grow with remarkable pace while others stagnate or decline. This section tries to identify and quantify the determinants of GDP per worker, which is used as a proxy for living standards. It builds upon the results of the previous sections that empirically identified the possible transmission mechanism or channels, for example trade, aid, foreign direct investment, and their effect on economic performance.

Previous empirical research on aid, trade and economic performance is deficient because it fails to specify adequately the interdependencies among these variables. By endogenizing foreign aid, income, trade, taxes on trade, and government consumption, this study assesses the various channels through which foreign aid might affect living standards. The best approach to understanding these interdependencies is to use a full information system, or Three-Stage Least Squares approach, that identifies three equations, an income model, a trade model and a foreign aid model.

This chapter is organized as follows. Section 6.1 sketches the model. Section 6.2 presents the empirical results. Section 6.3 provides the summary and concluding remarks.

6.1 The GDP per Worker Model

Equation 6-1

$$\text{GDP per Worker} = A_1 + C_1\text{Trade} + C_2\text{Aid} + C_3\text{Credit} + C_4\text{Edu} + C_5\text{Gov} + C_6\text{Tax} + C_7\text{Land Area} + C_8(\text{Afr-dum, Oecd-dum, Lat-dum}) + C_9(\text{Fixed Year Effects75-95}) + \mu_{10}$$ [25]

$$\text{Trade} = \Psi_1 + B_1\text{Aid} + B_2\text{Fdi} + B_3\text{Liquidity} + B_4\text{Exchange} + B_5\text{Land Area} + B_6\text{Black Market} + B_7\text{Pgdp} + \delta_1$$

$$\text{Aid} = \eta_1 + \text{Þ}_1\text{Gdpw} + B_1\text{Trade} + B_2\text{Tax} + B_3\text{Dependency} + B_4\text{Ethno} + B_5\text{Lagged Aid} + \nu_1$$

Equation 6.1 employs a system of structural equations, where some equations contain endogenous variables among the explanatory variables. The key dependent variable, GDP per Worker **(Gdpw),** is the log of GDP per worker expressed in levels. This is the measure of living standards. The two key explanatory variables in Equation 6-1, which are themselves endogenous variables in the other two equations, are **Trade and Aid.**[26] **Trade is** the log of trade expressed as the sum of exports and imports divided by GDP, while **Aid** is the effective development assistance as percent of GDP.

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[25] This section has equations that contain endogenous variables among the explanatory variable of each equation. The disturbance is correlated with trade and foreign aid, which are dependent variables – violating the assumption of OLS. For example trade and foreign aid are explanatory variable for GDP per capita equation and at the same time, they are the dependent variables of other equation in the system, thus the error term among these equations are expected to be correlated. The three-stage least square technique corrects for that by using instrumental variable approach to produce consistent estimates and GLS to correct for the correlation among the error term.

[26] Employing Hausan test to the system of equation on equation 6.1 deemed that trade and foreign aid variables are in fact endogenous. Using the F-test and hypothesizing that the coefficients of predicted value of aid and trade are jointly zero is rejected at five percent significance level.

Two specification issues are noteworthy. First, Equation 6-1 examines economic levels as opposed to growth rates.[27] Second, Equation 6-1 specifies a system of three equations that estimates GDP per worker, trade, and aid simultaneously. A number of prior studies only specify single equation models to estimate the impact of trade on income levels or economic growth. These include: Kormendi and Meguire (1983), Levine and Renelt (1992), Fischer (1993), and Sebastian Edwards (1993). Frankel and Romer (1999) found that taking simultaneity into account makes the effect of trade on income even larger than in OLS models.

Building upon the Frankel-Romer results, Equation 6-1 adds a third endogenous variable, **Aid,** which is log of foreign aid expressed as percentage of GDP.[28] The most important extension of the dissertation is to investigate the relationship between **Aid** and economic performance in a rigorous manner. Yano and Nugent (1999) found evidence that foreign aid has a negative effect on economic performance.[29] Equation 6-1, includes Taxes, which is a proxy for Taxes on Trade. First, this model examines the impact of taxation on income levels, in particular taxes on international trade. Becsi (1996), and

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[27] See Hall and Jones (1997)

[28] Burnside and Dollar (2000) employed models that consider the endogeneity between foreign aid and economic growth. They found that foreign aid per se has no impact on economic performance. However, when aid interacts with certain policy variables, they found that aid could be effective in a good policy environment. Yet they underestimated the importance of private capital flows. Furthermore, the endogeneity between foreign aid and trade is left unexamined. They use inferior measure of openness. Therefore a model that corrects for simultaneity among international trade, aid and economic performance explicitly might shed light on the interdependence and feedback loops inherent in such models. Also, a model that incorporates all non-aid sources of financial flows might further illuminate the effect of aid on trade and income. This study takes this approach.

[29] These authors used official development assistance that lumps together grants and loans for only 44 countries. They examine aid-induced expansion of non-traded goods. They did not link trade, income and foreign aid. This study differs from these authors in that it uses rigorous econometric models for 151 countries. It also uses effective development assistance that is better measure than official development assistance.

Koester and Kormendi (1989) both assumed that taxes are exogenously determined. Becker and Mulligan (1998) took into account the endogeneity of tax systems. This study assumes that taxes on international trade are determined endogenously, particularly in the most of the aid-dependent small economies. This is because tariffs play an important role in such economies, whether their intent is revenue generation or domestic industry protection. At least in part, there is interdependence among foreign aid, taxes on trade and GDP per worker.

Equation 6-1 includes various control and instrumental variables that are commonly used as determinants of trade, foreign aid, income and economic growth.[30] **Credit** is the log of private credit as percentage of GDP (1975-1998). **Fdi** is the log of foreign direct investment as a percentage of GDP; **Gov** is the log of government expenditure as a percent of GDP.

The equations use a host of instrumental variables and stylized facts to account for the simultaneity problem inherent in the data.[31] Twice-lagged aid, (**Lagged Aid**) is an alternative instrument in the foreign aid equation. Boone (1996) argues that Twice-lagged aid is an instrument that takes account of long-term political and strategic factors that make some countries dependent on foreign aid. However, Twice-lagged aid is not correlated with emergency aid and business fluctuations. Thus, using Twice lagged-aid

[30] For a retrospective analysis of these variables, refer to Levine and Renelt (1992), Mauro (1995), Sachs and Warner (1995), Boone (1996), Yano and Nugent (1999), and Frankel and Romer (1999).

[31] Frankel and Romer (1999) used population and size as instruments for trade. Mauro (1995), and Levine and Renelt (1992) used ethnolingusitic fractionalization, while Boone (1994) used infant mortality and population as instruments for his study on aid and growth.

variable takes into account any temporary fluctuations arising from exchange rate volatility or other macroeconomic fluctuations related to external financing. Also, twice-lagged aid might be correlated with some fundamental problems, which make poor countries dependent on foreign aid. Therefore twice-lagged aid should be correlated with these fundamental problems if it persists over time (Boone 1996). The rest of variables in the **Trade** and **Aid** equations are explained in Chapter Four and Five. [32]

Equation 6-1 employs $\underline{C_6}$ which is a vector of regional dummies variables as explanatory variables to capture the qualitative effect of different regions on trade. **Afri-dum** is African dummy that equals one for African countries and zero for other nations. **Oecd-dum** is dummy variable that accounts the sample size of the countries of the 22 **Oecd** countries with population greater than one million. **Lat-dum** is Latin American dummy that equals one for Latin American countries and zero for other nations. The inclusions of the continental dummies minimize the lack of data comparability, especially where data definitions do not vary over time. Source: (Mankiw, Romer and Weil, 1992).

Finally equation 6-1 includes vector of time dummies or fixed year effects as explanatory variable. A_t, Ψ_t and η_t are the intercept term for income, trade and aid equation respectively. δ_t, ν_t, and μ_t are the error terms for the above three equations. The model assumes that all of the error terms δ_t, ν_t, and μ_t have a joint normal distribution and with a zero mean. The reason I estimate equation 6-1 using three-stage least squares, is because income; foreign aid and trade might be endogenously determined.

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[32] Chapter four see pages 45-52 and Chapter five see pages 57-58 for variable descriptions

6.2 Results

Table 6.2 presents the results estimating Three-Stage system in equation 6-1 in table 6.2. The key independent variables are trade and foreign aid. The regression results of all models in Table 6.2 show a positive and statistically significant relationship between **Trade** and **Gdpw.** The results suggest that a 10 percent increase in Trade on average leads to between a 1.6 and a 3.7 percent increase in the GDP per worker.

The statistical significance and the sign of this relationship remain unchanged in all models. This findings reaffirms that trade determines a country's standard of living in a positive manner. Policies that are conducive for nurturing and increasing a country ability to trade will help economies to progress.

The coefficient of the foreign aid variable (**Aid**) in all models is negative and statistically significant as expected. The results show that a 10 percent increase in foreign aid is predicted to decrease GDP per worker between 1.2 and 3.4 percent. This powerful negative association between GDP per worker and foreign aid strongly indicate that aid has deleterious impact on GDP per worker and thus constrains a country's income generating capacity.

Model 1 in Table 6.2 also examines the impact private credit (**Credit**) on GDP per worker. Its coefficients are positive and statistically significant. On the basis of this model, higher provision of private credit leads to a higher income per worker or productivity. Although the magnitude of private credit is not large, it remains to have positive impact on income in all models.

Moreover, positive and statistically significant relationships exist between human capital (**Edu**) and **Gdpw**. The analyses indicate that countries with a relatively larger pool of educated workers can tap and absorb those people into productive activities. Given the right institutions are in place entrepreneurs may seek privately beneficial investment and thus increase country capacity's to grow.

A positive and statistically significant relationship exists between income per worker and county's size. It is likely that size captures the scope and the scale of country's market. The results strongly confirm that countries with great economies of scale and scope are more productive. The results remain the same whether or not the **Land Area** is treated as endogenous or exogenous variable. Finally **Gov** that controls the size and scope of government is included in model1. The results show that government consumption is negatively correlated with income. The foreign aid equation in model1 excludes **Trade** variable but includes **Taxes** on **Trade** as explanatory variable to examine their independent effect on the aid and income model and also to detect that if one' s exclusion or inclusion alters the empirical results. Nevertheless, the significance and the sign of the model remains the same.

Model 2 in Table 6.2 is identical to model 1 except it includes both **Trade** and taxes on Trade variables in the aid equation to detect if results change. The estimated coefficient of trade, foreign aid, private credit, size and schooling remain statistically significant and of the expected sign.

Model 3 in Table 6.2 takes out **Taxes** on **Trade** from the aid equation but includes trade variable in the aid equation. Again the sign and statistical significance of

all coefficients remain unchanged. Model 3 in Table 6.2 includes regional dummies such as **Latd-dum, Oecd-dum** and **Afr-dum** as explanatory variables to capture the qualitative effect of different regions on income per worker. A positive and statistically significant relationship exists between the GDP per worker and **Latd-dum** and **Oecd dum**. In contrast, a negative and statistically significant relationship exists between the Afr-dum dummy and the level of GDP per worker.

Model 4 in Table 6.2 adds control for **Taxes** on **Trade** in the **GDP per Worker** equation as an endogenize variable. The results show a negative and statistically significant relationship exists between **GDP per worker** and **Taxes on Trade**. The variables of interest such trade; foreign aid and private credit continue to have the expected sign and statistical significance. The results strongly suggest that **Taxes on Trade** reduces country's income generating capacity both directly through reducing income and indirectly through increasing country's dependency on foreign aid. The observed positive relationship holds as we vary control variables. The variables in trade and aid equations also continue to have expected sign and statistical significance.

Model 5 Table 6.2 differs from previous models in that first, it includes both **Gov, Taxes on Trade** in the income model. Second, it includes **(Bmp)**, black market premium in the trade equation. Third, it excludes **Taxes on Trade** from the aid equation. As expected the GDP per worker is negatively related to both **Taxes on Trade** and **Gov.** And finally it uses **(Lagged Aid)**, which twice-lagged aid as alternative instrument for the aid equation. The results reveal that a unit increase in **Taxes on Trade**, other things being equal, leads to a two percent reduction in **GDP per worker**. The taxes on

international trade probably underestimate fiscal policy distortion. However, this proxy provides useful information about the deleterious effects that aid-induced policy can have on income per worker. As in Model 1 and 2 the relations between **GDP per worker** and government consumption continue to be negative.

Finally models 6, 7, 8, and 9 in Table 6.2 add fixed-year effects dummies in the model and examine various different scenarios. It specifically examines how foreign aid and trade is affected when the time dummies and regional dummies are included as independent variables. The results indicate that when fixed effect year dummies for 1975, 1980, 1985 1990 and 1995 are included in the model, the importance of trade in promoting income becomes more pronounced. Model 6 in Table 6.2 includes both **Trade** and **Taxes on Trade** in aid equation and **Gov** on income equation. Models 6,7,8 and 9 show that a 10 percent increase in trade, leads to between 2.5 and 3.7 percent increase in income per worker. The sign and statistical significance of all coefficients including aid, trade and other variables of interest remains unchanged. [33]

Regression results are robust to the inclusion of a multitude of exogenous and endogenous variables that are the determinants of **GDP per worker** in the literature. It is also robust in the sense that the negative relationship between GDP per worker and official aid remain significant with the substitutions of alternative measures of official aid.[34]

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[33] Refer to Appendices

[34] Appendices A and B

6.3 Summary of the Key Findings

This chapter specifies and estimates a system of three equations that explains the determinants of GDP per worker, trade, and foreign aid among 151 countries over the period 1975 to 1998. The findings of this chapter strongly suggest that foreign aid and trade are strong determinants of **GDP per worker**. Perhaps the most important result in these findings is the inability of government-to government foreign aid to improve living standards of many aid-recipients as measured by **GDP per Worker**.

The evidence is consistent with the hypotheses developed earlier that aid-dependent countries have been marginalized and have failed to assume their share of world trade and productivity. The findings are relevant to the Transfer Paradox literature discussed in Chapter. The empirical results presented are also consistent with the prediction of the public choice literature discussed earlier that despite the negative results, it has been difficult to cut foreign aid even after it stopped yielding income-promoting results. Foreign aid, trade distortions, and government consumption are indicators of non-market institutions that fail to facilitate competition, cooperation and ethnic harmony.

In conclusion foreign aid institutions are, in essence, non-market institutions that confer private benefit but also public harm. Because foreign aid is a commonly owned resource, with the right assigned by government, powerful individuals and state heads establish property right in the system and, as a result, rent extractors expend resources resisting deregulation that attempt to remove that privilege. The net value added on

foreign aid is negative if all its adverse externalities are taken into account and this is the most important conclusion of this dissertation's findings.

On the other hand, the empirical evidence reaffirms that international trade (actual goods and service and also financial services) appears complementary to economic performance. This study considers **Fdi, Trade** and **Credit** as a proxy for market institution indicators and factors that facilitate the efficiencies and dynamics of economic systems. Thus, these factors have the ability to increase economic performance through increasing market activities, specialization and reduction in transaction cost. Institutions that increase competitiveness will enhance learning, which would in turn allow people to compete themselves in the rigor of the market.

The policy implication of these results is that aid-recipient nations ought to consider policies that curb the dependence on foreign aid as an institution and agent for economic progress. Alternative policies that attract private foreign capital, enrich human capital and increase openness to international trade might provide sustainable economic performance. Enhancement of private initiative, open markets and economic productivity go hand in hand and mutually reinforce one another.

Table 6.1 Correlation Matrix for the GDP per Worker Model

	1.00														
	-0.13	1.00													
	-0.54	0.07	1.00												
	0.46	-0.14	-0.37	1.00											
	0.00	-0.57	0.03	0.24	1.00										
	0.09	-0.63	0.19	0.17	0.64	1.00									
	0.60	0.12	-0.49	0.39	-0.28	-0.24	1.00								
	-0.32	0.50	0.28	-0.36	-0.28	-0.28	-0.31	1.00							
	0.57	-0.30	-0.56	0.53	0.04	0.10	0.57	-0.44	1.00						
	-0.68	0.15	0.63	-0.47	-0.07	0.03	-0.66	0.42	-0.67	1.00					
	0.07	-0.21	-0.16	0.07	0.01	-0.01	0.02	0.01	0.16	-0.10	1.00				
	0.16	-0.31	-0.22	0.25	0.08	0.05	0.19	-0.21	0.35	-0.22	0.55	1.00			
	-0.32	0.27	0.71	-0.42	-0.21	0.07	-0.34	0.51	-0.50	0.55	-0.04	-0.16	1.00		
	-0.10	0.32	0.12	-0.06	-0.02	-0.15	-0.06	0.22	-0.20	0.12	-0.08	-0.10	0.15	1.00	
	-0.75	0.17	0.64	-0.56	0.02	-0.04	-0.68	0.37	-0.83	0.84	-0.10	-0.26	0.52	0.20	1.00

Table 6.2 Three-Stage Least Squares Estimation Results of GDP per Worker
Dependent Variable: (GDPW) is the log of GDP per worker 1975-1998

0.20	0.20	0.16	0.22	0.37	0.26	0.25	0.37	0.32
(3.192)	(2.8)	(3.49)	(4.57)	(3.40)	(4.48)	(3.89)	(5.42)	(5.06)
-0.35	-0.32	-0.21	-0.22	-0.12	-0.25	-0.19	-0.19	-0.21
(-23.53)	(-22.02)	(-9.47)	(-11.04)	(-7.64)	(-11.83)	(-8.39)	(-8.39)	(-9.34)
0.001	0.001	0.0016	0.001	0.002	0.001	0.002	0.001	0.001
(2.74)	(3.21)	(6.88)	(5.54)	(4.76)	(4.25)	(6.28)	(5.65)	(5.08)
0.003	0.004	0.00476	0.004	0.004	0.004	0.005	0.006	0.005
(7.77)	(10.21)	(12.26)	(12.47)	(6.1)	(9.82)	(12.63)	(13.54)	(12.43)
0.06	0.08	0.0403	0.04		0.04	0.08	0.11	0.08
(3.48)	(-4.60)	(4.09)	(3.39)		(3.75)	(4.05)	(5.293	(4.01)
			0.01	-0.02				
			(-2.87)	(-4.13)				
-0.002	-0.003			-0.004	-0.001			
(-2.25)	(-3.51)			(-2.37)	(-1.82)			
0.65	0.67	0.80	0.79	0.78	0.81	0.83	0.84	0.83
782	903	1063	872	888	903	1292	1053	1053
-0.07	-0.06	-0.04	-0.04	-0.03	-0.03	-0.04	-0.03	-0.013
(-9.39)	(8.31)	(-5.11)	(-5.23)	(-25.76)	(-4.39)	(-5.78)	(-3.55)	(-1.73)
0.09	0.108	0.12	0.12	0.04	0.12	0.04	0.04	0.04
(8.90)	(11.70)	(14.09)	(12.76)	(10.10)	(12.34)	(14.76)	(10.89)	(12.64)
0.003	0.003	0.004	0.004	0.004	0.004	0.003	0.002	0.002
(11.76)	(13.67)	(15.77)	(14.63)	(14.37)	(15.33)	(8.35)	(3.53)	(5.82)
-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	0.000	-0.001	-0.001
(-4.21)	(-8.83)	(-9.76)	(-9.34)	(-8.00)	(-9.48)	(-10.10)	(-9.21)	(-10.73)
-0.23	-0.22	-0.20	-0.20	-0.21	-0.21	-0.17	-0.10	-0.11
(-26.58)	(-25.46)	(-25.67)	(-24.09)	(-25.76)	(-24.33)	(-10.06)	(-4.12)	(-5.90)
						-0.04	-0.14	-0.11
						(-2.12)	(-4.81)	(-4.96)
-0.001				-0.001				
(-3.14)				(-3.36)				
0.51	0.49	0.53	0.55	0.54	0.56	0.53	0.58	0.60
	-0.52	-0.23	-0.22	-0.23	-0.38	-0.21	-0.28	
	(-4.10)	(-2.12)	(-1.86)	(-2.93)	(-2.35)	(-1.94)	(-2.32)	
-1.70	-1.15	-1.17	-1.45	0.07	-0.91	-0.93	-1.42	-0.68
(-11.98)	(-7.22)	(-10.35)	(-11.41)	(0.55)	(-3.60)	(-9.85)	(-15.28)	(-3.36)
0.003	0.004	0.002	0.002		0.003	0.003	0.003	0.004
(-3.36)	(4.53)	(2.89)	(2.55)		(3.30)	(3.51)	(3.28)	(4.86)
0.59	1.29	1.65	1.36	0.47	1.52	1.93		1.93
(3.05)	(6.06)	(7.00)	(5.32)	(3.79)	(5.98)	(9.63)		(8.00)
0.004	0.010			0.01	0.02		0.01	0.01
(1.99)	(4.51)			(3.12)	(2.13)	(9.63)	(4.18)	(1.98)
				0.84				
				(41.658)				
0.60	0.57	0.58	0.57	0.89	0.58	0.57	0.54	0.57

Explanatory Notes: The following variable are entered as a logarithmic transformation: GDP per worker, Trade, Aid, Credit, foreign direct investment, Land Area and, liquid liability. The model includes fixed-year effects and regional dummy variables for Africa, OECD, Latd and Asian dummies. Z-value listed in parentheses.

Chapter Seven

Summary and Conclusions

A wide range of scholars has debated the impact of the presence or absence of free trade, foreign aid and free markets for economic development.[35] Until recently, their propositions have been widely ignored in the absences of empirical support for their claims.[36] Although the importance of free trade has been articulated both on theoretical and empirical grounds, there remains little consensus regarding what factors help or hinder a country's capacity to trade. In addition, many aid-recipients register negative per capita income, though there remains little consensus regarding what factors affect country's dependence on foreign aid. This dissertation examines the theoretical underpinnings and the empirical determinants of trade and foreign aid, and explores full understanding of the aid-trade-income nexus.

I began with the determinants of trade and foreign aid and then focused on the determinants of income levels. Even though world interdependence and the specialization of goods and services has achieved wide acceptance as an approach to

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[35] For a retrospective analysis for the presence or absence of free trade and foreign aid see Harberler (1950), Myrdal (1957) , Viner (1958), Friedman (1958), Keesing (1967), Rosentein-Roden (1968), Kravis(1970), Bauer (1974 and 1981), and Griffin (1978).

[36] Kormendi and Meguire (1983), Levine and Renelt (1992), Fischer (1993), Edwards (1993), Boone(1996)and Frankel and Romer (1999), Yano and Nugent (1999) and Burnside and Dollar (2000).

economic prosperity, the determinants of income levels have received little attention from researchers as they concentrated on growth rates. This dissertation argues that differences in income levels (not growth rates) can be explained by examining trade and foreign aid policies and their effect on income and on each other.

The empirical analysis is built upon the methodology of Frankel and Romer (1999) to correct for the simultaneity of trade and income using country specific geographic and demographic characteristics, such as size and population, as instruments. It augmented Frankel and Romer's model by providing evidence that foreign aid exerts a significant influence on trade and empirically testing the hypothesis that foreign aid might retard income levels by replacing the free flow of international trade. The study also considered the possibility that aid and trade are simultaneously determined by other factors including demographic variables such as population and the size of the country.

The dissertation also examined the link between the provision of foreign aid and protective trade policies. One way to measure the distortionary effect of protective trade policies is to examine the feedback effects of trade taxes on foreign aid and income. This study assumed that taxes on international trade are determined endogenously, and contrary to prior studies, it distinguishes between sources of financial capital to illuminate further the effect of financial variables on trade and income.

The empirical results fall into three main categories. First, the findings strongly indicate that foreign aid undermines a country's capacity to trade. The results show a negative and statistically significant relationship between five measures of foreign aid

and trade. This result remains statistically significant to the inclusion of various aid variables such as bilateral aid, multilateral aid, overall level of aid, and IMF credit.

Second, the findings strongly suggest that taxes on trade increase the dependence on foreign aid. Third, the empirical evidence indicates that foreign aid and trade are strong determinants of GDP per Worker. The most important result in this dissertation is that foreign aid is not conducive to economic performance as measured in GDP per Worker.

The results of this dissertation bring us closer to identifying the factors that affect trade, foreign aid, and GDP per worker. In addition to gaining insight into the way foreign aid, fiscal discipline, and trade determine GDP per worker, this dissertation provides an explanation for the manner in which foreign aid contributes to the reduction of a country's trading capacity, and subsequently its living standards.

The policy implication of this dissertation is that aid-recipient countries and donors should consider policies that curb dependence on government-to-government aid as an institution and agent of economic development. Policies that attract private capital and free trade will provide sustainable economic performance. Enhancing free trade and foreign direct investment along with policies that advance economic efficiency are better institutions and agents for economic progress than government-to government foreign aid.

Appendix A: Results of Least Square Estimation of GDP per Worker
The Dependent Variable GDPW, is GDP per Worker

	0.091	0.168	0.476	0.365	0.601	0.227	0.392	0.640	0.529
	(2.004)	(2.943)	(6.813)	(5.082)	(8.884)	(2.444)	(5.389)	(7.893)	(7.313)
	0.008	0.006	0.004	0.005	0.005	0.005	0.004	0.005	0.004
	(19.948)	(13.094)	(9.169)	(12.473)	(9.429)	(9.581)	(9.076)	(8.916)	(9.956)
		0.072	0.035	0.051	0.030	0.033	0.055	0.049	0.044
		(4.238)	(2.162)	(3.318)	(1.984)	(1.677)	(3.475)	(2.591)	(2.814)
		-0.005	-0.003	-0.005	-0.004	0.001	-0.004	-0.005	-0.004
		(-5.204)	(-2.853)	(-4.776)	(-4.191)	(-1.023)	(-3.526)	(-4.761)	(-4.097)
			-0.004	-0.003	-0.005	-0.001	-0.004	-0.006	-0.005
			(-3.813)	(-2.713)	(-3.43)	(-0.605)	(-3.555)	(-4.447)	(-4.173)
			-0.046	-0.094	-0.120	-0.081	-0.032	-0.157	-0.130
			(-1.565)	(-3.299)	(-3.939)	(-2.551)	(-1.06)	(-4.796)	(-4.418)
	-0.178	-0.168	-0.154						
	(-16.802)	(-10.121)	(-10.027)						
				-1.90E-10					
				(-7.303)					
					-0.014				
					(-2.744)				
						-0.066			
						(-8.656)			
							-0.179		
							(-10.281)		
								-0.060	
								(-2.128)	
									0.003
									(8.769)
	3.572	3.631	3.262	3.194	2.762	3.540	3.456	2.783	2.750
	(41.269)	(33.758)	(26.063)	(27.046)	(27.2)	(21.892)	(26.306)	(23.735)	(26.729)
	874.00	747.00	691.00	722.00	722.00	726.00	691.00	657.00	720.00
	78.60	0.78	0.84	0.82	0.82	0.71	0.83	0.78	0.82
	1367.37	672.24	503.54	283.59	456.56	394.08	493.27	307.90	463.82
	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

Explanatory notes: Gdpw, Trade, Aid variable and Government Consumption are treated as Endogenous Variables GDPW. Also Trade, Fdi, Liquidity and Aid variables are logged. The model includes regional dummy variables for Africa, Oecd, Latd, Inter and dummies. T-values listed in parentheses.

Appendix B: Results of Least Square Estimation of GDP per Worker

The Dependent Variable (GDPW) is the log of GDP per worker

	0.488	0.339	0.594	0.546	0.354	0.433	0.493	0.382	0.373	0.525	0.348	0.420
	(9.32)	(5.673)	(6.801)	(10.758)	(5.647)	(8.636)	(11.466)	(6.18)	(6.737)	(11.397)	(6.065)	(7.509)
	-0.010	-0.011	-0.016	-0.012	-0.006	-0.013	-0.013	-0.020	-0.020	-0.014	-0.010	-0.017
	(-4.874)	(-5.481)	(-7.631)	(-5.347)	(-3.006)	(-5.982)	(-6.251)	(-8.416)	(-9.266)	(-5.974)	(-3.439)	(-7.779)
	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.005	0.005	0.004
	(7.923)	(8.958)	(7.1)	(8.35)	(8.368)	(7.297)	(9.193)	(6.82)	(8.269)	(8.786)	(9.544)	(7.509)
	-0.005	-0.004	-0.006	-0.005	-0.003	-0.005	-0.005	-0.006	-0.005	-0.004	-0.004	-0.006
	(-4.956)	(-3.461)	(-4.072)	(-3.796)	(-2.244)	(-4.586)	(-4.787)	(-5.09)	(-4.576)	(-3.311)	(-3.494)	(-5.362)
	-0.056	-0.106	-0.091	-0.111	-0.096	-0.007	0.009	-0.147	-0.087	-0.038	-0.020	-0.074
	(-1.778)	(-3.363)	(-2.568)	(-3.724)	(-2.949)	(-0.203)	(0.315)	(-6.429)	(-3.066)	(-1.356)	(-0.503)	(-2.721)
	0.044	0.028	0.037	0.045	0.035	0.062						
	(2.869)	(1.659)	(2.063)	(2.971)	(2.101)	(4.031)						
							0.001	0.002	0.002	0.002	0.001	0.001
							(5.575)	(8.047)	(6.451)	(8.057)	(4.104)	(5.252)
	-0.122						-0.127					
	(-7.4080						(-8.9)					
		-0.001						-0.070				
		(-5.283)						(-2.786)				
			0.001						0.000			
			(-6.474)						(-3.721)			
				-0.010						-0.009		
				(-1.884)						(-1.925)		
					-0.050						-0.049	
					(-7.228)						(-4.386)	
						-0.149						-0.110
						(-9.493)						(-5.178)
	3.359	3.416	3.156	3.026	3.463	3.565	3.298	4.544	4.089	2.994	3.573	4.065
	(31.339)	(30.479)	(22.357)	(32.157)	(28.778)	(35.103)	(37.677)	(17.609)	(14.671)	(35.645)	(9.946)	(15.445)
	688	685	713	713	693	721	830	755	851	853	855	828
	0.82	0.71	0.76	0.79	0.75	0.79	0.81	0.71	0.74	0.79	0.76	0.77
	459	344	211	320	397	425	524	252	240	477	494	408
	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

Explanatory notes: Gdpw, Trade, Aid variable and Tax on Trade are treated as Endogenous Variables GDPW. Also Trade, Fdi, Credit, Liquidity and Aid variables are logged. The model includes regional dummy variables for Africa, Oecd, Latd, Inter and dummies. T-values listed in parentheses.

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