

**UNIVERSIDAD SAN FRANCISCO DE QUITO USFQ**

**Colegio de Administración y Economía**

**Does foreign aid affect Government effectiveness?**

**An Empirical Analysis**

**Proyecto de Investigación**

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**Economía**

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## RESUMEN

El presente trabajo analiza la relación causal entre la Ayuda Oficial para el Desarrollo y la efectividad del Gobierno central en una muestra de 173 países durante el período comprendido entre 1995 y 2015. Mediante una estimación de Sistema de Método Generalizado de Momentos se encuentra que la ayuda extranjera para el desarrollo tiene un efecto negativo y significativo sobre la efectividad del Gobierno central. Este resultado es consistente ante la inclusión de diversas variables de control. Además, el PIB per cápita, la participación de las mujeres en el poder legislativo, el control de la corrupción y las restricciones políticas tienen un efecto positivo y significativo sobre la efectividad del Gobierno central.

Adicionalmente, se analiza la causalidad reversa entre la efectividad del Gobierno y la ayuda oficial para el desarrollo. Mediante un Sistema de Método Generalizado de Momentos se encuentra que no existe un efecto significativo de la efectividad del Gobierno central sobre la ayuda oficial para el desarrollo. Los resultados también revelan que el monto de ayuda extranjera para el desarrollo rezagado un periodo tiene un efecto positivo y significativo sobre el monto contemporáneo.

*Palabras clave:* Asistencia oficial para el desarrollo, efectividad del Gobierno, Sistema GMM, paneles dinámicos, correlación serial, variables instrumentales, sesgo por omisión de variables

## ABSTRACT

This paper analyses the causal relationship between Official Development Assistance and Government effectiveness for a general sample of 173 countries during the period between 1995 and 2015. Using a System Generalized Method of Moments (GMM) estimation, I find that a country's net official development assistance inflows have a negative significant effect on the effectiveness of its central Government. This result remains after the inclusion of additional control variables. Furthermore, GDP per capita, participation of women in the legislative branch, control of corruption, and political constraints have a positive significant effect on a country's Government effectiveness.

Additionally, this paper studies the reverse causality between Government effectiveness and official development assistance. Using a System GMM estimation, I find that Government effectiveness has no significant effect on official development assistance. Results also reveal that one-period lagged official development assistance has a positive significant effect on current foreign aid inflows.

*Keywords:* Official development assistance, Government effectiveness, System GMM, dynamic panel, serial correlation, instrumental variables, omitted variable bias

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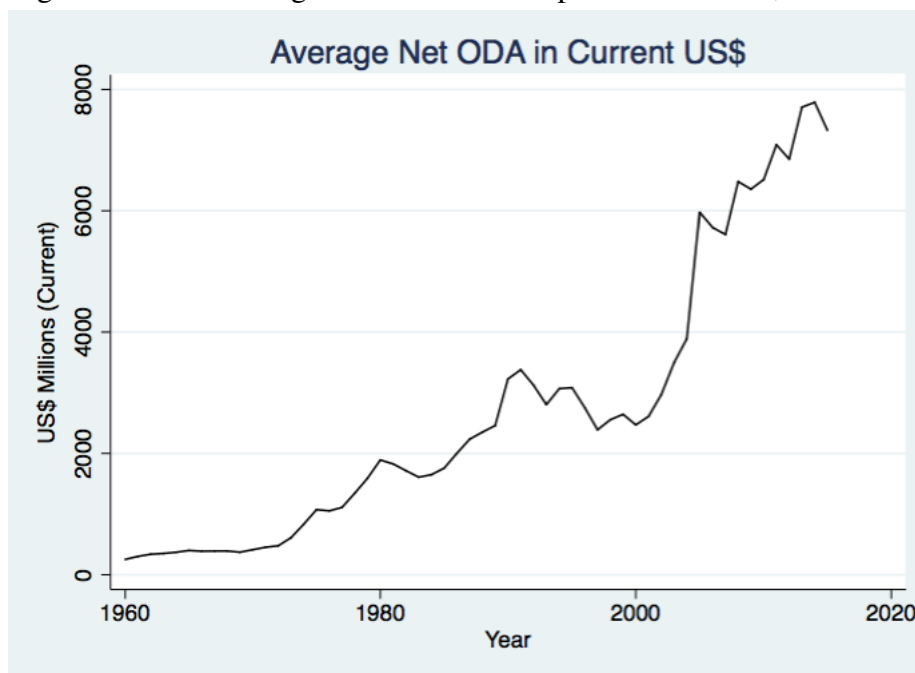
# 1 Introduction

Foreign funds have been widely used as one of the main tools to promote socioeconomic and political development in emergent economies. As “most underdeveloped countries depend heavily on external resources to increase their per capita income”, “the inflow of external resources [...] has become virtually a separate factor of production” (Chenery & Strout, 1966, p. 679). For this reason, there has been a growing debate regarding the effects of foreign funds in promoting growth, stability, and development in recipient countries. This paper aims to determine whether foreign aid has favored or hindered political development, through its impact on Government effectiveness.

During the last decades, official development inflows have followed an upward trend, as shown in Figure 1. Moreover, the members of the Development Assistance Committee of the Organization for Economic Cooperation and Development (OECD) contribute with more than US\$140 billion per year in the form of development aid flows, and their official development assistance averages 0.32% of their gross national income (OECD, 2016). However, despite the increasing annual disbursements of aid from developed to less developed countries, economists have failed to reach consensus regarding the effectiveness of foreign aid to promote economic growth, increase political stability and improve social welfare in recipient countries.

In this sense, numerous research studies explore whether increasing amounts of foreign aid have positive economic consequences in the beneficiary countries. Brückner (2011), Clemens et al. (2011), Minoiu & Reddy (2010), Sachs (2005), Arndt et al. (2010, 2015), among other authors, find that foreign aid does have a positive effect on short and long-run economic growth, while others such as Easterly (2003), Rajan & Subramanian (2008), Murphy & Tresp (2006), and Deaton (2015) find no real evidence supporting foreign aid’s effect on growth and question its effectiveness to alleviate poverty. Given these contradictory results, researchers have sought to determine the different characteristics and conditions that foster growth in developing economies, and whether the effect of foreign aid is conditional on any of these characteristics. Authors such as Easterly & Rebelo (1993), Fischer (1993), Sachs & Warner (1995), Chen & Feng (1996), Acemoglu et al. (2001), and Aguiar & Amador (2011), find that economic growth

Figure 1: World average net official development assistance, 1960-2015



Source: World Bank World Development Indicators

depends, to a large extent, on the country's own institutions and policies. Certainly, "political and legal institutions play a central role in setting the environment that can nurture prosperity and economic growth" (Deaton, 2015, p. 388). Therefore, foreign aid might have a positive effect on economic growth in developing countries, if there is an adequate set of policies and institutions to allocate these flows of funds.

Empirical evidence suggests that foreign development aid has a positive effect only in those countries "with good policies or governance" (Clemens et al., 2011, p. 1). Specifically, results obtained by Burnside & Dollar (2000) show that "aid has a positive impact on growth in developing countries with good fiscal, monetary and trade policies, but has little effect in the presence of poor policies"<sup>1</sup>(p. 847). Although research has found opposing results on the role of institutions in determining aid effectiveness, there is reason to believe that the capability of foreign aid to help a country achieve long-run economic growth, reduce population poverty and increase social welfare may be determined by the effectiveness with which the central Government allocates the resources received.

<sup>1</sup>These results have been questioned and refuted by authors like Easterly et al. (2004) and Jia & Williamson (2016).

Nonetheless, the aforementioned Government effectiveness might, in turn, be influenced by the amounts of foreign aid that the Government gets hold of, as “[t]he Government needs resources to carry out its functions” (Deaton, 2015, p. 390). Furthermore, good governance (characterized, within other aspects, by effective Government) has become an objective as well as a condition for development assistance (Santiso, 2001). As reported by Dollar & Svensson (2000), development assistance has shifted its focus to promote policy reform, since poor countries were held behind due to poor policies rather than lack of financial resources. Additionally, according to Deaton (2015), “[f]oreign aid, especially when there is a lot of it, affects how institutions function and how they change” (p. 388), as aid disbursements often respond to political domestic and international interests of the donor countries, rather than to the real needs of the world population in poverty. This claim is of particular interest, considering that almost half of official development assistance is given to autocratic regimes, which use the funds to perpetuate their leaders in power instead of effectively allocating them to development programs (Deaton, 2015).

In light of this debate, this paper looks at the relationship between foreign aid and Government effectiveness at a global scale, which provides a larger sample of countries that vary in terms of size, context and development conditions. I use panel data on 173 countries for seven three-year periods between 1995 and 2015, to construct a System GMM estimator, which captures the dynamic nature of a country’s Government effectiveness, while solving unobserved heterogeneity and endogeneity problems. I examine the impact of an increase in net official development assistance on Government effectiveness, measured by the index constructed for the World Bank’s Worldwide Governance Indicators (WGI), and controlling for economic, social and political factors.

Previous research has studied the effect of foreign aid on several political variables, such as democratization (Knack, 2004; Wright, 2009), institutional stability, (Jones & Tarp, 2016; Moss et al., 2006) and international cooperation (Kuziemko & Werker, 2006). It has even linked foreign aid with concepts related to Government effectiveness, including corruption (Tavares, 2003), economic policies (Murphy & Tresp, 2006), Government legitimacy (Dietrich & Winters, 2015) and governance (Kaufmann, 2009; Johnson et al., 2014). On the other

hand, most of the research on Government effectiveness assesses “one Government agency’s effectiveness, the effectiveness of several networked agencies, or the effectiveness of a state or federal Government within a single country.” (Lee & Whitford, 2009, p. 2). However, very few of them have evaluated the effectiveness of a whole country’s Government or compared this effectiveness across countries. Moreover, most studies on this subject focus on finding its determinants and studying how it responds to changes in different economic and political variables (Garcia-Sanchez et al., 2013; Moynihan & Pandey, 2005; Rainey & Steinbauer, 1999; Montes & Paschoal, 2015). Nonetheless, to the best of my knowledge, there is no research that explicitly studies the relationship between foreign aid and Government effectiveness.

Therefore, this paper’s main contribution is to present evidence on the effect of foreign aid on Government effectiveness. Furthermore, this study aims to shed light on the reverse causality between these two variables, studying whether an effective Government is capable to attract more or less development assistance. The present analysis uses an updated global database, which incorporates more countries and a wider time frame into the discussion of Government effectiveness, in comparison to studies conducted by Lee & Whitford (2009) or Garcia-Sanchez et al. (2013). Finally, this paper improves the results obtained by Garcia-Sanchez et al. (2013), by incorporating level equations to the Generalized Method of Moments, thus estimating a “System GMM”, which provides more consistent and efficient estimates than a difference GMM.

The main results show that, after controlling for the lagged value of Government effectiveness, foreign aid has a significant and negative effect on the level of Government effectiveness. Specifically, a one percent increase in the amount of foreign aid received (measured in millions of US\$) decreases a country’s Government effectiveness in 0.000031 points. This should raise concern regarding the aspects taken into consideration before disbursing development assistance from developed to least developed countries, as larger amounts of aid may undermine the Government’s capacity to allocate the funds and provide quality services to its citizens. Moreover, GDP per capita, the proportion of seats held by women in parliament, the level of control of corruption, and the political constraints index have positive, significant effects on a country’s Government effectiveness.

Regarding the impact of Government effectiveness on the current amount of net foreign

aid inflows, the results show that there is a negative but insignificant relationship. This evidence contradicts characteristics and objectives of aid conditionality programs. Moreover, the results show that the lagged value of net foreign aid inflows has a positive significant effect on the current receipts of foreign aid. This evidence raises concerns on the effectiveness of foreign aid to promote short and long-run development in recipient countries.

## **2 Literature Review**

### **2.1 Government effectiveness: definition and determinants**

Government effectiveness is a key component of a country's governance, but is often ambiguous and complex to define. According to the World Bank, it refers to the "perceptions of the quality of public services, the quality of the civil service and the degree of its independence from political pressures, the quality of policy formulation and implementation, and the credibility of the Government's commitment to such policies" (Kaufmann et al., 2010, p. 4). Similarly, Sacks & Levi (2010) define an effective Government as "one that is capable of protecting the population from violence while ensuring the honesty and competence of its bureaucracy and enabling the provision and maintenance of infrastructure that makes possible the exchange of goods and delivery of services" (p. 2325). Furthermore, Putnam (1993) establishes that any measurement of Government performance should evaluate "its responsiveness to its constituents and its efficiency in conducting the public business" (p. 63) focusing on three major aspects: policy process (how well does the Government conduct its internal operations), policy pronouncements (how well does the Government identify social needs and propose innovative solutions) and policy implementation (how well does the Government use the available resources to address the needs of the population).

According to Lee & Whitford (2009), studying Government effectiveness has gained importance over the last quarter century, as it permits a finer understanding of the role of accountability in governance. Besides, a higher degree of Government effectiveness increases the level of social welfare (Sacks & Levi, 2010), which is the ultimate goal of foreign aid. Kaufmann

et al. (1999) find evidence of strong relationships between Government effectiveness and development indicators such as child mortality, adult literacy and income per capita. Furthermore, according to the Millenium Challenge Corporation (nd), “[c]ountries with more effective Governments tend to achieve higher levels of economic growth by ... putting foreign aid resources to better use”. Therefore, it is important to consider Government effectiveness in the analysis of economic development. Many scholars have focused on explaining and modeling Government effectiveness, and practitioners in public administration have even developed programs to improve state Government management<sup>2</sup>. Nonetheless, “scholars have yet to develop clear and conclusive ways of defining and assessing effectiveness” (Lee & Whitford, 2009, p. 2).

Several studies attempt to model the effects of different explanatory variables in the state’s overall performance. For instance, O’Toole & Meier (1999) define a testable model for the impact of public management over the performance of public organizations. Taking into consideration the non-linear effect of public management and the impact of structural hierarchies and social networks, they model program performance and find that public management, defined as a “set of conscious efforts to concert actors and resources to carry out established collective purposes” (O’Toole & Meier, 1999, p. 510), affects program performance by providing structure and stability for the system, softening environmental influences and exploiting opportunities. Sustaining these results through an empirical analysis at U.S. federal, state and local level, Ingraham et al. (2003) find that effective financial, human resources, information technology and capital management are key for good Government performance. Authors such as Heinrich (2002), confirm the importance of performance management in the public sector.

To deepen the previous analysis, O’Toole & Meier (2003) build on their prior model to study how public organizational performance is affected by stability, defined as “constancy in the design, functioning, and direction of an administrative system over time” (p. 45). They distinguish between the different dimensions of stability within public administration: structural stability (preservation of organizational features), mission stability (consistency of objectives of the administrative unit), technology stability (constancy in information technology that may

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<sup>2</sup>A program example is the Pew Charitable Trust’s Government Performance Project, which ended in 2010 and evaluated how states administered funds, people, infrastructure and information. For more details visit <http://www.pewtrusts.org/en/archived-projects/Government-performance-project>

otherwise generate productivity loss), procedural stability (low variation in set of rules, regulations and operating procedures) and personnel stability (little rotation in employees who occupy positions within the organizations). Through their model they find that a higher degree of stability (that could take the form of any of the dimensions described above) induces a higher effect of current agency operations over future performance (O'Toole & Meier, 2003). Furthermore, the authors test the model empirically, using personnel stability in public education as an explanatory variable and find that it has a positive, significant effect over public performance.

Moreover, Rainey & Steinbauer (1999) rely on literature regarding public performance, to develop a theory on the elements that explain the effectiveness of public agencies. According to the authors, the effectiveness of the Government is explained by “supportive behaviors from external stakeholders such as political authorities; agency autonomy in refining and implementing its mission; high 'mission valence' (an attractive mission); a strong, mission-oriented culture, and certain leadership behaviors” (p. 1). These factors enhance various forms of motivation within the agency, which increase its effectiveness. However, the applicability of these results to a state-level has not been analyzed.

Subsequently, Brewer & Selden (2000) empirically test the previous results, along with several alternative theories regarding Government effectiveness. Using data from the 1996 Merit Principles Survey, they confirm most of the relationships hypothesized in theory. Specifically, they estimate the relationship between variables that measure perceived organizational performance within agencies, and subjective aspects such as organizational culture, human capital and capacity, leadership and supervision, task motivation, public service motivation, and individual performance, among others. The authors confirm that all of the dimensions exert a positive, significant relationship over perceived organizational performance, except for the excessive level of bureaucracy and formalities, which has a negative effect over the perceived organizational performance within agencies. Likewise, Kim (2004) confirms the proposed theories, but only regarding individual-level factors. These results, as all of the ones described previously, are based on analysis for one or a few agencies within a single country, and its applicability may be limited for cross-country analyses, as “the quality of Government institutions varies within countries, as well as between countries” (Sacks & Levi, 2010, p. 2326).



Related to Government effectiveness, Boyne (2003) studies the sources of public service improvement. According to Boyne, there are tangible elements regarding public service provision that may reflect improvement, such as quantity and quality of outputs, efficiency, equity, value for money and consumer satisfaction. For any of these categories, Boyne recognizes five theoretical sources of public service improvement: resources, regulations, markets, organization and management. He identifies that “two of the five sets of variables emerge as the most consistent influences on performance: resources and management” (Boyne, 2003, p. 390). This finding is relevant for the present study, as foreign aid represents additional resources for the Government, which are not always destined to development purposes. According to Boyne (2003), this additional resources may allow the Government to acquire real resources, which in turn, generate an improvement in public services.

Evidently, most of the previous research has focused on the analysis of Government agencies performance within one single country. However, the increasing availability of data at a country level has allowed cross country studies of Government effectiveness. For instance, Lee & Whitford (2009) contribute to the discussion regarding Government effectiveness by using the Worldwide Governance Indicators to analyze the perceived Government effectiveness for a set of 212 countries and a time frame running from 1996 to 2006. The authors estimate a simple multivariate model to study the variability in the level of Government effectiveness due to different explanatory variables including region, legal origins, income level, land area, political and constitutional system, and electoral fraud. The main findings show that “much of the variation in effectiveness is explained by the relative position of countries in the worldwide income distribution, with wealthier countries experience greater perceptions of effectiveness and those in the lower parts of the distribution being perceived as being less effective” (Lee & Whitford, 2009). Considering that low income countries are the ones receiving greater amounts of development assistance, income level is an important component inside the analysis of the relationship between foreign aid and Government effectiveness.

Likewise, Garcia-Sanchez et al. (2013) find the determinants of Government effectiveness, measured by the World Bank’s WGI for a sample of 202 countries and for a period between 2002 and 2008. According to Garcia-Sanchez et al. (2013), organizational environment, specifically

higher economic and educational conditions, drives to important public sector reforms. For this reason, the authors include Gross Domestic Product per capita and Adult Literacy as explanatory variables. Garcia-Sanchez et al. (2013) also argue that organization characteristics have a close link with the complexity of public bodies. Precisely, they recognize that larger countries, measured by population density, have larger budgets and more qualified human capital, and that social diversity, measured by the proportion of seats held by women in national parliaments, provides a greater understanding of organizational demand. However, this assertion is countered by Guisan (2009), who finds a negative relationship between population density and quality of Government. Finally, Garcia-Sanchez et al. (2013) affirm that “[p]oliticians are the main actors in decision-making about the future evolution of the public administration” (p. 569), as they determine rules, incentives, financing and several other characteristics regarding public activity. Consequently, they include the Political Constraint Index as an independent variable.

Garcia-Sanchez et al. (2013)’s study improves Lee & Whitford (2009)’s analysis by estimating a Generalized Method of Moments panel data dependence model, which captures unobserved heterogeneity and endogeneity complications between the dependent and independent variables, which were not considered in the previous model that was not appropriate for panel data modelling. Garcia-Sanchez et al. (2013) use all the independent variables lagged from  $t_1$  to  $t_3$  as instruments for the equations in differences. Their main results show that organizational environment, political characteristics and organizational characteristics determine the level of Government effectiveness, but their impact depends on each country’s economic development. Therefore, to improve Government effectiveness, low income countries should pay attention to political constraints, middle income countries should focus on densely populated areas and high income countries should increase gender diversity within the public sphere.

Similarly, with the objective of determining whether Government effectiveness is influenced by higher levels of corruption, Montes & Paschoal (2015) study a sample of 130 countries from 1995 to 2012. They conduct a cross country Ordinary Least Squares analysis, using the WGI Government Effectiveness Index as the dependent variable and corruption indices such as the Transparency International Corruption Perception Index and the World Bank Control of

Corruption as independent variable, controlling for factors like public debt, trade openness, inflation, rule of law and democracy. The results suggest that “[c]ountries that are perceived as less corrupt are also perceived as having more-efficient Governments” (Montes & Paschoal, 2015, p. 147) and that the effect of corruption on Government effectiveness is higher in developed countries. Moreover, the authors find that public debt and inflation have a negative significant effect over Government effectiveness, while rule of law has a positive significant effect. Likewise, Brewer et al. (2007) find positive effects of accountability and control of corruption over Government effectiveness for a sample of Asian countries.

In the same line, Adserá et al. (2003) estimate a pooled OLS model for panel data on 110 countries for a period between 1982 a 1998, to determine the relationship between quality of Government, democracy and informational mechanisms. They retrieve data from the International Country Risk Guide, and regress bureaucratic quality on the level of democracy taken from the Polity III database, and on the quality of informational controls measured by the daily newspaper circulation. The model incorporates controls for economic development, religious beliefs, ethnic fractionalization, type of legal codes, former communist countries, institutional framework, asset specificity, size of Government, economic openness, proportion of senior citizens, proportion of urban population, population and geographical area. Within the main results, authors find that the lagged value for bureaucratic quality has a positive, significant relationship with the current value of the dependent variable. Furthermore, results show that the degree of citizen information has a positive and statistically significant effect over bureaucratic quality, as the presence of an informed electorate diminishes politicians’ opportunities to engage in corruption activities (Adserá et al., 2003).

Conversely, Ahlerup & Hansson (2011) assess the effect of nationalism over Government effectiveness for a cross-section of 79 countries in the year 2004. They conduct a two stage OLS using the WGI Government Effectiveness Index as the dependent variable and the level of national pride, taken from the World Values Survey, the level of ethnic fractionalization and the trade openness as independent variables. The study’s main results reveal that nationalism has an inverted U-shaped significant relationship with Government effectiveness, which means that Government effectiveness increases with lower levels of nationalism until it reaches an optimal

nationalism level. For levels of nationalism higher than the optimal, Government effectiveness decreases. Furthermore, the authors find that ethnic fractionalization exerts a negative pressure over Government effectiveness, while trade openness increases Government effectiveness. Correspondingly, Whiteley (2009) finds evidence that political participation has a positive, statistically significant effect over Government effectiveness.

Seemingly, there is a close linkage between Government effectiveness and political variables such as corruption, political constraints, accountability, rule of law, degree of citizen information, nationalism and political participation. There is also a strong relationship between Government effectiveness and socio-economic variables, including income level, public debt, inflation, education level, population density, gender diversity and ethnic fractionalization. Nonetheless, evidence suggests that Government effectiveness is also determined by the amount of resources available to the Government. Therefore, I now shift the discussion to the existing literature on foreign aid, and its possible political implications.

## **2.2 Defining and modeling foreign aid**

Even though there are various sources of foreign capital inflows which increase domestic resources, research suggests that disaggregating them into their principal components provides better quantitative evidence on the relationship between foreign resource inflows and growth in less developed countries (Papanek, 1973). Moreover, according to Papanek (1973), foreign aid has a substantially greater effect than any other component of foreign inflows due to its ability to “fill the foreign exchange gap” (p. 122) and its specific design to encourage growth. In general terms, foreign aid refers to money transferred voluntarily from one country to another in the form of donation, subsidy or gift, for purposes of development, relief and rehabilitation, stabilization or mutual defense (Randhawa, 2012).

When disaggregating the forms of foreign resource flows to developing nations, the major component is Official Development Assistance (ODA)<sup>3</sup> (Deaton, 2015). According to the OECD’s Development Assistance Committee, ODA is the “Government aid designed to promote the economic development and welfare of developing countries”; namely, around 150

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<sup>3</sup>From this point, the term ‘foreign aid’ refers to Official Development Assistance.

countries around the world which have a per capita income lower than 12,276 US\$ of 2010. This aid may be delivered directly from donor to recipient, or may be channeled through international organizations and development agencies. As reported by the OECD (2018), the flows of ODA from DAC countries to developing nations in 2016 totaled 61.9 billions of US\$. Of this total, around 44% was destined to African nations, while 39% was allocated to Asian countries.

The United Nations has targeted that developed countries should donate 0.7% of their Gross National Income as ODA. Currently, the United States, Germany and Britain are the most important net ODA providers. However, in relative terms, Scandinavian countries devote a larger percent of their gross national income to ODA transfers. This reflects a higher degree of donor commitment in the latter countries, in comparison with the former, in which the percentage of national income devoted to ODA is very low and reaches, for example, only around 0.2% for the United States (Deaton, 2015).

Given that development aid is designed to help mitigate global poverty, it should theoretically be disbursed according to the needs of the world population living in such conditions. Most of international agencies created and devoted to promote poverty reduction and economic development, disburse aid conditional on certain factors, such as adequate levels of governance and promotion of economic freedom (Johnson et al., 2014). Furthermore, they often impose conditions as to what objectives should be accomplished through aid receipts, including improvements in development indicators. However, most of foreign aid (approximately 80%, according to Deaton (2015)) is delivered bilaterally from one country to another, or specifically from one Government to another, “guided less by the needs of the recipients than by the donor country’s domestic and international interests” (Deaton, 2015, p. 363), which usually differ from those of the population in the recipient country.

For instance, Alesina & Dollar (2000) study the pattern of foreign aid distribution from different donors to numerous recipient countries. Using the Official Development Assistance data as dependent variable, they estimate a log-level equation to study the effect of trade openness, democracy, civil liberties, colonial status, direct foreign investment, initial income and population on the amount of foreign aid received by different countries. They analyze the possibility that all the independent variables are exogenous, and further consider the presence of

endogeneity, as democracy and trade openness may be influenced by foreign aid. Main results from this study show that “factors such as colonial past and voting patterns at the United Nations explain more of the distribution of aid than the political institutions or the economic policy of recipients” (Alesina & Dollar, 2000, p. 55). Specifically, they find that from the three most important foreign aid providers, the United States devotes most of its aid to Egypt and Israel, France destines most funds to its former colonies and Japan donates the most according to the United Nations voting patterns.

Likewise, Kuziemko & Werker (2006) find strong evidence on the pattern between foreign aid disbursements to rotating members of the United Nations’ Security Council and vote buying. The authors estimate a model within countries with time and country fixed effects, regressing foreign aid receipts on a dummy variable indicating whether the country served as member of the Security Council during a specific year, and controlling for political and economic variables including wars happening in recipient countries, dictatorship/democracy scores and real gross domestic product. Kuziemko & Werker (2006)’s main results show that Security Council membership increases foreign aid receipts from the United States in 59 percentage points, and foreign aid receipts from the United Nations in 8 percentage points. Furthermore, the authors find that foreign aid to Security Council members increases in the year in which a country is elected to the Security Council, remains high during the two years of membership, is higher during important diplomatic years, and sharply decreases as soon as its membership term is over.

As evidence suggests, aid disbursements often respond to political interests from the donor countries rather than to actual considerations of the necessities of the developing recipient countries. Furthermore, donor countries give more importance to the volume of aid disbursed, and frequently disregard the effects of the funds over recipient populations, (Deaton, 2015). Among other reasons, this may explain why aid has not always been effective in achieving poverty reduction goals or promoting better governance. Related to this statement, Bearce & Tirone (2010) find that foreign aid favors economic growth in recipient countries “by facilitating economic reform, but only when the strategic benefits associated with providing aid are small for donor Governments” (p. 837). When this is not the case, donor Governments fail to credibly

enforce their conditions for economic reform, and thus, aid becomes ineffective.

Considerable debate has emerged regarding the previous claims. Nonetheless, economists have not agreed on whether foreign aid fosters economic growth and development. Angus Deaton (2015), in his book *The Great Escape: Health, Wealth, and the Origins of Inequality*, argues that foreign aid has been ineffective in reducing poverty. Aside from following political interests, according to Deaton (2015), aid's fungibility often causes development assistance to end up being used for other purposes, or even in the hands of corrupt politicians. Furthermore, Deaton (2015) also attributes ODA's ineffectiveness to "aid fragmentation" by donor countries, as small countries receive a greater amount of aid, but the world's poorest people live in bigger countries. Deaton (2015) also compares foreign aid to commodity price booms, in the sense that "cash flows come and go in a way that is divorced from domestic needs or domestic politics" (p. 393). According to the author, this may weaken a state's fiscal capacity while stimulating Government expenditure, which is unsustainable in the long-run. This last statement debunks Barro (1990)'s findings, which show, through an endogenous growth model, that foreign aid promotes growth and investment by allowing the reduction of distortionary taxes.

Bauer (1969) establishes that foreign aid is not a necessary nor a sufficient condition for economic advance, as it is ineffective in promoting development if the population is not interested in material success due to customs and values that are incongruous with material progress. Furthermore, he argues that aid flows have more often retarded economic advance rather than promoted it, because it debilitate the process of generating local resources and because its results depend on "the repercussions of aid on economic capacities, policies and institutions, and on the allocation of the resources in the recipient countries", which are often damaging. Foreign aid, he argues, is incapable of affecting the basic determinants of development and therefore, if a country "cannot develop without foreign aid it is unlikely to develop with it" (Bauer, 1969). Moreover, according to Bauer (1969), receipts of foreign aid promote the concentration of power, as they augment the resources available to the Government in comparison with those of the private sector.

On the other hand, Sachs (2005) argues that it is a responsibility of developed countries to promote development within least developed nations, and defends the effectiveness of for-

foreign aid in helping least developed countries out the 'poverty trap'. Specifically, he claims that a substantial amount of development assistance sustained over a long period of time, helps to boot a process of capital accumulation, which increases household earnings above subsistence levels and promotes economic growth. However, Sachs (2005) recognizes that aid effectiveness is conditional on specific characteristics. Namely, for aid to have positive effects on poverty reduction, the state should implement an effective administrative strategy with an adequate level of decentralization, develop a training program to build and strengthen the Government's capacity to allocate resources, implement a wider use of information technology within the public sector, establish a quantitative baseline regarding the objectives that it aims to achieve with the foreign aid, and constantly monitor and evaluate the assignment and use of those resources.

Beyond theoretical discussion, empirical studies also reveal contradictory evidence regarding the impact of foreign aid on economic growth. Several authors have empirically tested the effect of foreign assistance over economic performance, and found no evidence suggesting aid's effectiveness. For example, Boone (1996) analyzes the effectiveness of foreign aid, depending on each country's political regime. Theoretically, the author establishes that foreign assistance does not promote economic development because poverty is not generated by a lack of capital and because it reduces the politician's efficiency when adjusting distortionary policies. Using a sample of 96 countries with five-year and decade averaged data, he tests the hypothesis that "politicians will use aid for transfers and not to reduce internal distortions" (Boone, 1996). Specifically, the author measures if foreign aid allows Governments to reduce distortionary policies, if these reductions have an indirect impact over consumption and investment, if Governments actually use foreign aid receipts to favor the poor, and if certain political regimes are more efficient than others when allocating foreign aid resources.

Boone (1996) finds that political factors are important determinants of aid flows. Therefore, he uses these political factors as well as country size to instrument foreign aid. He compares the instrumental variables models with regular OLS, and finds that the impact of foreign aid over investment and measures of human development like infant mortality and primary schooling ratios is insignificant. Furthermore, he finds that "all political systems allocate aid to the elite" (p. 34) and therefore, foreign aid has a significant impact over the size of the bureau-



cratic state. Finally, Boone (1996) concludes that short-term flows of aid addressed to support new liberal regimes may be more successful to reduce poverty.

Likewise, Veiderpass & Andersson (2007) study the effectiveness of foreign aid in a production theory context for a sample of 60 countries between 1995 and 2000. To do this, the authors measure how well countries use their resources through an efficiency index that follows the Data Envelopment Analysis method. They estimate a multiple input - single output production model, using energy use, labour force and capital stock as explanatory variables, and real gross domestic product as dependent variable. Finally, they compare their results with the percent of aid relative to Government expenditure in the countries of study, arguing that aid adds to the size of the capital stock of a given country. However, they find no real evidence of aid promoting efficiency and growth.

However, plenty of studies find evidence supporting the fact that foreign aid does contribute to economic development. Arndt et al. (2010) argue that “aid remains a key tool for enhancing the development prospects of poor countries” (p. 1) after assessing the impact of foreign aid in the context of program evaluation. They specify a model that contains a set of regional fixed effects, geographic conditions and indicators of initial human capital, eliminating covariates that represent channels through which aid may affect growth. They further develop an instrumentation strategy for aid per capita based on whether each country is or was ever a colony, on the population size, on whether the donor and recipient countries share a common language and on donor-fixed effects. Their results show that aid has a positive average treatment effect on growth. These results are robust to additional available data and to an extended evaluation on additional outcomes, incorporating proximate sources of growth, indicators of social well being, and measures of economic transformation (Arndt et al., 2015), confirming that during the past forty years, aid has “stimulated growth, promoted structural change, improved social indicators and reduced poverty” (Arndt et al., 2015, p. 6).

Brückner (2011) studies the effect of foreign aid on GDP per capita growth for 47 least developed countries, taking into account the reverse causality between these two variables. The author uses a two-step procedure; in the first step, the author estimates the response of foreign aid to economic growth using rainfall and commodity price shocks as instrumental variables,

and in the second step the author uses the residual variation in foreign aid not driven by GDP per capita growth as an instrument to estimate the effect of foreign aid on GDP per capita growth. Brückner (2011)'s main findings show that "increases in real per capita GDP growth of aid-recipient countries are associated with a statistically significant and quantitatively large reduction in foreign aid". Specifically, when the real GDP per capita growth rate increases in one percent, foreign aid decreases in more than 4 percent. When this negative, significant effect is controlled for in the growth regression, a one percent increase in foreign aid is associated with a 0.1 percent increase in real GDP per capita growth rate.

Clemens et al. (2011) reanalyze three published aid-growth studies, conserving the original model specifications. However, they make straightforward changes to the models: they allow aid to affect growth with a time lag, they eliminate omitted variable bias through first differences and only take into account portions of aid that might produce growth within a few years. The authors' main results reveal that all three studies lead to the same conclusions when making the model corrections addressed above. Specifically, they find that aid inflows are associated with small positive economic growth and investment increases across countries. However, "the magnitude of this relationship is modest, varies greatly across recipients and diminishes at high levels of aid" (Clemens et al., 2011, p. 1).

Burnside & Dollar (2000) study if the effect of aid on economic growth is conditional on economic policies, and if donors allocate more aid to recipient countries with certain economic policies. To answer these questions, the authors estimate a two-staged least squares model, instrumenting for aid on an economic growth regression. Specifically, they regress real GDP per capita growth on the logarithm of initial real GDP per capita, aid receipts relative to GDP, policies that affect growth, and other exogenous variables that affect growth. The authors allow an interaction term between aid and policies, to capture the extent to which policies determine how productively aid gifts are used. Burnside & Dollar (2000) find that aid has a positive impact on economic growth in countries with good policy environments, and that this effect has a stronger impact on growth than policies themselves.

However, Burnside & Dollar (2000)'s findings have been widely debunked by various authors. For example, Easterly et al. (2004) attempt to replicate Burnside & Dollar (2000)'s

results including additional available data both for the original sample period studied, and for an updated set of years. Using the exact model specifications from Burnside & Dollar (2000), the authors use a sample covering the years between 1970 and 1997, and divide the data into four-year periods. They control for the same original variables, including percentage of aid over GDP, policy index constructed by a weighted average of inflation, trade openness and percentage of budget deficits over GDP, and an interaction term between aid and the policy index. The authors find that, for the updated dataset including more observations for the original time period, and new available data for the latest years, there is no evidence supporting the claim that aid's effectiveness on economic growth is conditional on good policies. Easterly (2003) supports the previous conclusion after testing the relationship between aid, policies and growth for alternative measures of these three concepts. These results rejecting Burnside & Dollar (2000)'s conclusions have also been supported by Murphy & Tresp (2006) and Ram (2004).

Although the evidence regarding the relationship between foreign aid and politics has been questioned, theoretical explanations suggest that development assistance has important implications over recipient countries' institutions and governance. According to Deaton (2015), inflows of aid undermine institutions that foster long-run growth, as they weaken constraints and remove the need to raise money, causing political institutions to become toxic and ineffective, with unaccountable Governments that deny their citizens the protections of the law. Furthermore, he argues that aid undermines democracy and civic participation. Likewise, Moss et al. (2006) conclude that states that raise a larger proportion of their revenues in the form of foreign aid have less incentives to invest and establish effective public institutions, since they are less accountable to their citizens and have less urge to maintain popular legitimacy. However, Dietrich & Winters (2015) find no empirical evidence of the previous claims.

Likewise, Wright (2009) studies the effect of foreign aid receipts conditional on progress to democracy. Using a time-series, cross-section multinomial logit model, he finds that promises of higher aid conditional on progress towards democratization "only provides an incentive... for political leaders who expect to remain in office after democratization occurs" (Wright, 2009, p. 552). However, Johnson et al. (2014) and Knack (2004) find no quantitative evidence that aid conditionality fosters democratic reform.

Jones & Tarp (2016) estimate a long-run cross-section and alternative dynamic panel data models, and find a small positive net effect of total aid on political institutions, driven primarily by stable inflows of governance aid. On the other hand, Asongu (2013) analyzes a sample of 53 african countries for a 14-year period and finds that development assistance threatens institutional quality, measured through various institutional quality dynamics. Additionally, Tavares (2003) estimates a two-stage least squares model with instrumental variables and determines that aid decreases corruption, possibly because aid is associated with conditions that limit the leaders' discretion in recipient countries, and alleviates public revenue shortages.

Clearly, there is no general agreement regarding the effectiveness on foreign aid to promote economic and political development. According to Wright (2009), a potential explanation for the contradictory findings regarding the effectiveness of foreign aid, is that researchers model the processes in fundamentally different ways. He argues that findings that aid has a negative effect respond to cross-section models that average foreign aid values across the years covered by each cross section. Conversely, findings that aid has a positive effect on development respond to model specifications that pool data across countries and over time. Therefore, this paper aims to build on the previous literature by using an alternate approach, which distinguishes between countries and time periods, using a dynamic specification with panel data on 214 countries during a 20-year period.

### **3 Data and Descriptive Statistics**

#### **3.1 Variables**

##### *Dependent variable*

Among the various indicators that attempt to capture Government features associated to development, Kaufmann et al. (1999) generated the Worldwide Governance Indicators (WGI), constructing “six aggregate indicators corresponding to six fundamental governance concepts”. Within these, the Government Effectiveness Indicator captures the capacity of the state to implement sound policies. Specifically, the Government Effectiveness Indicator measures “per-

ceptions of the quality of public services, the quality of the civil service and the degree of its independence from political pressures, the quality of policy formulation and implementation, and the credibility of the Government's commitment to such policies" (Kaufmann et al., 2010). Data on the Government Effectiveness Indicator is available for 214 countries for the period between 1996 and 2016. This indicator ranges between  $-2.5$  and  $2.5$ , with a higher value indicating a more effective Government.

The WGI Government Effectiveness Index encompasses several dimensions including quality and size of bureaucracy, quality and coverage of public infrastructure, quality and coverage of several public services such as primary education, transportation and health systems, infrastructure disruption, state failure, policy instability, quality of public administration, quality of financial management, citizens' level of trust in the Government, allocation and management of public resources, among others. According to Garcia-Sanchez et al. (2013), the data used to obtain information on all these dimensions is based on surveys to reflect the perceptions of a very diverse group of respondents, including analysts, firms, households and agencies with extensive knowledge on the governance situation in their local countries.

However, there are several potential limitations on using the WGI Government Effectiveness Indicator as a measure of Government effectiveness. Arndt & Oman (2008) argue that the Government Effectiveness Indicator, like all the other WGIs, lacks transparency due to its high complexity, as the composition and weights of primary sources to construct the index vary across countries and over time. Furthermore, they consider that the WGIs lack reproducibility as many of the underlying indicators are not available to the public, and that they are not backed by an underlying theory of governance to explain the meaning of the indicators. Arndt & Oman (2008) further argue that these problems generate a bias that remains hidden from users. This causes the WGIs to lack comparability over time, and to give limited guidance on how to improve the quality of governance. Nonetheless, Kaufmann et al. (2008) debunked the previous claims, arguing that "the WGI are sufficiently informative that many cross-country comparisons result in statistically (and likely also practically) significant differences in estimated governance".

Moreover, Lee & Whitford (2009) recognize that the intrinsic subjectivity that character-

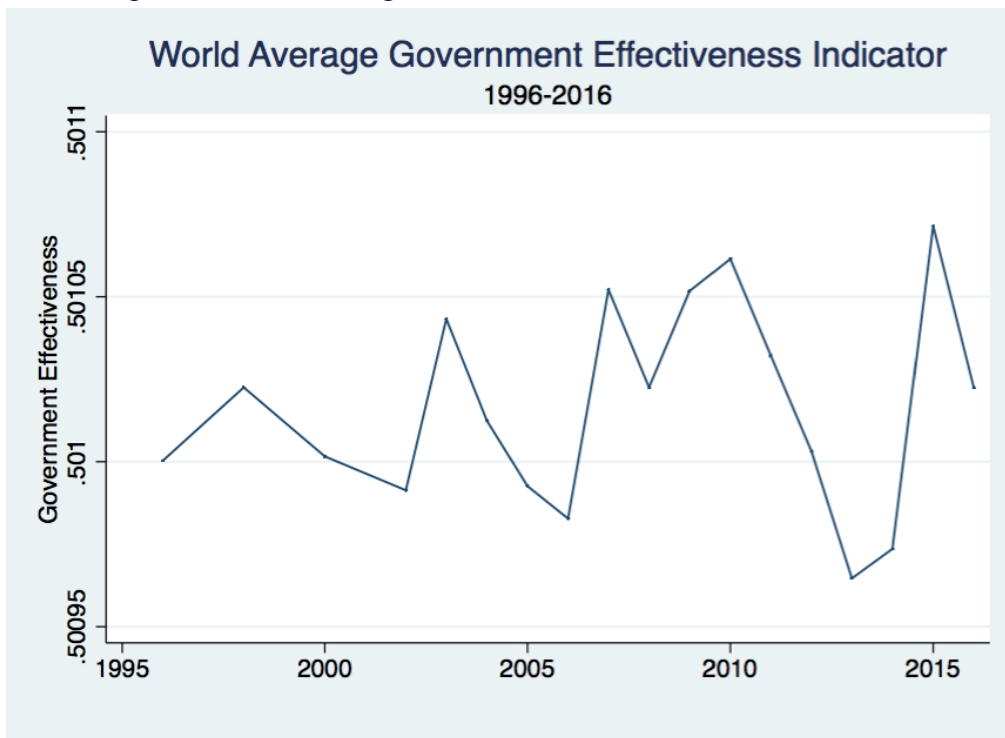
izes the Government Effectiveness Indicator may become a potential limitation, as informants' recalls may be biased. However, they argue that it is often difficult to find objective measures that completely approximate all the dimensions of organizational performance. Therefore, they recommend using a subjective measure of the Government's performance, such as the WGIs' Government Effectiveness Indicator for three main reasons. First, Government effectiveness is socially constructed by multiple stakeholders from the public and private sector, making it impossible to assess this concept without taking into account subjective perceptions of these actors. Second, according to Lee & Whitford (2009), subjective measures of organizational performance, such as the WGI Government Effectiveness Indicator, generally have a positive correlation with objective measures of organizational performance. Third, subjective mechanisms to measure Government effectiveness at a country level are at least as good as objective ones, if they were available (Lee & Whitford, 2009).

Figure 2 presents the evolution of the world average level of Government effectiveness for the original sample of 214 countries, between 1996 and 2016. The values for the Government Effectiveness Indicator have been normalized between zero and one to facilitate interpretation and analysis. The world average level of Government effectiveness has remained around 0.5 for the study period. However, differences emerge when analyzing the level of Government effectiveness by region, as shown in figure 3. Specifically, for regions associated with higher income levels such as North America and Europe and Central Asia, the average levels of Government effectiveness are higher and exhibit less volatility than for regions associated with lower income levels, such as Middle East and North Africa, South Asia and Sub-Saharan Africa.

### ***Independent Variable of Interest***

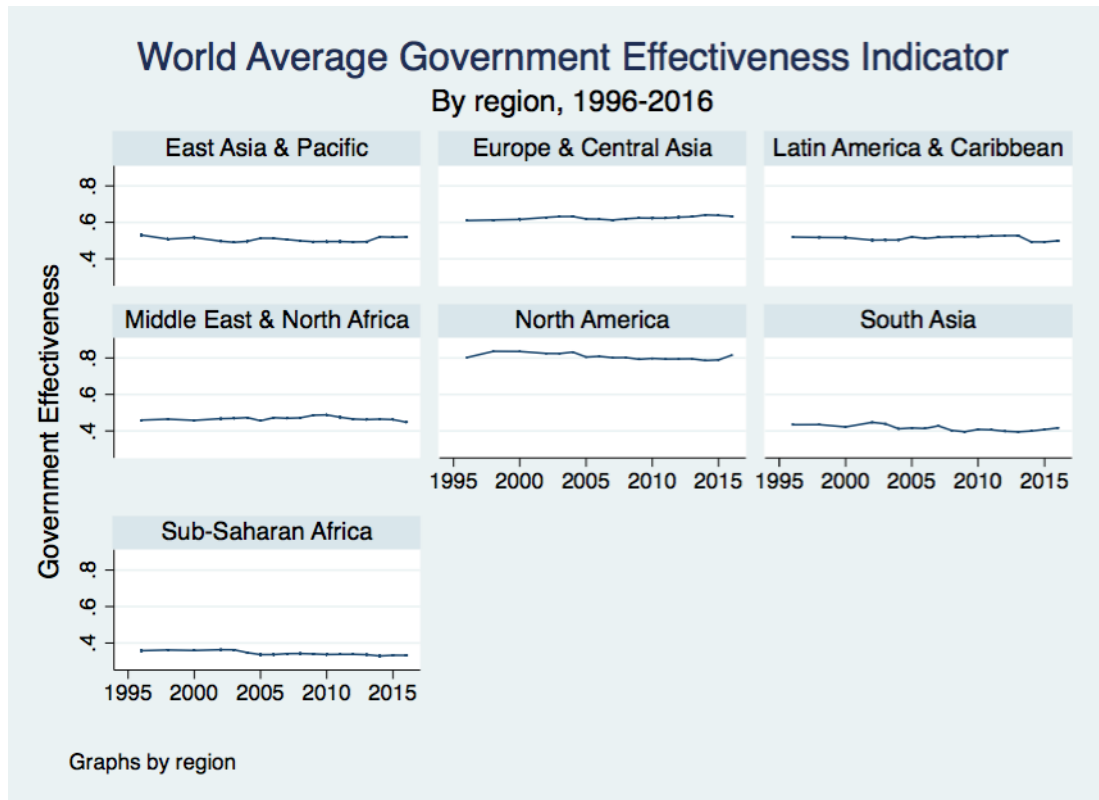
To measure inflows of foreign aid, I use the logarithm of Net Official Development Assistance taken from the World Bank's World Development Indicators. Net Official Development Assistance refers to aid flows donated by members of the OECD's Development Assistance Committee (DAC), multilateral institutions and non-DAC countries, designed specifically for development purposes. It includes grants, soft loans made on concessional terms with a grant element of at least 25% and technical assistance, and excludes loans and credits for military

Figure 2: World average Government effectiveness, 1996 - 2016



Source: World Bank World Governance Indicators.

Figure 3: Average Government effectiveness by region, 1996 - 2016



Source: World Bank World Governance Indicators.

purposes, anti-terrorism practices or acts of peacekeeping. Before 2005, the OECD's DAC additionally provided Official Aid to more advanced countries of Central and Eastern Europe, countries of the former Soviet Union, and additional advanced developing countries. The OECD eliminated these Official Aid transfers in 2005, but data values for net ODA before 2005 in the World Development Indicators database (World Bank, 2016) also consider Official Aid inflows.

The data on Net ODA and Official Aid is available for 264 countries for 1960-2015. Following Chao (2015), Net ODA is used above other measures of foreign aid to avoid confounding the effect of development aid with that of private donations or investments, which differ greatly with foreign aid in terms of motives and disbursement. Furthermore, net ODA leaves aside military and anti-terrorism assistance, which are not related to economic development and welfare programs.

Figure 4 shows the increase in world average official development assistance and aid during the last 20 years. The amount of aid donated to least developed countries has increased by around \$400 millions from 1995 to 2015. Moreover, as shown in figure 5, most of this increase in foreign aid has been disbursed to South Asian, and Middle Eastern and North African countries.

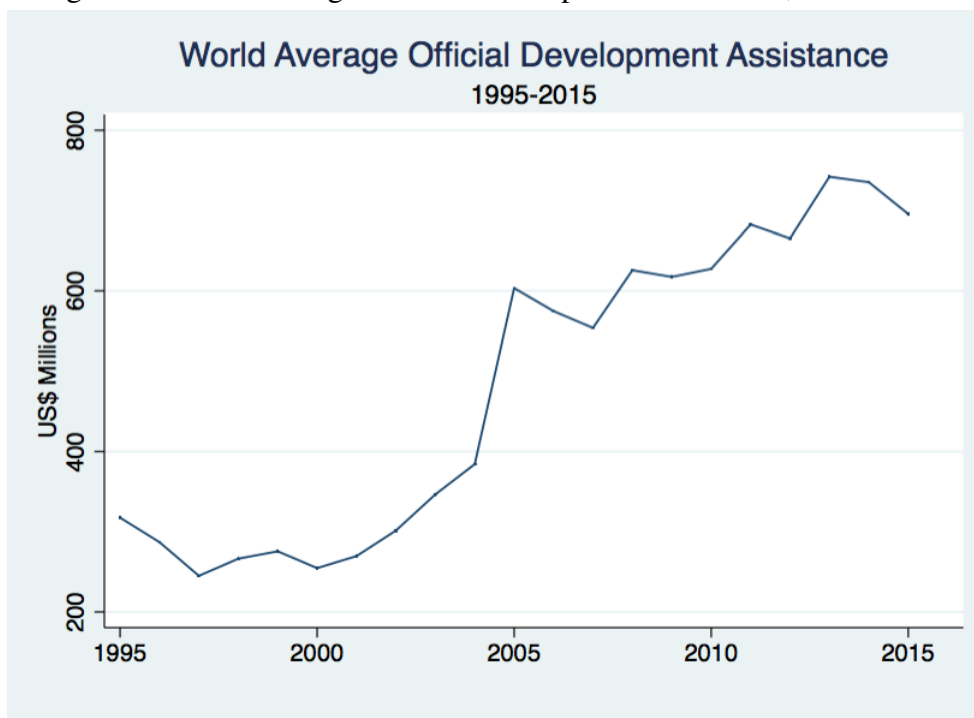
Figure 6 plots the relationship between Government effectiveness and net official development assistance and aid for the original sample. Although there is no obvious correlation between the amount of foreign aid received and the effectiveness of the Government, the plot shows that higher levels of foreign aid are associated with lower levels of Government effectiveness.

### ***Control variables***

Following the literature on the Government effectiveness, this study incorporates a set of five economic and political control variables to estimate the effect of foreign aid over government effectiveness. First, according to Garcia-Sanchez et al. (2013) and Lee & Whitford (2009), the level of a country's Government effectiveness depends on its income level. Specifically, richer countries have more effective Governments. Therefore, Gross Domestic Product per capita is included as a control variable, with an expected positive and significant effect on the level of Government effectiveness.

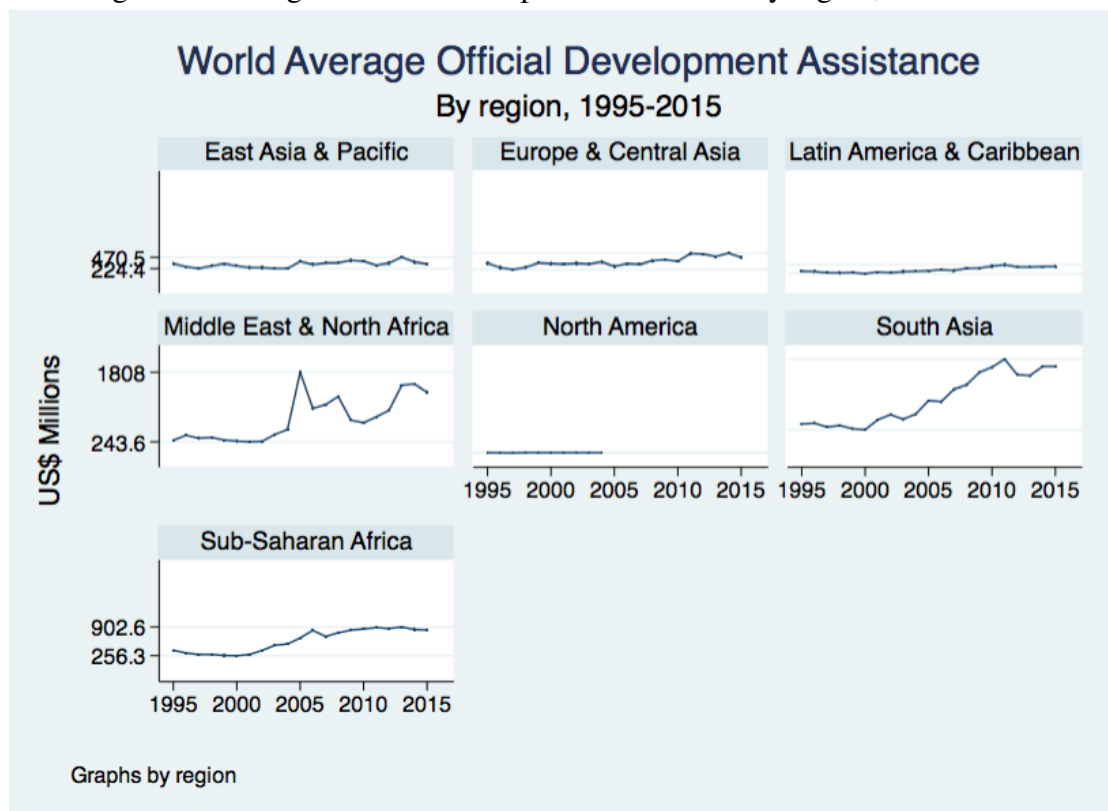


Figure 4: World Average Official Development Assistance, 1995 - 2015



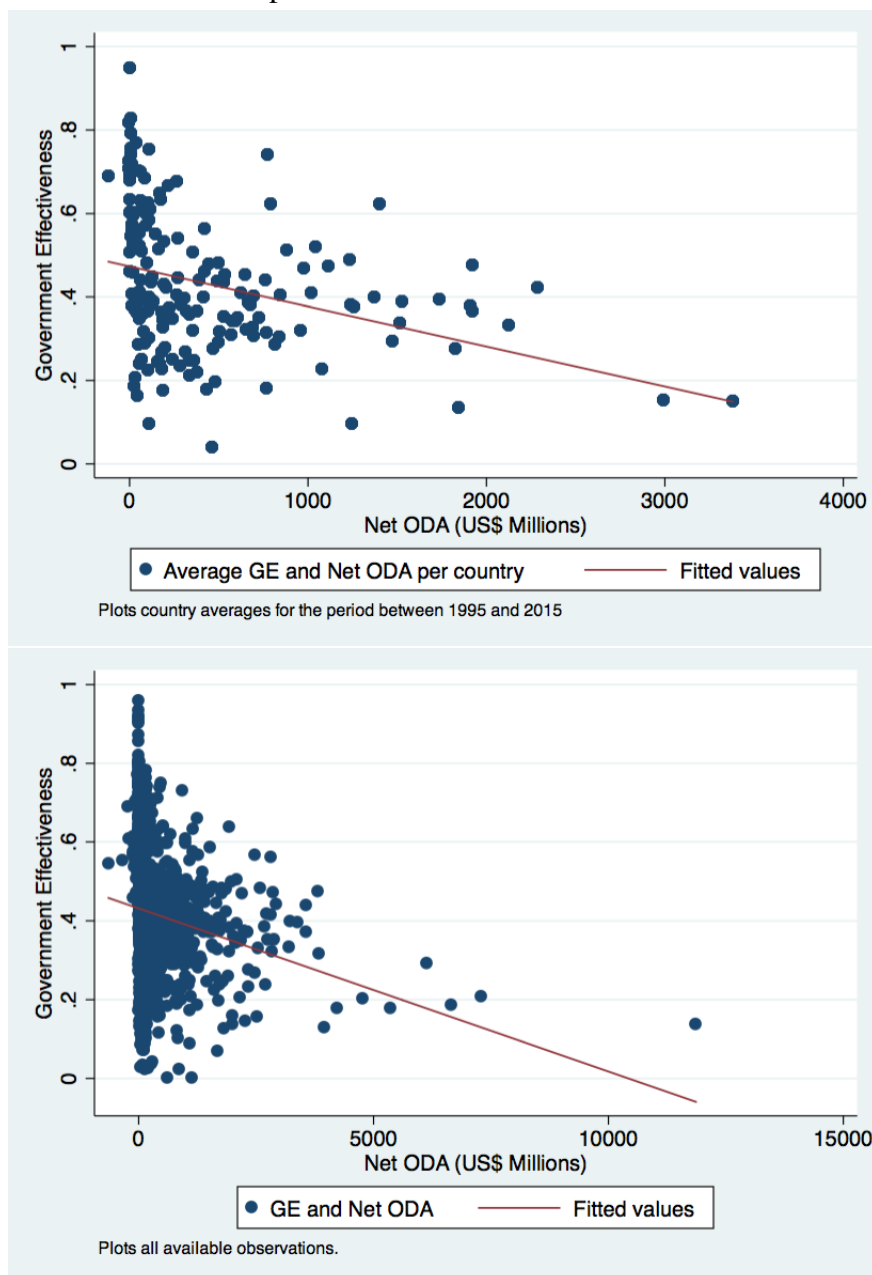
Source: World Bank World Development Indicators.

Figure 5: Average Official Development Assistance by region, 1995 - 2015



Source: World Bank World Development Indicators.

Figure 6: Net Official Development Assistance and Aid vs. Government Effectiveness



Source: World Bank World Development Indicators.

Second, Garcia-Sanchez et al. (2013) further argue that larger countries have larger budgets and more qualified human capital, influencing the complexity of public management. Therefore, a country's institutional characteristics may be captured by its population density. Garcia-Sanchez et al. (2013)'s results show that a country's population density has a positive, significant impact over the effectiveness of its Government. Given that population density – measured by the population per squared kilometer of land area– is a significant determinant of

the level of Government effectiveness, it is included as a control variable.

Third, Garcia-Sanchez et al. (2013) find that the level of social diversity, related to the degree of variation in the population's age, gender, and nationality, positively influences the effectiveness of the Government since it provides a better understanding of organizational demand. Social diversity may be captured by the degree of participation of women in politics. For this reason, I incorporate the proportion of seats held by women in national parliaments.

Fourth, Garcia-Sanchez et al. (2013) establish a positive relationship between the level of political constraints to the different independent branches of Government, and its level of effectiveness. In theory, politicians play a major role in the evolution of public administrations, and thus, their power in defining and changing policies is a crucial determinant of the effectiveness of the public body. Therefore, the Political Constraint Index is included as a control variable. The possible scores for this index range from zero to one, with lower values indicating less constraints.

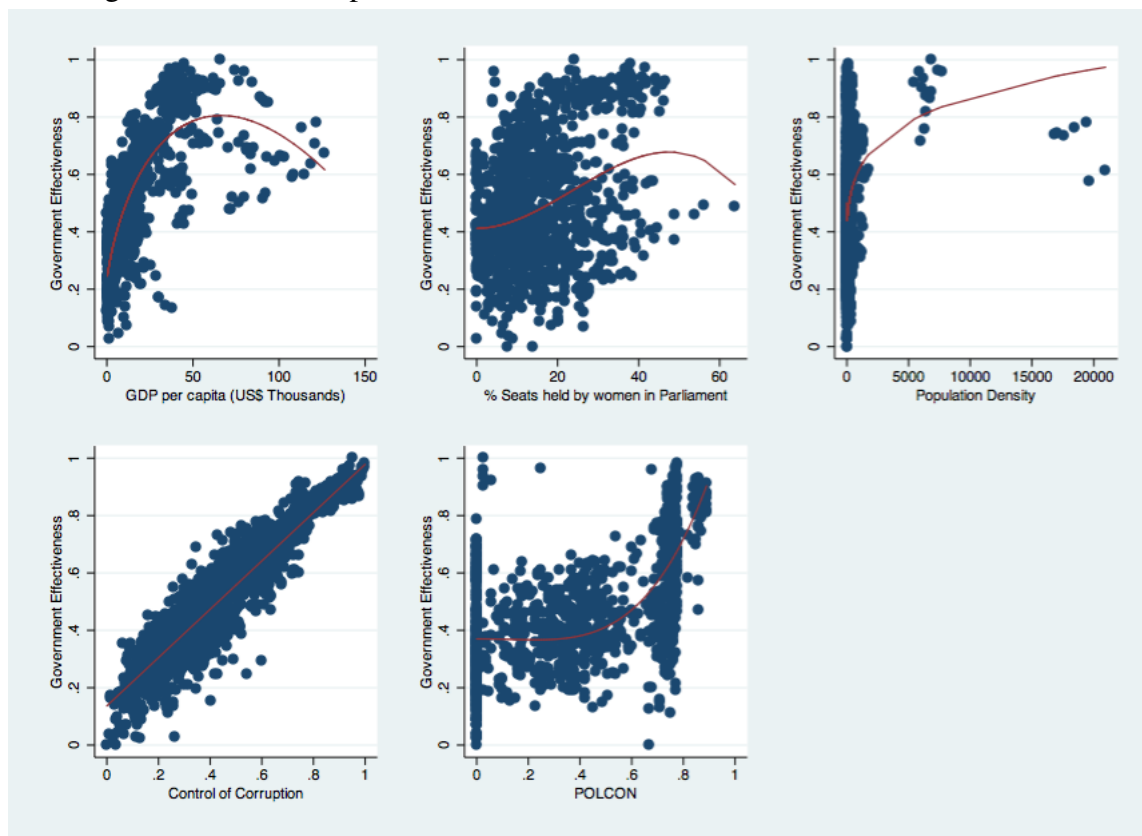
Last, Montes & Paschoal (2015) find a significant relationship between a country's level of corruption and the effectiveness of its Government. Specifically, they argue that countries that are perceived as less corrupt are also perceived to be more effective. Therefore, the level of control of corruption, measured by the WGI, is incorporated as a control variable. The WGI control of corruption indicator ranges from  $-2.5$  (weak control of corruption) to  $2.5$  (strong control of corruption) but has been normalized between zero and one to facilitate interpretation and analysis.

Table 1 summarizes the sources and definitions of each of the variables included to estimate the effect of foreign aid over government effectiveness and Figure 7 plots the relationships between Government effectiveness and the different control variables. The plots evidence a strong positive correlation between control of corruption and Government effectiveness. Moreover, GDP per capita appears to have decreasing returns over Government Effectiveness. The plots do not reveal any other clear correlation between the remaining control variables and Government effectiveness.

Table 1: Definitions and Sources of Variables

Variable	Definition	Source
<b>Dependent Variable</b>		
Government Effectiveness	Perceptions of the quality of public services, the quality of the civil service and the degree of its independence from political pressures, the quality of policy formulation and implementation, and the credibility of the Government's commitment to such policies.	World Governance Indicators (World Bank, 2016)
<b>Independent Variable</b>		
Net Official Development Assistance and Official Aid	Government aid designed to promote the economic development and welfare of developing countries. It includes grants, soft loans with a grant element of at least 25% and technical assistance. It excludes military, anti-terrorism or peacekeeping assistance.	World Development Indicators (World Bank, 2016)
<b>Control Variables</b>		
Gross Domestic Product per capita	GDP per capita based on purchasing power parity (PPP), converted to constant 2011 international dollars.	International Comparison Program Database (World Bank, 2016)
Population Density	People per square kilometer of land area.	World Development Indicators (World Bank, 2016)
Women Political Participation	Proportion of seats held by women in national parliaments.	The World Bank Databank
POLCON	Political constraint index which captures the feasibility of policy change (the extent to which a change in the preferences of any one actor may lead to a change in Government policy). The index first identifies the number of independent branches of Government, then takes into account the extent of alignment across branches of Government and finally captures the extent of preference heterogeneity within each legislative branch.	The Political Constraint Index Database
Control of Corruption	Perceptions of the extent to which public power is exercised for private gain, including both petty and grand forms of corruption, as well as "capture" of the state by elites and private interests.	World Governance Indicators (World Bank, 2016)

Figure 7: Relationship between Government effectiveness and control variables



### 3.2 Descriptive statistics

Table 2 displays summary statistics of each of the variables described above, for the complete sample of 214 countries. With the purpose of reducing missing values, values for all variables corresponding to country  $i$  are averaged over three-year periods. Therefore, the final sample includes data on seven periods for each country. Given that incorporating the POLCON variable in the final results limits the sample to 137 countries, table 3 presents the summary statistics for the restricted sample.

Table 2: Summary statistics (complete sample)

Variable	Obs.	Mean	Standard Dev.	Min.	Max.
Government Effectiveness	1,417	0.4923	0.2137	0.0000	1.0000
Net ODA (Millions of US\$)	1,113	458,88	795.43	-644.96	11,865.69
GDP per capita (thousands of 2011 international \$)	1,327	16.13	19.49	0.34	126.60
Population Density (per square km.)	1,425	384.19	1,871.83	0.14	20,940.33
Proportion of Women in Parliament	1,277	15.12	10.56	0.00	63.80
Control of Corruption	1,424	0.4229	0.2356	0.0000	1.0000
Political Constraint Index	1,147	0.418	0.309	0.000	0.890

Table 3: Summary statistics (restricted sample)

Variable	Obs.	Mean	Standard Dev.	Min.	Max.
Government Effectiveness	1,147	0.4838	0.2160	0.0000	1.0000
Net ODA (Millions of US\$)	908	522.05	849.99	-644.96	11,865.69
GDP per capita (thousands of 2011 international \$)	1,104	16.32	19.33	0.34	126.60
Population Density (per square km.)	1,137	171.51	570.57	1.49	7,719.4
Proportion of Women in Parliament	1,084	15.96	10.46	0.00	63.80
Control of Corruption	1,147	0.4039	0.2425	0.0000	1.0000
Political Constraint Index	1,147	0.418	0.309	0.000	0.890

Tables 2 and 3 show that including the political constraint variable biases the sample towards slightly richer countries, with the average GDP per capita increasing by approximately \$200. However, the restricted sample has an average Government effectiveness 0.0085 lower than the complete sample, and its average inflows of ODA are, on average, \$ 63.17 millions higher than on the complete sample.

Table 4 shows summary statistics for all variables, by region. On average, more developed regions, such as North America and Europe and Central Asia, have higher levels of Government effectiveness, while least developed regions such as Sub-Saharan Africa, South Asia and the Middle East and North Africa have less effective Governments. It is precisely the latter

Table 4: Mean values for all variables, by region (restricted sample)

Region	Government Effectiveness (normalized)	Net ODA (US\$ Millions)	GDPpc (US\$ Thousands)	Pop. Density (Per sq. km)	Women	C.Corrupcion (normalized)	POLCONv
East Asia & Pacific	0.5269 (0.2357)	499.55 (771.29)	19.61 (22.33)	511.04 (1,522.52)	15.12 (8.57)	0.4287 (0.2732)	0.3892 (0.3259)
Europe & Central Asia	0.6240 (0.2220)	343.35 (428.59)	24.59 (17.44)	102.39 (88.46)	19.88 (10.67)	0.5378 (0.2797)	0.6120 (0.2722)
Latin America & Caribbean	0.4620 (0.1328)	233.64 (289.49)	10.77 (6.05)	94.01 (102.49)	17.82 (9.67)	0.3848 (0.1756)	0.4549 (0.2193)
Middle East & North Africa	0.4688 (0.1656)	604.53 (1,398.76)	30.21 (30.82)	209.32 (376.59)	7.87 (7.76)	0.3851 (0.1741)	0.2432 (0.3058)
North America	0.8619 (0.0331)	0.00	43.27 (5.77)	17.90 (14.94)	18.60 (4.12)	0.8393 (0.0658)	0.8550 (0.0052)
South Asia	0.4062 (0.1406)	1,202.33 (1,382.20)	4.32 (3.13)	412.52 (415.48)	11.61 (8.66)	0.2962 (0.1637)	0.2811 (.2741)
Sub-Saharan Africa	0.3217 (0.1342)	645.21 (759.05)	3.58 (5.02)	83.25 (118.28)	14.86 (10.53)	0.2617 (0.1408)	0.2759 (0.2533)

regions that exhibit the highest average receipts of official development assistance, reaching an average of US\$1,202 millions in South Asia and US\$645 millions in Sub-Saharan Africa. Furthermore, the regions with the highest levels of control of corruption and political constraints are the same ones with the highest values for the Government effectiveness indicator, while the regions with least control of corruption and smallest political constraints correspond to those with lowest Government effectiveness. South Asia, Sub-Saharan Africa and Middle East and North Africa are also the regions with lowest average gender diversity and income levels. This relationships may arise precisely because aid is aimed at countries and regions with lowest State capacity, which is inversely correlated with the need for resources. Therefore, aid allocation is not random, but it targets countries with weaker states and highest needs.

## 4 Identification Strategy and Methodology

To analyze the effect of foreign aid on Government effectiveness, I estimate a dynamic panel data model based on a sample of 137 countries during the period between 1995 and 2015.

Specifically, the model is specified as:

$$GE_{it} = \beta_0 + \beta_1 GE_{i,t-1} + \beta_2 \log(AID_{it}) + \gamma' X_{it} + \mu_{it}, \quad (1)$$

where  $i$  indexes countries and  $t$  indexes time.  $GE_{it}$  is the measure of the Government effectiveness indicator, normalized from 0 to 1;  $AID$  is the amount of foreign official development assistance inflows in millions;  $X_{it}$  is a vector of control variables including Gross Domestic Product per capita, population density, proportion of seats held by women in parliaments, the control of corruption indicator and political constraints indicator;  $\gamma$  is a vector of coefficients associated to the control variables; and  $\mu_{it}$  is the residual error.

There are several potential econometric issues that may arise when estimating equation (1). First, the net inflows of Official Development Assistance are endogenous since causality between Government effectiveness and foreign aid may run in both directions. On one hand, the level of foreign aid received by country  $i$  during period  $t$  may impact the level of effectiveness of the Government at that given period. However, the level of Government effectiveness of country  $i$  may also determine the amount of foreign aid received during the period  $t$ , considering that various assistance programs disburse aid conditional on certain progress towards democracy and political stability. Therefore, in this model specification, foreign aid may be correlated to the error term  $\mu_{it}$ .

Second, the literature suggests that the complexity of political systems and institutions makes it hard for changes in these variables in one period to occur independently from those in another period. On the contrary, Government effectiveness is likely to be predetermined by its one-period lagged value. The dynamic nature of this model gives rise to the issue of first-order serial correlation, in which successive residuals are correlated with each other.

Third, country-specific characteristics that are time persistent and invariant may be correlated with the explanatory variables incorporated in equation (1). These unobservable fixed effects are contained in the error term.

Finally, equation (1) may also be subject to measurement error, since the WGI Government effectiveness indicator is based on subjective measures of effectiveness, with sources that

vary in quality and number across countries.

Given the nature of the data used to estimate equation (1), there is a small number of time periods (7) in comparison to the number of countries included in the sample (214).

The standard methods for panel data estimation are fixed effects and random effects models. The fixed effects model uses the within transformation to incorporate variations within countries, but is incapable of estimating parameters associated with time-invariant regressors. Furthermore, estimation becomes more challenging as  $N \rightarrow \infty$ , since there are further individual specific effects to estimate. The random effects model provides a more efficient alternative, as it attains identification from variations across countries and time periods. However, a random effects approach is only appropriate if country-specific unobservable characteristics are not correlated with the other explanatory variables. There is reason to believe that the relationship between foreign aid and Government effectiveness may be determined by country-specific factors, which would make a random effects model inappropriate. In addition, these standard estimators are inconsistent under dynamic specifications, since the presence of the lagged dependent variable as in equation (1) violates the strict exogeneity assumption.

To deal with the aforementioned econometric issues, Arellano & Bond (1991) developed a difference Generalized Method of Moments (GMM) estimator, which “exploits all the linear moment restrictions that follow from the assumption of no serial correlation in the errors, in an equation which contains individual effects, lagged dependent variables and no strictly exogenous variables” (p. 277). This method uses first differences to deal with the heterogeneity problem caused by the existence of fixed effects, and to deal with endogeneity it instruments for the differenced independent variables using lagged values of the independent variables in levels. This method provides consistent estimators even in the presence of measurement errors and eliminates the bias caused by endogenous regressors assuming that all instruments are predetermined.

According to Hauk & Wacziarg (2009), however, the Arellano & Bond (1991) estimator requires the loss of at least two periods of data to be able to implement the instrumental variables' procedure. This could generate a bias in the estimators when the number of periods is small, as in the case of this study. Moreover, this estimator suffers from the problem of weak



instruments, which biases the parameters towards fixed-effects estimators (Hauk & Wacziarg, 2009).

In light of the previous GMM estimator, Arellano & Bover (1995) and Blundell & Bond (1998) developed a “System GMM” estimator, which uses lagged differences to instrument for variables in levels in addition to using lagged levels to instrument for variables in differences. These two equations (i.e. in levels and in differences) generate a system of equations which exploit additional moment conditions. According to Hauk & Wacziarg (2009), the system GMM estimator addresses the weak instruments issue in the Arellano & Bond (1991) estimator and eliminates measurement error bias. However, the system gmm estimator is consistent only if the additional moment conditions imposed when instrumenting for the levels equation are valid. This gives rise to the problem of instrument proliferation. Since the estimator uses all available lagged values of the regressors as instruments, the number of instruments increases as the number of periods increases. The problem of instrument proliferation may cause the Sargan-Hansen test of overidentifying restrictions to lose validity and deliver unrealistic results.

For these reasons, to estimate equation (1) I implement a system-gmm estimator, following a parsimonious approach in which I only use the variable of interest (i.e. the logarithm of net ODA) as a gmm-style instrumental variable. Since all the other right-side variables are considered to be endogenous, I treat them as standard instruments, with one column in the instrument matrix per variable. This is further discussed in section 5.

## **5 Empirical Results**

This section presents and discusses the main results of the paper. In the first subsection, I analyze the estimated effect of net foreign aid inflows on Government effectiveness, which holds for different model specifications and is consistent with the expected result based on previous literature findings. Specifically, the results show that foreign aid has a significant negative effect on a country’s level of Government effectiveness. The following subsection presents a preliminary analysis on the reverse causality between Government effectiveness and foreign aid. The findings suggest that when controlling for the one-period lagged value of foreign

aid, a country's level of Government effectiveness has no significant effect on the level of net official development inflows received. This sheds light on possible future research regarding the effectiveness of aid conditionality programs.

## 5.1 Estimated effect of foreign aid on Government effectiveness

Table 5 presents the results of the set of regressions for 3-year periods, using Government effectiveness as the dependent variable and all available observations for each case. Columns (1) and (2) represent fixed and random effects estimates, column (3) reports Arellano-Bond two-step difference GMM estimates with the Windmeijer (2005) correction, and column (4) reports System GMM estimates with the full set of instruments, using the logarithm of net ODA as the only gmm-style variable and all available lags as instruments. There is substantial variation regarding the magnitude of coefficients from one model to another, but the negative effect of foreign aid on Government effectiveness holds for all four estimation methods.

Although fixed and random effects estimates are not consistent under dynamic panel data specifications, they are presented for comparative purposes. Hausman (1978) developed a model specification test to determine whether “unobserved individual factors are present which are not orthogonal to the included right-hand-side variable” (p. 1251). The Hausman Test comparing fixed and random effects models in columns (1) and (2) of table 5 delivers a test statistic of  $\chi^2_{(7)} = 351.78$  and a corresponding  $p$ -value of 0.0000, which leads to the rejection of the null hypothesis that the systematic differences between both models are not significant. Therefore, the test suggests that a fixed-effects model is more appropriate, justifying the choice of estimation technique for equation (1). The fixed-effects model shows a negative insignificant effect of foreign aid on Government effectiveness.

Regarding columns (3) and (4), the Arellano-Bond test proves the presence of serial correlation in the second order of first-differenced idiosyncratic errors. If the test statistic fails to reject the null hypothesis, then there is evidence that the moment conditions used to estimate both models (3) and (4) are valid. On the contrary, rejecting the null hypothesis confirms the presence of second order serial correlation, implying that moment conditions are invalid. The

Table 5: Regression results

<b>Dependent Variable: Government Effectiveness</b>				
Explanatory Variables	Fixed Effects (1)	Random Effects (2)	AB (W) (3)	System GMM (4)
$GE_{i,t-1}$	0.4036*** (0.0363)	0.7671*** (0.0252)	0.0426 (0.0514)	0.7167*** (0.0293)
$NetODA_{it}$	-0.0002 (0.0005)	-0.0005 (0.0010)	-0.0008* (0.0004)	-0.0031*** (0.0007)
$GDPpc_{it}$	0.0033*** (0.0007)	0.0004** (0.0002)	0.0032*** (0.0008)	0.0005** (0.0002)
$Pop. Density_{it}$	-0.0001*** (0.0001)	0.000002 (0.000002)	-0.0002*** (0.0001)	0.000004 (0.000003)
$Women_{it}$	-0.0001 (0.0003)	0.0002* (0.0001)	-0.0001 (0.0003)	0.0002** (0.0001)
$C. Corruption_{it}$	0.2854*** (0.0330)	0.1711*** (0.0200)	0.2922*** (0.0512)	0.2007*** (0.0226)
$POLCONv_{it}$	0.0010 (0.0088)	0.0164** (0.0069)	0.0061 (0.0088)	0.0199*** (0.0069)
Countries	137	137	136	137
Observations	715	715	575	715
Instruments			23	33
Arellano Bond test (p-value)			0.0130	0.0500
Hansen test (p-value)			0.0070	0.0010
Difference-in-Hansen test (p-value)				0.644

Standard errors in parenthesis. Significance: \* significant at 10%; \*\* significant at 5%; \*\*\* significant at 1%.

results in table 5 show that there is evidence to reject the null hypothesis of no serial correlation, although the system GMM estimation in column (4) does so at a 5% confidence level. This may be a result of including strongly predetermined variables in the model specification (which will be subsequently discussed).

Furthermore, given that both Arellano-Bond difference GMM and System GMM use lagged values of independent variables (in differences or/and in levels) as instruments, the number of instrumental variables exceeds the number of parameters to estimate, which causes both models to be overidentified. The Hansen test proves whether these identifying restrictions are valid. Failing to reject the null hypothesis of joint validity in the Hansen test implies that the moment conditions used to compute parameters on models (3) and (4) are invalid, and thus, the models may be misspecified. According to the results displayed in table 5, the null hypothesis cannot be rejected, suggesting that the moment conditions in models (3) and (4) are invalid.

The previous problem might be the result of incorporating strongly predetermined variables, which would mean that the lagged values used as instruments are not exogenous. To test whether including a specific variable into the System GMM estimation renders the moment conditions invalid, table 6 shows the effect of incorporating additional variables to the system gmm estimation. Columns (1) through (6) report System GMM estimations using the normalized Government effectiveness indicator as dependent variable, the logarithm of net ODA as the only GMM-style variable, additional controls as standard instrumental variables and all available lags as instruments.

The results displayed in table 6 show that there is no sign of second order serial correlation in first-differenced idiosyncratic errors in models (1) through (5), as the  $p$ -values in the Arellano-Bond test fail to reject the null hypothesis. The problem of second order serial autocorrelation in first-differenced idiosyncratic errors arises when the POLCON variable is added to control for political constraints in equation (1), as shown in column (6). The POLCON<sub>*t*</sub> variable is strongly predetermined by its three-period lagged values, which causes the differenced errors in equation (1) to be serially correlated at orders higher than one. Furthermore, including this variable rejects the null hypothesis of valid overidentifying restrictions, whereas in model

Table 6: System GMM regression results

Dependent variable: Government Effectiveness						
Explanatory Variables	System GMM					
	(1)	(2)	(3)	(4)	(5)	(6)
$GE_{i,t-1}$	0.9194*** (0.0160)	0.8821*** (0.0224)	0.8780*** (0.2229)	0.8732*** (0.0240)	0.6535*** (0.0472)	0.7167*** (0.0293)
$NetODA_{it}$	-0.0026*** (0.0009)	-0.0020*** (0.0006)	-0.0020*** (0.0006)	-0.0024*** (0.0007)	-0.0029*** (0.0008)	-0.0031*** (0.0007)
$GDPpc_{it}$		0.0008*** (0.0104)	0.0007*** (0.0002)	0.0010*** (0.0003)	0.0007*** (0.0003)	0.0005** (0.0002)
$Pop.Density_{it}$			0.000004*** (0.000002)	0.000006* (0.000004)	0.000003 (0.000004)	0.000004 (0.000003)
$Women_{it}$				0.0003** (0.0002)	0.0004** (0.0002)	0.0002** (0.0001)
$C.Corruption_{it}$					0.2534*** (0.0354)	0.2007*** (0.0226)
$POLCONv_{it}$						0.0199*** (0.0069)
Constant	0.0505*** (0.0097)	0.0546*** (0.0104)	0.0564*** (0.0105)	0.0541*** (0.0107)	0.0658*** (0.0114)	0.0591*** (0.0091)
Instruments	28	29	30	31	32	33
Countries	172	167	166	160	160	137
Observations	916	885	884	838	838	715
Arellano-Bond test (p-value)	0.2390	0.3610	0.3610	0.7070	0.6360	0.0500
Hansen test (p-value)	0.037	0.0930	0.0780	0.0670	0.1200	0.0010
Difference-in-Hansen (p-value)	0.2360	0.3460	0.2870	0.1210	0.1680	0.6440

Standard errors in parenthesis. Significance: \* significant at 10%; \*\* significant at 5%; \*\*\* significant at 1%.

(5), when including all other controls, all overidentifying restrictions are valid.<sup>4</sup>

Despite the problems regarding the specification of model (6), I have decided to stick to the results displayed in the System GMM estimation with the complete set of control variables, including the POLCON index, since this variable is significant at a 1% confidence level to explain the variation in a country's Government effectiveness. Although it is known that there are issues arising with the specification of the System GMM presented in column (6), estimates presented in column (5) are certainly biased due to the omission of the POLCON<sub>v</sub> variable. Specifically, the correct model specification is believed to be:

$$GE_{it} = \beta_1 GE_{i,t-1} + \beta_2 \log(AID_{it}) + \beta_3 GDPpc_{it} + \beta_4 PopDensity_{it} + \beta_5 Women_{it} + \beta_6 CCorruption_{it} + \beta_7 POLCON_v + \mu_{it}, \quad (2)$$

while the model presented in column (5) estimates the equation:

$$GE_{it} = \beta_1 GE_{i,t-1} + \beta_2 \log(AID_{it}) + \beta_3 GDPpc_{it} + \beta_4 PopDensity_{it} + \beta_5 Women_{it} + \beta_6 CCorruption_{it} + v_{it} \quad (3)$$

Therefore, the estimates in equation (3) not only reflect the idiosyncratic error, but also the potential effect of the POLCON variable, as

$$v_{it} = \beta_7 POLCON_v + \mu_{it} \quad (4)$$

The expected value of coefficients  $\beta_1$  through  $\beta_6$  in model (5) is therefore given by:

$$E[\hat{\beta}_k] = \beta_k + \frac{\beta_7 cov(x, POLCON_v)}{var(x_k)}, \quad (5)$$

where  $x_k$  are the different explanatory variables in equation (3) and  $k \in [1, \dots, 6]$  index the coeffi-

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<sup>4</sup>The p-values associated with the Hansen-test statistics in the models from table 6 are not affected by instrument proliferation, since to avoid such problem, I have opted to follow a more parsimonious empirical approach, in which only the variable of interest (i.e. Net ODA) is instrumented as a GMM style variable. Nonetheless, since all other variables are believed to be endogenous, I treat them as standard IVs.

Table 7: Covariance matrix

	$GE_{i,t-1}$	$NetODA_{it}$	$GDPpc_{it}$	$PopDensity_{it}$	$Women_{it}$	$CCorruption_{it}$	$POLCONv_{it}$
$GE_{i,t-1}$	0.2160						
$NetODA_{it}$	-0.0211	0.8268					
$GDPpc_{it}$	0.8530	-1.8665	137.8850				
$PopDensity_{it}$	17.2151	-9.1128	1,242.5800	185,158			
$Women_{it}$	0.0488	0.6781	-16.0620	-172.4300	92.0553		
$CCorruption_{it}$	0.0207	-0.0240	0.9207	18.0526	0.0489	0.0263	
$POLCONv_{it}$	0.0158	0.0043	0.1496	-4.1963	0.1972	0.0152	0.0736

coefficients corresponding to each explanatory variable. If the the omitted variable bias in model (5) follows the expected direction given by equation (5), then the coefficients in model (6) should be less biased than the ones estimated in model (5).

Table 7 presents the covariance matrix between all variables in equation (2) and table 8 compares the expected direction of the omitted variable bias in the coefficients of equation (3)<sup>5</sup> with the actual direction of the bias in the coefficients of the model displayed in column (5) of Table 6. From table 8, omitting the variable  $POLCON$  biases the coefficients in the System GMM estimation presented in column (5) of table 6 in the expected direction, except for the coefficient associated with the one-period lag of Government effectiveness. This suggests that 1) the model specified in column (6) of table 6 may have another source of misspecification, affecting the coefficient associated with  $GE_{i,t-1}$ , and that 2) the coefficients in column (6) associated with all other remaining variables, including  $NetODA_{it}$ , are less biased than those estimated in column (5).

Given that this study aims to measure the effect of foreign aid on Government effectiveness, I focus on the fact that this variable's coefficient is biased in the expected direction. Furthermore, Table 6 shows that the magnitude of the coefficient associated to Net ODA does not vary much from one System GMM estimation to another, and remains negative and significant after the inclusion of the different control variables.

The System GMM estimation reported in column (6) from table 6 suggests a negative significant effect of net foreign aid inflows on the level of effectiveness of a country's Government. Specifically, a one percent increase in the net ODA inflows in country  $i$  during period  $t$

<sup>5</sup>The expected direction of omitted variable bias is calculated from the second term in equation (5), using data on variances and covariances presented in Table 7 and a positive expected value for  $\beta_7$ , based on the estimation presented in column (6) from Table 6

Table 8: Expected and actual omitted variable bias

	<b>Expected bias direction</b>	<b>Actual bias direction</b>
$GE_{i,t-1}$	Positive	Negative
$NetODA_{it}$	Positive	Positive
$GDPpc_{it}$	Positive	Positive
$PopDensity_{it}$	Negative	Negative
$Women_{it}$	Positive	Positive
$CCorruption_{it}$	Positive	Positive

decreases its (normalized) Government effectiveness indicator by 0.000031 points. This effect is statistically significant at a 1% confidence level. This finding is consistent with Deaton (2015) and Moss et al. (2006) in that higher aid inflows provide less incentives to invest and establish an effective public institutions, render Governments incapable of developing internal sources of funds and a strong fiscal capacity, and reduce levels of public accountability, all of which are measures of Government effectiveness. Furthermore, considering higher levels of democracy imply higher levels of Government effectiveness, this finding seems to be consistent with Johnson et al. (2014) and Knack (2004), since higher levels of aid are not promoting Government effectiveness. This result may provide an incentive to question the effectiveness of aid programs that disburse development assistance conditional on certain progress towards democratization or institutional stability, as the aid disbursements by the Millenium Challenge Corporation.

Results also suggest that there is a linear relationship between foreign aid and Government effectiveness, since including a quadratic term of net oda inflows is insignificant and reduces the power of the post-estimation tests reported in tables 5 and 6. This suggests that increasing net ODA inflows has no diminishing returns over Government effectiveness.

In addition, income level, control of corruption and political constraints are significant determinants of a country's Government effectiveness at a 1% confidence level, and gender diversity is a significant determinant of a country's Government effectiveness at a 5% confidence level. Specifically, a one thousand dollar increase in country  $i$ 's GDP per capita during period  $t$  increases Government effectiveness by 0.0005 points. This finding supports Lee & Whitford (2009)'s conclusions that wealthier countries have higher perceptions of Government effectiveness. This may respond to the fact that wealthier countries have more available resources to



grant high quality public services and infrastructure.

A one percent increase in the proportion of seats held by women in country  $i$ 's parliament during period  $t$  increases Government effectiveness by 0.0002 points, and a 0.1 increase in the political constraint index POLCON $v$  of country  $i$  during period  $t$  increases Government effectiveness by approximately 0.002 points, similar to Garcia-Sanchez et al. (2013)'s findings. Finally, in conformity with Montes & Paschoal (2015)'s result, a 0.1 increase in the normalized control of corruption indicator increases Government effectiveness by 0.02 points. Population density has a small positive but insignificant effect on Government effectiveness.

## 5.2 Reverse causality: The effect of Government effectiveness on foreign aid receipts

The previous section reveals that aid receipts reduce the level of Government effectiveness. This section focuses on reverse causality between Government effectiveness and foreign aid. There are several development assistance programs that disburse aid only to countries that meet specific criteria and conditions regarding democratization and policy implementation. Therefore, it is reasonable to consider the existence of a reverse causality between foreign aid and Government effectiveness, as the latter may be a determinant of the amount of development assistance received. To measure this relationship, I estimate the equation:

$$\log(AID_{it}) = \beta_1 \log(AID_{i,t-1}) + \beta_2 GE_{it} + \mu_{it}, \quad (6)$$

using the same model specifications as in section 5.1 (only the variable of interest as gmm-style variable). Table 9 shows the results of the system GMM regression using the logarithm of net official development assistance as dependent variable.

This System GMM estimation suggests two main results regarding the effect of Government effectiveness on the receipts of net official development assistance. The first one is that, contrary to what would be expected due to the growing popularity of aid conditionality programs, Government effectiveness has a negative impact on the amount of Net Official Development Assistance received by country  $i$  during period  $t$ . Since aid is not disbursed randomly, but

Table 9: Reverse causality regression results

<b>Dependent variable: Log( Net ODA)</b>	
Explanatory Variables	System GMM
$NetODA_{i,t-1}$	0.9614*** (0.1270)
$GE_{it}$	-0.3347 (0.5467)
<i>Constant</i>	0.4179 (0.7123)
Countries	173
Observations	931
Instruments	28
Arellano-Bond test (p-value)	0.8610
Hansen test (p-value)	0.0010
Difference in Hansen test (p-value)	0.2180

Standard errors in parenthesis. Significance: \* significant at 10%;  
\* significant at 5%; \*\*\* significant at 1%.

based on specific interests and criteria, it may seem that government effectiveness plays no role in the allocation of foreign aid. However, this result is statistically insignificant, which suggests that there is actually no reverse causality between these two variables.

The second main result is that the amount of development assistance received by country  $i$  during period  $t$  is largely determined by the amount of aid received in period  $t - 1$ . According to the regression results, a one percent increase in the lagged value of Net ODA increases current Net ODA in 0.96%. If aid actually promotes economic growth and development, as argued by authors such as Sachs (2005), Arndt et al. (2010), Brückner (2011) and Clemens et al. (2011), then developing countries would need less current ODA receipts in comparison with the previous period. This would mean that development aid is actually being used to fund development programs in the recipient country, which stimulate growth. Nonetheless, these contradictory results are aligned with Boone (1996)'s findings that aid is not actually being allocated to development programs but rather to the elite, and that it does not actually promote economic development.

Although the Arellano-Bond test results suggest that moment conditions in the regression are valid due to the absence of serial correlation in the first-differenced errors, the Hansen test suggests that overidentifying restrictions in the model are not valid. This points to an issue of model misspecification. Evidently, the model presented in table 9 does not control for any variable that may be correlated with the amount of foreign development aid received by a developing country in a given period. Therefore, the evidence presented is not conclusive and further studies are needed to determine whether these results hold, and if there is actually no reverse causality between the foreign aid and Government effectiveness.

## 6 Conclusion

This paper analyses the relationship between net foreign development aid inflows and Government effectiveness for a general sample of 173 countries during seven 3-year periods. I use data on Government effectiveness from the World Bank's World Governance Indicators and data on official development assistance from the World Bank's World Development Indicators.

I estimate a dynamic panel specification using Government effectiveness as a dependent variable, the logarithm of net official development assistance as independent variable, and controlling for income level, population density, gender diversity, control of corruption and political constraints. I estimate a series of system GMM specifications, that solve the problem of weak instruments present in Arellano & Bond (1991), while dealing with issues of endogeneity, heterogeneity and serial correlation.

Using a system GMM estimator with 33 instruments, and a sample of 137 countries with 715 observations, I find that current net official development assistance inflows have a negative, significant effect on a country's current level of Government effectiveness. These findings are consistent with Deaton (2015) and Moss et al. (2006), who argue that foreign aid undermines a Government's ability to establish effective institutions, develop strong fiscal capacity and render account to its citizens. Furthermore, the relationship between foreign aid and Government effectiveness is linear and exhibits no diminishing returns.

The system GMM estimation also reveals that GDP per capita, population density, gender diversity in the legislative branch, control of corruption, and political constraints have positive, significant effects on Government effectiveness. These findings are consistent with the previous research and literature regarding the determinants of Government effectiveness. Therefore, political development programs should focus on promoting improvements in these variables, rather than disbursing development aid conditional on governance characteristic, which actually hinders the ability of Governments to provide public services and infrastructure and develop and implement policy reforms. Further research is needed regarding the mechanisms through which these variables may favor Government effectiveness, as well as the intermediate mechanisms by which foreign aid diminishes Government effectiveness.

Nonetheless, the final model specified and analyzed faces issues of serial correlation in first differenced errors and invalid overidentifying restrictions, as a result of the inclusion of the political constraints control variable. Although it seems that these results are a consequence of problems with the data, it may also be a signal of model misspecification. However, failing to include this variable would generate an omitted variable bias, with the certainty of a model misspecification. Furthermore, the analysis of the omitted variable bias shows that omitting

the variable of political constraints biases coefficients in the expected direction in all but one variable. This suggests that the system-GMM estimation with the whole set of control variables is unbiased, even though the Arellano-Bond and Hansen tests are not powerful enough.

This paper also studies the reverse causality between Government effectiveness and foreign aid. As a growing number of agencies have developed programs of aid disbursement conditional on good governance characteristics, the level of a country's Government effectiveness may be an important determinant of the amount of Official Development Assistance received. However, contrary to what is expected, estimating a System GMM with 28 instruments, a sample of 173 countries and 931 observations, I find that current Government effectiveness has a negative, insignificant effect over the amount of current net foreign aid inflows received by country  $i$ . This suggests that in general, aid disbursements do not follow good governance characteristics. Probably, according to Kuziemko & Werker (2006) and Alesina & Dollar (2000), foreign aid disbursements are more responsive to political domestic and international interests.

Finally, the reverse causality results reveal that current foreign aid receipts in country  $i$  are largely determined by the country's past receipts of foreign aid. Specifically, the lagged value of net official development assistance inflows in country  $i$  have a positive, significant effect on the country's current amount of foreign aid receipts. These results imply that Official Development Assistance is not achieving its purpose of promoting economic growth and development. If that would be the case, then foreign aid receipts would decrease in future periods. Future research should focus precisely on finding the reasons why ODA is not being effective, and on determining whether it is being allocated to its original purposes or not.

## 7 Bibliography

- Acemoglu, D., Johnson, S., & Robinson, J. A. (2001). The colonial origins of comparative development: An empirical investigation. *The American Economic Review*, 91(05), 1369–1401.
- Adserá, A., Boix, C., & Payne, M. (2003). Are You Being Served? Political Accountability and Quality of Governance. *The Journal of Law, Economics and Organization*, 19(02), 445–490.
- Aguiar, M. & Amador, M. (2011). Growth in the Shadow of Expropriation. *The Quarterly Journal of Economics*, 126.
- Ahlerup, P. & Hansson, G. (2011). Nationalism and government effectiveness. *Journal of Comparative Economics*, 39, 431–451.
- Alesina, A. & Dollar, D. (2000). Who Gives Foreign Aid To Whom And Why? *Journal of Economic Growth*, 05, 33–63.
- Arellano, M. & Bond, S. (1991). Some Tests of Specification for Panel Data: Monte Carlo Evidence and an Application to Employment Equations. *The Review of Economic Studies*, 58(02), 277–297.
- Arellano, M. & Bover, O. (1995). Another look at the instrumental variable estimation of error-components models. *Journal of Econometrics*, 68, 29–51.
- Arndt, C., Jones, S., & Tarp, F. (2010). Aid, Growth, and Development. Have We Come Full Circle? *UNU WIDER*.
- Arndt, C., Jones, S., & Tarp, F. (2015). Assessing Foreign Aid's Long-Run Contribution to Growth and Development. *World Development*, 69, 6–18.
- Arndt, C. & Oman, C. (2008). The Politics of Governance Ratings. *Maastricht Graduate School of Governance*.

- Asongu, S. A. (2013). On the effectiveness of foreign aid in institutional quality. *African Governance and Development Institute Working Paper*.
- Barro, R. J. (1990). Government spending in a simple model of endogenous growth. *Journal of Political Economy*, 98, 103–126.
- Bauer, P. T. (1969). Dissent on development. Revised version of a talk at the University of Glasgow, May 1968.
- Bearce, D. H. & Tirone, D. C. (2010). Foreign Aid Effectiveness and the Strategic Goals of Donor Governments. *The Journal of Politics*, 72(03), 837–851.
- Blundell, R. & Bond, S. (1998). Initial conditions and moment restrictions in dynamic panel data models. *Journal of Econometrics*, 87, 115–143.
- Boone, P. (1996). Politics and the effectiveness of foreign aid. *European Economic Review*, 40, 289–329.
- Boyne, G. A. (2003). Sources of public service improvement: A critical review and research agenda. *Journal of Public Administration Research and Theory*, 13(03), 367–394.
- Brewer, G. A., Choi, Y., & Walker, R. M. (2007). Accountability, corruption and government effectiveness in Asia: An exploration of World Bank Governance Indicators. *International Public Management Review*, 08(02), 200–219.
- Brewer, G. A. & Selden, S. C. (2000). Why Elephants Gallop: Assessing and Predicting Organizational Performance in Federal Agencies. *Journal of Public Administration Research and Theory*, 10(04), 685–711.
- Brückner, M. (2011). On the simultaneity problem in the aid and growth debate. *Journal of Applied Econometrics*.
- Burnside, C. & Dollar, D. (2000). Aid, Policies and Growth. *The American Economic Review*, 90(04).

- Chao, J. (2015). How Does Foreign Aid affect Political Stability? *University of California, Berkeley*. Unpublished thesis.
- Chen, B. & Feng, Y. (1996). Some political determinants of economic growth: Theory and empirical implications. *Journal of Political Economy*, 12(4).
- Chenery, H. & Strout, A. (1966). Foreign Assistance and Economic Development. *The American Economic Review*, 56(4), 679–733.
- Clemens, M. A., Radelet, S., Bhavnani, R. R., & Bazzi, S. (2011). Counting chickens when they hatch: Timing and the effects of aid on growth. *The Economic Journal*.
- Deaton, A. (2015). *The Great Escape: Health, Wealth, and the Origins of Inequality*. Princeton, New Jersey: Princeton University Press.
- Dietrich, S. & Winters, M. S. (2015). Foreign Aid and Government Legitimacy. *Journal of Experimental Political Science*, 2, 164–171.
- Dollar, D. & Svensson, J. (2000). What explains the success or failure of structural adjustment programs? *The Economic Journal*, 110(466), 894–917.
- Easterly, W. (2003). Can foreign aid buy growth? *The Journal of Economic Perspectives*, 17(03).
- Easterly, W. & Rebelo, S. (1993). Fiscal Policy and Economic Growth. *Journal of Monetary Economics*, 32.
- Easterly, W., Roodman, D., & Levine, R. (2004). New data, new doubts: A Comment on Burnside and Dollar's 'Aid, Policies, and Growth' (2000). *The American Economic Review*, 94(03).
- Fischer, S. (1993). The role of macroeconomic factors in growth. *Journal of Monetary Economics*, 32.
- Garcia-Sanchez, I. M., Cuadrado-Ballesteros, B., & Frias-Aceituno, J. (2013). Determinants of Government Effectiveness. *International Journal of Public Administration*, 36.



- Guisan, M. (2009). Government Effectiveness, Education, Economic Development and Well-Being: Analysis of European Countries in Comparison with the United States and Canada. *Applied Econometrics and International Development*, 09(01), 39–55.
- Hauk, W. R. & Wacziarg, R. (2009). A Monte Carlo study of growth regressions. *Journal of Economic Growth*, 14(103-147), 103–147.
- Hausman, J. A. (1978). Specification tests in econometrics. *Econometrica*, 46(6), 1251–1271.
- Heinrich, C. J. (2002). Outcomes-based performance management in the public sector: Implications for government accountability and effectiveness. *Public Administration Review*, 62(06), 712–725.
- Ingraham, P. W., Joyce, P. G., & Donahue, A. K. (2003). *Government Performance: Why Management Matters*. Baltimore, MD: John Hopkins University Press.
- Johnson, D., Goldstein-Plessner, G., & Zajonc, T. (2014). Can Foreign Aid Create an Incentive for Good Governance? Evidence from the Millennium Challenge Corporation. *USAID*.
- Jones, S. & Tarp, F. (2016). Does foreign aid harm political institutions? *Journal of Development Economics*, 118.
- Kaufmann, D. (2009). Aid Effectiveness and Governance: The Good, the Bad and the Ugly. *Development Outreach World Bank Institute*.
- Kaufmann, D., Kraay, A., & Mastruzzi, M. (2008). Governance Matters VII: Aggregate and Individual Governance Indicators 1996-2007. *The World Bank*.
- Kaufmann, D., Kraay, A., & Mastruzzi, M. (2010). The Worldwide Governance Indicators: Methodology and Analytical Issues. *World Bank Policy Research Working Paper*.
- Kaufmann, D., Kraay, A., & Zoido-Lobaton, P. (1999). Governance Matters. *World Bank Policy Research Working Paper*.
- Kim, S. (2004). Individual-level factors and organizational performance in government organizations. *Journal of Public Administration Research and Theory*, 15(02), :245–261.

- Knack, S. (2004). Does Foreign Aid Promote Democracy? *International Studies Quarterly*, 48(01).
- Kuziemko, I. & Werker, E. (2006). How Much is a Seat on the Security Council Worth? Foreign Aid and Bribery at the United Nations. *Journal of Political Economy*.
- Lee, S.-Y. & Whitford, A. B. (2009). Government effectiveness in comparative perspective. *Journal of Comparative Policy Analysis*.
- Millenium Challenge Corporation (n.d.). Government Effectiveness Indicator. Retrieved on March 22, 2018 from <https://www.mcc.gov/who-we-fund/indicator/government-effectiveness-indicator>.
- Minoiu, C. & Reddy, S. G. (2010). Development aid and economic growth: A positive long-run relation. *The Quarterly Review of Economics and Finance*, 50.
- Montes, G. C. & Paschoal, P. C. (2015). Corruption: what are the effects on government effectiveness? Empirical evidence considering developed and developing countries. *Applied Economics Letters*, 23(02), 146–150.
- Moss, T., Pettersson, G., & van de Walle, N. (2006). An Aid-Institutions Paradox? A Review Essay on Aid Dependency and State Building in Sub-Saharan Africa. *Center for Global Development Working Paper*, (74).
- Moynihan, D. P. & Pandey, S. K. (2005). Testing How Management Matters in an Era of Government by Performance Management. *Journal of Public Administration Research and Theory*, 15(03).
- Murphy, R. G. & Tresp, N. G. (2006). Government Policy and the Effectiveness of Foreign Aid. *Boston College Working Papers in Economics*, (647).
- OECD (2016). Development aid rises again in 2016 but flows to poorest countries dip. Retrieved on March 22, 2018 from <http://www.oecd.org/dac/development-aid-rises-again-in-2016-but-flows-to-poorest-countries-dip.htm>.

- OECD (2018). *Geographical Distribution of Financial Flows to Developing Countries 2018: Disbursements, Commitments, Country Indicators*. Paris: OECD Publishing.
- O'Toole, L. J. & Meier, K. J. (1999). Modeling the Impact of Public Management: Implications of Structural Context. *Journal of Public Administration Research and Theory*, 09(04), 505–526.
- O'Toole, L. J. & Meier, K. J. (2003). Plus ca Change: Public Management, Personnel Stability, and Organizational Performance. *Journal of Public Administration Research and Theory*, 13(01), 43–64.
- Papanek, G. F. (1973). Aid, Foreign Private Investment, Savings, and Growth In Less Developed Countries. *Journal of Political Economy*, 81(1).
- Putnam, R. (1993). *Making Democracy Work: Civic Traditions in Modern Italy*. Princeton, New Jersey: Princeton University Press.
- Rainey, H. G. & Steinbauer, P. (1999). Galloping Elephants: Developing Elements of a Theory of Effective Government. *Journal of Public Administration Research and Theory*, 09(01).
- Rajan, R. G. & Subramanian, A. (2008). Aid and Growth: What Does the Cross-Country Evidence Really Show? *Review of Economics and Statistics*, 90(04).
- Ram, R. (2004). Recipient country's policies and the effect of foreign aid on economic growth in developing countries: Additional evidence. *Journal of International Development*, 16, 201–211.
- Randhawa, G. K. (2012). Foreign Aid in Economic Development. *International Journal of Computing Business Research*, 2229–6166.
- Sachs, J. (2005). *The End of Poverty*. New York: The Penguin Press.
- Sachs, J. & Warner, A. (1995). Economic Reform and the Process of Global Integration. *Brookings Papers on Economic Activity*, 26.

- Sacks, A. & Levi, M. (2010). Measuring Government Effectiveness and Its Consequences for Social Welfare in Sub-Saharan African Countries. *Social Forces*, 88(05), 2325–2351.
- Santiso, C. (2001). Good Governance and Aid Effectiveness: The World Bank and Conditionality. *The Georgetown Public Policy Review*, 07(01), 1–22.
- Tavares, J. (2003). Does foreign aid corrupt? *Economics Letters*, 79.
- Veiderpass, A. & Andersson, P.-A. (2007). *Foreign aid, economic growth and efficiency development*. Swedish Agency for Development Evaluation.
- Whiteley, P. (2009). Government Effectiveness and Political Participation in Britain. *Representation*, 45(03), 247–257.
- Windmeijer, F. (2005). A Finite Sample Correction for the Variance of Linear Efficient Two-step GMM Estimators. *Journal of Econometrics*, 126, 25–51.
- World Bank (2016). Net official development assistance and official aid received. Retrieved on March 22, 2018 from <https://data.worldbank.org/indicator/DT.ODA.ALLD.CD>.
- Wright, J. (2009). How Foreign Aid Can Foster Democratization in Authoritarian Regimes. *American Journal of Political Science*, 53(03), 552–571.