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AID AND ECONOMIC GROWTH IN SUB-SAHARAN AFRICA: THE ROLE OF INSTITUTIONS

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The man of system […] is apt to be very wise in his own conceit; and is often so enamoured with the supposed beauty of his own ideal plan of government, that he cannot suffer the smallest deviation from any part of it. He goes on to establish it completely and in all its parts, without any regard either to the great interests, or to the strong prejudices which may oppose it. He seems to imagine that he can arrange the different members of a great society with as much ease as the hand arranges the different pieces upon a chess-board. He does not consider that the pieces upon the chess-board have no other principle of motion besides that which the hand impresses upon them; but that, in the great chess-board of human society, every single piece has a principle of motion of its own, altogether different from that which the legislature might chuse to impress upon it. If those two principles coincide and act in the same direction, the game of human society will go on easily and harmoniously, and is very likely to be happy and successful. If they are opposite or different, the game will go on miserably, and the society must be at all times in the highest degree of disorder.

Theory of Moral Sentiments

Adam Smith (1759)

Abstract: Sub-Saharan Africa is one of the regions receiving the most foreign aid. Still, African countries are far from reaching the levels of wealth developed nations have. In fact, it is considered one of the poorest regions in the world. This paper aims to study the relationship between the economic growth of sub-Saharan Africa and foreign aid, as measured by Official Development Assistance from European institutions. Through a statistical study of 48 sub-Saharan African countries over the recent period from 1996 until 2020, the results suggest that aid has a significant negative impact on economic development unless mediated by good institutions. This implies that when good institutions are present, then the effect of foreign aid on economic growth is positive whereas, without the presence of good institutions, the effect of aid on growth is negative. The result, consistent with previous papers in the literature, indicates the need to rethink assistance and consider changes in aid allocation policy to allow a more effective distribution of the monetary resources directed towards aid.

Keywords: Sub-Saharan Africa, Official Development Assistance, Economic growth, Institutions, Aid allocation.

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I. INTRODUCTION

Sub-Saharan Africa received more than 20 billion € of Official Development Assistance (ODA) from European institutions in 2020 (European Commission, 2021). Still, it is considered one of the poorest regions in the world (Koop, 2021), with an average Gross Domestic Product (GDP) per capita of 1623 USD in 2021 (The World Bank, 2021). As a comparison, the GDP per capita during the same year in Spain was approximately 30,000 USD (The World Bank, 2021a). Furthermore, according to the risk consultant Verisk Maplecroft (2022), African key economies are currently facing high indebtedness. On average, debt accounts for more than 50% of sub-Saharan African economies' GDP (Statista, 2021a). Recent shocks like Covid and the Ukrainian war are creating chain disruptions, soaring inflation, and a resultant increase in interest rates. Not surprisingly, these factors have increased the costs of financing, which makes it more difficult for developing countries to access credit in international markets, and sustain their economies (Verisk Maplecroft, 2022).

In the literature, we find an ongoing debate on the effectiveness of foreign aid on growth. Some authors argue that aid positively impacts economic growth such as McGillivray (2004), Azam & Feng (2021), and Yiew & Lau (2018). Others are confident that aid harms economic development, such as Ayenew (2022), Bouchoucha & Yahyaoui (2021), and Yiew & Lau (2018). Moreover, authors like Adedokun (2017) and Azam & Feng (2021) argue that aid is insignificant for economic growth. And finally, there is a school of thought that defends the idea that aid is only effective when conditioned on a third variable. This is the case of Burnside & Dollar (2000), Bouchoucha & Yahyaoui (2021), and Adedokun (2017). Even though a lot of research is already done on the topic, there is still insufficient information on the role institutions have in the aid to growth nexus, as few research papers have carried out empirical analysis focusing on governance.

The objective of this paper is to contribute to the existing literature by empirically studying:

1. The impact of ODA on GDP.
2. The role of institutions in the aid to growth nexus.

For that purpose, the data covers 48 sub-Saharan African countries from the period 1996 until 2020. A study over this period is necessary to update the established literature, adding relevance. Furthermore, as we can see in figure 1, given the fact that the European Union is the leading trade partner of Africa (Statista, 2021a) (Eurostat, 2021), by focusing on European ODA this paper adds value to the literature, as the results give a specialized bidirectional approach which will allow to define functional aid allocation policies between the EU institutions and the different African governmental institutions.

The methodology of the analysis comprises regression models from A to F. Specifically, models A to C try to answer the first research question: "is European aid conducive to the economic growth of sub-Saharan Africa?", while models D to F try to answer the second question: "what is the role of institutions in this nexus?", by including the variable Institutions, based on the Kaufmann Governance Indicators (Kaufmann & Kraay, 2022). The first models concluded that aid is not conducive to economic growth, and the second set of models determined that institutions were the missing ingredient for the two variables to be compatible.

The paper is structured as follows. In chapter II, I present a literature review, where aid and growth theories are reviewed (section 1), the role of institutions in development is researched (section 2), and some historical effects are analyzed to compare poorer African institutions with the Western world (section 3). In chapter III, I present the methodology of the quantitative study. In chapter IV, I discuss and interpret the results obtained (sections 1 and 2), and I offer some policy recommendations to increase aid effectiveness (section 3). Lastly, in section V, I exhibit the implications of the results obtained and conclude the study.

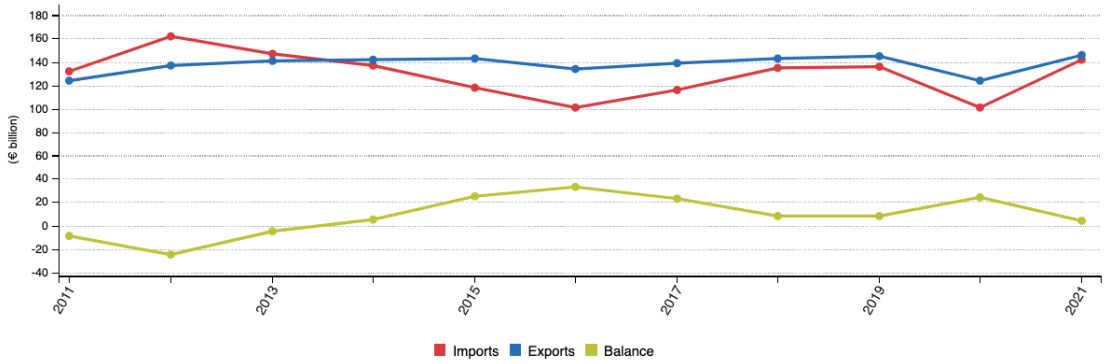

Figure 1 *- Trade in goods between the EU and Africa, 2011 - 2021.*
Source: (Eurostat, 2021)

II. LITERATURE REVIEW

1. Theories of aid and growth

The literature on the effects of foreign aid on economic growth is atomized and inconclusive. The school of thought can be divided into four fundamental theories or hypotheses:

1. Aid positively impacts economic growth: McGillivray (2004); Azam & Feng (2021); Yiew & Lau (2018)
2. Aid negatively affects economic growth: Ayenew (2022); Bouchoucha & Yahyaoui (2021); Yiew & Lau (2018)
3. Aid is significant for economic growth conditioned on some other variables: Burnside & Dollar (2000); Bouchoucha & Yahyaoui (2021); Adedokun (2017)
4. Aid is insignificant for economic growth. Adedokun (2017); Azam & Feng (2021)

Mcgillivray's paper on aid effectiveness (2004) corresponds to the first group. After analyzing foreign aid tendencies from 1960 until 2002, it concludes that aid is, indeed, a growth generator. Moreover, it states that the reduction of foreign aid during the 1990s explains the poverty rise in the African and Pacific regions. This result suggests that lack of aid can explain an increase in poverty.

A similar conclusion was reached by Azam & Feng (2021), who studied the relationship between foreign aid and economic growth in 37 developing countries over 33 years (1985 - 2018) and found that lower-middle-income developing countries benefit from foreign aid. By contrast, low-income and higher-middle-income developing countries do not get any benefits from aid. The authors applied the fixed effect technique and the Robust Least Squares (RLS) estimator.

On another note, Ayenew (2022) studied the effect on growth in Sub-Saharan Africa of, not only Official Development Assistance (ODA) but also, remittance inflows, external debt, and foreign direct investment. After applying a two-step system GMM, the study shows that foreign direct investment is the only proxy for foreign financial inflows that contributes positively to economic growth. On the contrary, external debt and ODA negatively affect economic growth. The author based the study on 31 Sub-Saharan African countries during the 2009-2019 period and used fixed capital formation, inflation, trade openness, and population growth as control variables. The two first indicators (fixed capital formation and inflation) proved to be significant in the study, in comparison to the other two indicators. He argues that the negative relationship between ODA and Economic Growth (measured as GDP per capita) can be explained by a lack of good institutions and policies, as well as a decrease in labor supply, and a disincentive on exports.

Yiew & Lau's paper (2018) is also considered in the second group. After studying 95 developing countries, the authors found ODA to negatively affect economic growth in the short term while, in the long term, results suggested that aid can positively impact economic growth. Nevertheless, after including the control variables: population and Foreign Direct Investment (FDI), the authors concluded that these two variables were more conducive to economic growth than ODA.

Some studies bring up the conditionality of effective aid on other variables such as good policy (Burnside & Dollar, 2000), governance (Bouchoucha & Yahyaoui, 2021) (Adedokun, 2017), and heterogeneity (Adedokun, 2017).

Referring to policy we find Burnside & Dollar's (2000) paper, a very acclaimed and discussed paper in the literature. The author's thesis can be summarized in the following sentence: foreign aid can generate growth, but for that to happen, qualitative policies must be in place. If this condition is not met, then aid benefits are completely eradicated due to ineffective management of it by the government. This paper proposes a continuation of the research to further study how aid conditioned on already good policies can improve policy quality. Nevertheless, as Easterly states (2003), it is crucial to define very well the meaning of the main concepts each study gives importance to. In fact, in his paper, the author criticizes the Robinson and Dollar (2000) study for that same reason, stating it lacks clear definitions of each concept used to carry out the empirical study.

Concerning governance, a recent study adds light to the ongoing debate on the aid to growth nexus. In their paper, Bouchoucha & Yahyaoui (2021), include a third variable to the nexus: governance. They used the Kaufmann Governance Indicators (Kaufmann & Kraay, 2022) by creating a component index of the following 6 dimensions: government effectiveness, quality of regulation, voice and accountability, rule of law, political stability, and corruption control. The results confirm the importance of institutions for foreign aid to generate economic growth in Africa. In fact, without good institutions, aid negatively affects growth.

In line with the beforementioned study, in his paper, Adedokun (2017) offers another valuable insight into the foreign aid to growth literature: the importance of heterogeneity. As the title of the article states "one cap" does not "fit it all". For that, the author measures heterogeneity by using four proxies: regional differences (compares West, East, Central, and South Africa), resource endowment (focusing on oil and non-oil producers), high versus low-income countries, and the intensity of aid in the region. The author studied 47 sub-Saharan African countries over the period from 1996 until 2012. The results show that, indeed, heterogeneity is essential when it comes to aid allocation. That can explain why aid resulted more effective in East and Southern Africa, regions with better-considered institutions, according to the Worldwide governance indicator used in the paper. By contrast, when studying the effect of aid on growth in the whole of Sub-Saharan Africa (aggregated) the relationship between the two variables is insignificant.

To sum up, even though the literature on the effects of aid on growth is inconclusive, overall suggests that aid is most effective when conditioned on some variables such as good policy (Burnside & Dollar, 2000) or institutions (Bouchoucha & Yahyaoui, 2021), (Adedokun, 2017). In fact, most of the other papers mentioned, justify the positive impact of aid on growth on other variables. For instance, Yiew & Lau (2018) find a positive relationship between GDP and ODA but find that population and FDI are more effective for economic development than foreign aid. Another example is Azam & Feng (2021), who only find a positive relationship between aid and economic development in lower-middle-income developing countries, but not in low-income or higher-middle-income ones. An exception is McGillivray's paper (2004), where the author conducts a literature review on the effectiveness of aid and finds a clear positive relationship between ODA and GDP. In comparison to most of the other papers, McGillivray's (2004) is one of the least recent studies, which may also explain the results obtained, as the data used is less updated than the one used in the other papers.

Still, there is unclear evidence on the role of institutions in the nexus. To cover this gap in the literature, in the following section (2), I provide a literature review on the role of institutions in development which will help define the concept of good institutions and understand their importance in aid effectiveness.

2. The role of institutions in development

Acemoglu & Robinson (2012), define a good institution as the symbiotic relationship between pluralistic political institutions and inclusive economic institutions. Pluralistic political institutions "distribute the power broadly and is subject to constraints". In comparison to absolutist political institutions, which are characterized by a "narrow distribution of power and are subject to no constraints". Pluralistic political institutions set up inclusive economic institutions, which promote property rights, provide public services, allow and incentivize the creation of new businesses, and have an unbiased law system, subject to constraints. On the contrary, absolutist and patrimonial political institutions create the foundation to set up extractive economic institutions, which enrich a narrow minority, by exploiting a majority. Patrimonial institutions occur when there is no difference between the state and the sovereign, both are the same, as Weber defined (1922/1978). Furthermore, for these institutions to work and be sustained, a centralized state is key. This will allow for the provision of public goods, and the creation of a legal tax, education, and health systems (Acemoglu & Robinson, 2012) (Johnson & Koyama, 2017).

Political institutions assign de jure political power to a group of people or an individual. And the economic institutions designate de facto political power. Because whoever has control over the distribution of resources has de facto political power, a way of impacting and changing the course of the political institutions is by revolting against the system (Acemoglu et al., 2005). A very tangible example is the Glorious Revolution in 1688, which changed the course of

institutions from an absolutist monarchy to a protestant and parliamentary one, giving more authority to the Parliament, with the 1689 Bill of Rights, and abolishing absolutism in England. This historical juncture was key for the Industrial Revolution to happen, as the Parliament included a very broad base of interests in the English society (Acemoglu & Robinson, 2012).

The fear of creative destruction can explain the perduration of extractive and absolutist institutions, as Acemoglu & Robinson (2012) argue. Creative destruction is a term introduced by Joseph Schumpeter In his book "Capitalism, Socialism, and Democracy" (1942), defined as:

The "process of industrial mutation that incessantly revolutionizes the economic structure from within, incessantly destroying the old one, incessantly creating a new one."

Joseph Schumpeter (1942)

Therefore, creative destruction is linked with instability, unpredictability, disruption, insecurity, and constant change. At the same time, it is a fundamental element for growth. Not surprisingly, the quest for absolute and long-lasting individual power surpasses the desire to generate inclusive growth. Both objects - absolutist power and inclusive growth - are sustained in completely different institutional models. Absolutist power can only be sustained under extractive institutions, and, for sustainable inclusive growth, pluralistic, centralized, and constrained institutions are needed (Acemoglu & Robinson, 2012). Moreover, to go from an extractive environment to an inclusive and pluralistic one, a redistribution of power is needed most of the time, as well as the willingness to get rid of old methods and instruments and adopt new ways of doing things (Schumpeter, 1942).

In his paper, Fenske (2010) argues that, although the literature focuses on geography, slave trade, colonization, ineffective aid, and fractionalization (which may lead to insecurity and higher rates of criminalization) to explain impoverishment, all these issues are mainly governed by institutions. Thus, institutions are the main element explaining poverty. To study the institutional role in African development, the author takes into consideration four pre-colonial institution forms: states, land tenure, polygyny, and slavery. Finally concludes that the differences in these four institutional structures in pre-colonial times are what explain the distinctiveness of current African institutional structures, and therefore, current economic settings.

After finding evidence on the important role of inclusive and pluralistic institutions for economic development to be sustainable, I try to answer the question of why African institutions are poorer than other parts of the world in section 3. To answer that question, I

consider three major historical shocks the continent had to endure and study their relationship with the current state of institutions in Sub-Saharan Africa: transatlantic slave trade (section 3.1), colonialism, and the "scramble for Africa" (section 3.2), and finally, independence (3.3).

3. Can historical events explain Africa's extractive institutions?

The literature emphasizes the importance of good institutions to ensure sustainable development but, what dictates whether a country has poor or prosperous institutions? What explains the fact that Europe is a more developed continent than Africa? Or the fact that Botswana has better institutions than Eritrea (Kaufmann & Kraay, 2008)?

Acemoglu & Robinson (2012) argue that critical junctures during history play a key role. For instance, the Black Death caused by the bubonic plague during the 14th century indirectly and in the long run caused Europe to develop faster than the Middle East or Asia (Jedwab et al., 2022). The 40% mortality rate of the plague reduced labor supply, and Eastern and Western Europe faced this scarcity in labor differently. In the west, serfs started asking for changes and wage increases. In the East, landlords exploited serfs even more than before the plague, to expand the lands owned. This caused Western Europe to import agricultural commodities from the East (Acemoglu & Robinson, 2012). Just like that, while feudalism decayed in the West (as serfdom decreased), the East kept feeding extractive institutions, as it meant more power and capital for the elites. Another example of a critical moment in history is the role played by changes in climate conditions which made barbarian tribes trespass the limits of the Roman Empire, given the low temperatures of the north, as well as the challenges posed by the periodic bubonic plagues affecting the territory, as argued by the author Kyle Harper in his book "the Fate of Rome" (2017). We can see how a critical event in a critical moment can unleash and explain completely different outcomes in different regions, given the different reactions taken in front of these shocks.

A contrary opinion is reached by Pinkovskiy & Sala-i-Martin (2014), who argue that history (colonization) cannot explain Africa's poverty rate today, as poverty is declining in the whole African continent and therefore, there is no differentiation between countries with beneficial historical elements. The study was carried out over the period 1995 until 2006 in overall Africa. The conclusion reached by the authors is that "poor history has not posed insurmountable obstacles to poverty reduction.".

In the literature, three main critical junctures stand out when explaining current African bad institutions, and therefore, poorer economies: slave trade, colonialism, and African independence.

3.1 Transatlantic slave trade

Centuries before the Atlantic slave trade began, other forms of slavery were already present in the African continent. For instance, the trans-Saharan slave trade, where Sub-Saharan Africans were transported to the North of the continent and sold to European and Middle Eastern civilizations (Austen, 2015, pp. 662–686). Other examples are the Red Sea and the Indian Ocean slave trade. In both cases, slaves were exported to the Middle East and India, from Northern Africa in the Red Sea trade, and from Eastern Africa in the Indian Ocean slave trade (Nunn, 2008). These three routes, according to Nunn (2008), traded approximately 6 million slaves.

It was during the 16th century that the Transatlantic slave trade started; it is estimated that, throughout the century, approximately 300000 slaves were exported from Central Africa to the Americas (Acemoglu & Robinson, 2010). This lasted until the 19th century. In total, during this period, 12 million slaves from Central and Western Africa were traded in the Atlantic (Nunn, 2008). Also known as the Middle Passage, the traffic of slaves from Africa to the New World through the Atlantic Ocean, was part of the triangle trade route between Europe, America and the West Indies, and Africa. The enslaved people were forced to work in plantations in the Americas, especially sugar, cotton, and tobacco plantations. These raw materials were then exported to Western Europe. Western Europe then traded the manufactured goods produced to the Americas, but also to Africa. The main commodities exchanged in Africa for slaves were metals and textiles, but singularly and primarily, guns and ammunition (Battle, 2019). Because of the huge economic benefits capture and sale of slaves to Europeans meant for African rulers, warfare intensified and, this intra-regional increase of conflict was directly financed by European merchants, who were the main exporters of guns, ammunition, and metals to central and west Africa (Acemoglu & Robinson, 2010). This created an ongoing loop of sustained slave trade. In their paper, Acemoglu & Robins (2010) argue that, because of the economic incentives of capturing and selling slaves, economic institutions were set up to make the business perdure. As aforementioned, economic institutions are intrinsically related to political institutions. Kingdom of Congo, Oyo state (Nigeria), and Dahomey state in Benin (Acemoglu et al., 2005), are three examples of states that emerged from slavery as the central part of it.

In his paper, Nunn (2008), finds a significant negative relationship between the number of African slaves exported over the period 1400-1900 and, economic growth (defined by real GDP per capita in 2000), using the Ordinary Least Squares method. Consequently, the author argues that current African poverty is the partial result of slave trade. This can be explained by the ethnic fractionalization that resulted from the increase in distrust and the intensification of conflict, as locals were also involved in capturing each other, in order to receive some form of economic benefit. This meant people not trusting the system established (institutions) (Nunn, 2008). In fact, Easterly and Levine (1997) conducted a study that showed the big impact ethnic

fractionalization has on economic growth, being a key detrimental element for development to be sustained. Apart from the impact slave trade had on African institutions; it also had a high demographic impact. According to Manning (1983), the African population was reduced by more than half during this period, not only because of the millions of enslaved citizens but also due to the high mortality rate when transporting the slaves to the Americas (see Figure 2), and the increase in internal crime and warfare (Boxell et al., 2019).

The Act for the Abolition of the Slave trade was signed by George III in 1807, which abolished the trade of slaves in the British Empire. In 1833 the Slavery Abolition Act is passed by the English Parliament, which formally abolished slavery in most of the British colonies. Nevertheless, slavery was far from ending. In some states, slavery did not end until the 20th century. An example is Sierra Leone, where slavery lasted until 1928 (Whyte, 2015), or Mauritania, which became the last country to eliminate slavery in 1981 (U.S. Department of State, 2011).

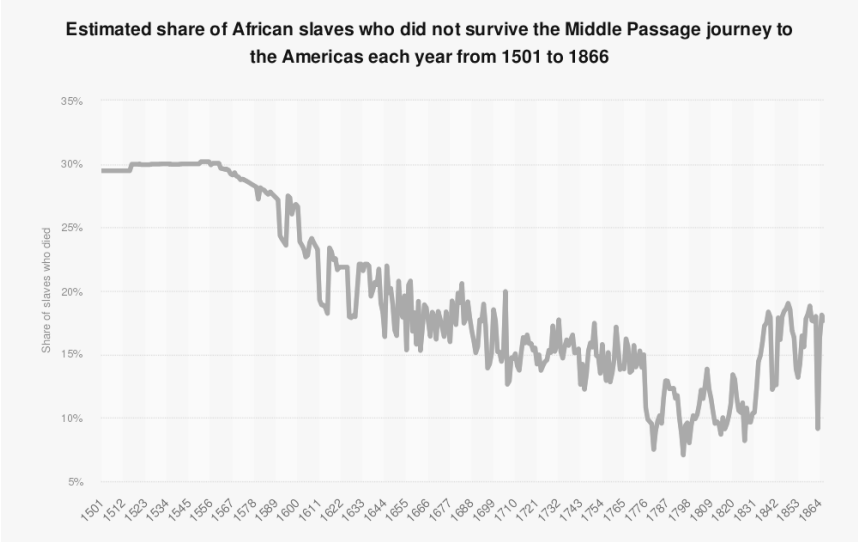

Figure 2 *- Mortality rate of African slaves during Transatlantic Slave Trade. Source: (Statista, 2022)*

3.2 European Colonialism & "Scramble for Africa"

From the 19th century until the 20th century, Africa experienced a colonialism wave. In 1884 the Berlin Conference was held, where African colonization was formally discussed. Fourteen countries participated in the summit, but Germany, Portugal, France, Belgium, and Great Britain stand out. The aftermath of the convention was the division of the African continent into different countries, controlled by the European either through the indirect or direct rule. The direct rule enforced centralized control directly from the settler. By contrast, under indirect rule, the colonizer looked for the local elites, the local groups with power, and forced them to control the colony (Acemoglu et al., 2005). The participant countries in the Conference,

distributed the African continent randomly, on self-interest terms, without considering that the continent was naturally constrained by traditional ethnicities (see Figure 3).

Not surprisingly, this increased warfare and intranational conflict, and therefore, insecurity. According to Acemoglu et al (2005), insecurity is linked with a reluctance to adopt new technologies, and therefore, partially explains the lag in technological development in Africa. In line with this argument, Settles (1996) asserts that colonialism and the imposition of extractive institutions put a stop to the technological advances in Africa, as they destroyed the local economies. Roads and railways only connected colonies to the coast, there was no connection between colonies. This facilitated trade with the world markets but did not incentivize any kind of cooperation between African regions (Settles, 1996).

Acemoglu et al. (2000) found that the viability for European colonizers to settle in the colonies can explain differences in institutions across African countries. In areas where they could settle, Europeans established institutions that incentivized investments and ensured security. That was the case of the United States or Australia. In regions where settler mortality was high and they could not settle, Europeans set up absolutist political institutions to ensure they could control and force extraction.

Figure 3 *- Traditional Boundaries of African Ethnicities.*
Source: (Ongayo, 2018)

To sum up, colonialism integrated Africa into the world economy but, unequally. It eliminated any possibility of industrializing the continent as it created a dependency on imported European commodities. Instead, Africa remained a raw materials exporter and one of the main European goods importers (Ocheni and Nwankwo, 2012). Given the richness of these regions in the past, colonizers saw great opportunities and therefore implemented absolutist political institutions

and extractive economic institutions designed to control and extract the natural resources of the territories (Settles, 1996), which created a reversal of fortune in the long term (Acemoglu et al., 2002).

3.3 Independence

After the Second World War, in 1951, the process of decolonization started with Libya and reached its peak in 1960 (also known as the "Year of Africa") when 17 nations gained independence. The process culminated with Namibia in 1990 and Eritrea in 1993. Nevertheless, the continent was left with ethnical fractionalization, insecure property rights, few constraints on the powerholders, and very few tools for African leaders to overcome and reverse the perdurance of the absolutist and extractive institutions during the colonial era.

An interesting paper on the literature argues that what explains the persistence of institutions conducive to poverty after independence is the imposition of Western ways of doing to African institutions that were completely foreign. For instance, imposing central national management on pre-colonial local societies (Bolt et al., 2022).

Furthermore, Wantchekon et al. (2011) argue that different independence movements can explain current differences in African institutions. By conducting a times-series cross-sectional study, the authors concluded that the tendency for African countries that experienced rebellions in the agrarian sector is to end up with autocratic institutions, given the fact that the insurgency is normally carried out by militias that want to impose their power. An example is Cameroon. In comparison, countries, where independence resulted from urban rebellions, tend to end up with more democratic institutions, as the insurgency is normally organized by popular masses that want to benefit the majority.

Jerven (2011) argues that between the process of African independence and the first oil crisis in 1973, African economies experienced growth. This can be explained by the increase in agricultural goods exports, given the increase in demand from the industrialized countries. Consequently, the African mining and agricultural sectors' expansion explain growth after independence. After 1975 African economies started "lagging behind" and relying on foreign aid. According to the author, this can be explained by external events like the oil crisis, droughts affecting various parts of the continent, and the reduction in agricultural commodities export prices. In addition to that, African economies that were under structural readjustment started experiencing the effects of the indebtedness this involved. To sum up, African decline in economic performance since the mid-1970s is largely explained by the dependence on their primary goods exports globally. This led to the initiative of a Structural Adjustment Program in the 1980s. The program had two main limitations. The first one is the homogeneity of the plan, difficult to be adopted the same way by the different countries in the continent. The second one was the fact that the potential losers of it were the elites who had power during

colonial rule. On the contrary, the potential winners did not have the necessary tools or capacity of organization to face them and implement the different policies and reforms. These limitations led to the partial failure of the Program (Rimmer, 2017).

To sum up, I started chapter II by analysing the conundrum in the aid to growth nexus and seeing how the main literature introduces a third variable to explain effective aid: institutions (section 1). In order to broaden the understanding of the important role of institutions in the nexus, in section 2, I reviewed the literature on the relationship between institutions and sustainable economic growth, which asserted the positive link between both. Finally, in section 3, I researched three important historical shocks the African continent has gone through, with the aim of understanding the role these historical contexts have when explaining Africa's poorer institutions today.

III. METHODOLOGY

To carry out the empirical analysis, the dependent variable is GDP per capita, used as the proxy for economic growth. The independent variable is ODA, which refers to net disbursements per capita from the European Union to the 48 Sub-Saharan countries over the period 1996 to 2020. Moreover, seven control variables are implemented in the model: lagged GDP per capita (GDP (t-1)), quality of institutions (GOV), inflation (INFL), openness to trade (TRADE), general government expenditure on consumption (EXP), foreign direct investment (FDI), and enrolment in tertiary schooling (SCH). These variables were chosen in line with previous papers, as presented in Table 1.

Table 1 *- Summary of empirical results from previous studies*

Author	Dependent Variable	Independent Variable	Data	Empirical Results
Bouchoucha & Yahyaoui (2021)	GDP per capita	ODA, GOV, inflation, money supply, trade openness, population, ODA2.	48 African countries. 1996-2014.	ODA negatively affects GDP. Inflation, money supply and population promote economic growth. Squared ODA and trade remain insignificant in the model. Governance has a positive impact on GDP.
Adedokun (2017)	Growth rate of real GDP per capita	ODA/GDP, GOV, AID*GOV, GDPt-1, INV/GDP, POPN, total trade/GDP, broad money/GDP, government consumption/GDP, ethnolinguistic fractionalization.	47 Sub-Saharan African countries. 1996-2012.	ODA is insignificantly negatively related with economic growth. Governance and size of aid can improve its effectiveness.

Yiew & Lau (2018)	GDP	ODA, ODA2, FDI, POP.	95 developing countries. 2005-2013.	ODA is negatively correlated with GDP. By contrast, ODA2 positively impacts economic growth. FDI and population also have a positive impact on GDP.
Ayenew (2022)	GDP per capita growth rate	FDI, ODA, remittance inflows, external debt, gross fixed capital formation, inflation, trade openness, population growth.	31 sub-Saharan African countries. 2009-2021.	ODA and external debt negatively impact GDP. FDI positively impacts GDP. Trade and population remain insignificant.
Azam & Feng (2021)	GDP per capita	ODA, GDP per capita growth rate, initial GDP per capita, inflation, FDI, exports, secondary school enrolment.	37 developing countries. five-year period averages from 1985 to 2018.	Initial GDP per capita, secondary school enrolment, and exports show significant positive relationship with GDP. FDI is insignificant in the model, except for lower middle-income countries. ODA'S contribution to economic growth is not significant.
Burnside & Dollar (2000)	Real GDP per capita	Initial real GDP per capita, aid/GDP, (aid/GDP) *policy, broad money/GDP,	56 countries. Four-year period averages from 1970 to 1993.	For aid to positively impact economic growth, sensible fiscal and monetary policies must be in place or

		institutions, budget surplus, inflation, ethnic fractionalization, assassinations, ethnic fractionalization* assassinations		already present in the recipient countries.

Given the fact that GDP growth in year t relies on GDP growth in year t-1, the control variable GDP(t-1) (initial GDP per capita) is included to avoid any unreliable results, as the past value of GDP per capita is then controlled.

As mentioned in Section 2 of Chapter II, institutions are important determinants of development. To find whether its role is relevant when talking about effective aid, the variable GOV will be implemented in the model by aggregating the six Kaufmann Governance indicators (Kaufmann & Kraay, 2008). The variable at issue measures the quality of governance in the different Sub-Saharan African countries. The aggregate variable GOV summarizes the following six indicators. The indicators range from -2.5, which indicates poor governance, to 2.5, which indicates good governance.

1. Voice and Accountability: Measures the ability to participate in government elections as well as the freedom of expression and association.
2. Political Stability: Measures the absence of political instability or any form of politically motivated violence, including terrorism.
3. Government Effectiveness: Measures the quality of public services and bureaucracies, as well as the capacity to soundly implement the policies formulated.
4. Regulatory Quality: Measures the ability to formulate and implement sound regulations and policies.
5. Rule of Law: Measures the citizens' confidence in the rules of society. Mainly property rights and contracts protection, as well as the reliance on police and law.
6. Control of Corruption: Measures the degree to which public institutions are susceptible to being driven by private interests and gains.

Bouchoucha & Yahyaoui (2021) and Adedokun (2017) also implemented the Kaufmann index in their research papers, which resulted in the variable positively impacting economic growth. We expect, therefore, a positive relationship between GDP and GOV.

Inflation (INFL) reflects the annual change experienced by an average consumer in the cost of an average basket of goods. It is measured by the CPI (Consumer Price Index) as a percentage of the GDP. Bouchoucha & Yahyaoui (2021), Burnside & Dollar (2000), Azam & Feng (2021), and Ayenew (2022) also implemented this control variable in their studies. Given the fact that I am working with nominal GDP per capita, I expect its value will be positive. This does not mean that inflation is good for economic growth, but in fact it is a consequence of the dependent variable used.

Openness to trade (TRADE) is measured by adding up all imports and exports of goods and services as a percentage of GDP. Because it represents the country's participation in the global trade economy, I expect the variable to positively affect GDP. Bouchoucha & Yahyaoui (2021), and Ayenew (2022) also included the variable in their studies. Azam & Feng (2021) only considered exports.

General government expenditure on consumption (EXP) is measured by adding up all current government expenses for the purchase of goods and services. Adeokun (2017) also includes government consumption in her study, which showed a significant negative relationship with GDP. As spending and consumption are key factors of GDP, I expect government expenditure on consumption to affect economic growth positively.

Foreign Direct Investment (FDI) is measured by accounting for the net inflows of investment as a percentage of the GDP. FDI is expected to positively impact GDP, as it is a source of income for the private sector. Yiew & Lau (2018) found a positive relationship between FDI and GDP, while Ayenew (2022) found an insignificant coefficient between both variables.

Enrolment in tertiary schooling (SCH) is measured by considering the students enrolled in tertiary schooling divided by the population within the age range officially corresponding to tertiary schooling. When multiplying the quotient of the division by 100 the gross percentage of enrolment in tertiary schooling is obtained. SCH is expected to positively affect GDP. Azam & Feng (2021) considered secondary schooling enrolment and concluded a positive correlation between the two variables.

After explaining the different control variables considered, in table 2 I report a summary of the definition and the sources of the variables implemented in the model, for further clarity.

Table 2 *- Variable definition and sources*

Variables	Definition	Source
GDP per capita	Proxy for economic growth.	OECD Development Indicators (OECD. Stat, 2021)
GDP per capita (t-1)	Lagged GDP per capita.	World Bank World Development Indicators (World Bank, 2022)
ODA per capita	Net Official Development Assistance per capita inflows from EU institutions	World Bank World Development Indicators (World Bank, 2022)
GOV	Aggregated Kaufmann Governance Index	World Bank Worldwide Governance Indicators (Kaufmann & Kraay, 2022)
TRADE	Openness to trade, measured as a % of GDP.	World Bank World Development Indicators (World Bank, 2022)
EXP	General government final expenditure on consumption (current US$)	World Bank World Development Indicators (World Bank, 2022)
FDI	Foreign Direct Investment, net inflows (as a % of GDP)	World Bank World Development Indicators (World Bank, 2022)
SCH	Percentage of tertiary school enrolment	World Bank World Development Indicators (World Bank, 2022)
INFL	Inflation as a % of the GDP	World Bank World Development Indicators (World Bank, 2022)

The first objective of the empirical study is to understand the effectiveness, or not, of European Official Development Assistance in sub-Saharan African economic growth. In order to see whether a linear relationship between ODA and GDP existed, I computed Pearson's Correlation Coefficient. In figure 4 a scatter plot visually shows the linear relationship between both variables. With a p-value lower than 0.05, and a correlation coefficient of 0.278, the model estimates a significant positive relationship between the two variables. Nevertheless, to determine whether that relationship is not explained by other variables, the following multivariate regression models are implemented.

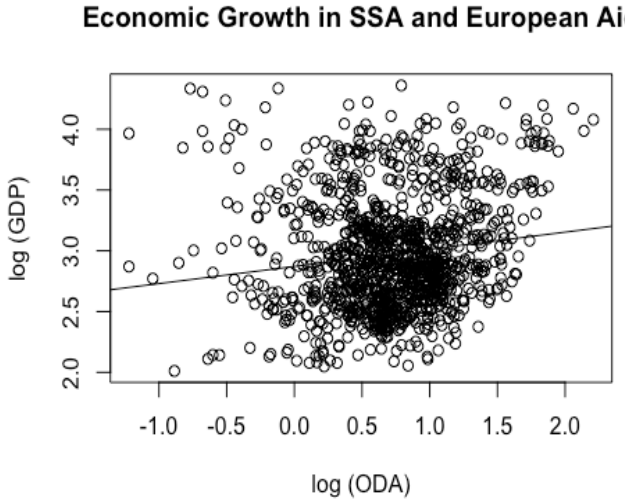

Figure 4 *- Linear relationship between ODA and GDP*

Model A comprehends a simple regression where the dependent variable (GDP) is plotted on lagged GDP and ODA.

(A) $log(GDP_{i,t}) = \beta_0 + \beta_1 \log(GDP_{i,t-1}) + \beta_2 \log(ODA_{i,t}) + e_{i,t}$

Model B includes the control variables to the previous model (A). By keeping all the control variables constant, the result will show if aid (by itself) explains economic growth or not.

(B) $log(GDP_{i,t}) = \beta_0 + \beta_1 \log(GDP_{i,t-1}) + \beta_2 \log(ODA_{i,t}) + \beta_3 GOV_{i,t} + \beta_4 \log(INFL_{i,t}) + \beta_5 \log(TRADE_{i,t}) + \beta_6 \log(EXP_{i,t}) + \beta_7 \log(FDI_{i,t}) + \beta_8 SCH_{i,t} + e_{i,t}$

Model C estimates the previous relationships by adding year and country fixed effect variables to Model A (C1, C2, C3), and to Model B (C4, C5, C6). This allows the results to get rid of any bias generated by the unique effects of a particular year or country.

(C1) $log(GDP_{i,t}) = \beta_0 + \beta_1 \log(GDP_{i,t-1}) + \beta_2 \log(ODA_{i,t}) + \beta_3 \boldsymbol{C_i} + e_{i,t}$

(C2) $log(GDP_{i,t}) = \beta_0 + \beta_1 \log(GDP_{i,t-1}) + \beta_2 \log(ODA_{i,t}) + \beta_4 \boldsymbol{Y}_t + e_{i,t}$

(C3) $log(GDP_{i,t}) = \beta_0 + \beta_1 \log(GDP_{i,t-1}) + \beta_2 \log(ODA_{i,t}) + \beta_3 \boldsymbol{C}_i + \beta_4 \boldsymbol{Y}_t + e_{i,t}$

$$(C4)\ log(GDP_{i,t}) = \beta_0 + \beta_1 \log(GDP_{i,t-1}) + \beta_2 \log(ODA_{i,t}) + \beta_3 GOV_{i,t} + \beta_4 \log(INFL_{i,t}) + \beta_5 \log(TRADE_{i,t}) + \beta_6 \log(EXP_{i,t}) + \beta_7 \log(FDI_{i,t}) + \beta_8 SCH_{i,t} + \beta_9 \boldsymbol{C}_i + e_{i,t}$$

$$(C5)\ log(GDP_{i,t}) = \beta_0 + \beta_1 \log(GDP_{i,t-1}) + \beta_2 \log(ODA_{i,t}) + \beta_3 GOV_{i,t} + \beta_4 \log(INFL_{i,t}) + \beta_5 \log(TRADE_{i,t}) + \beta_6 \log(EXP_{i,t}) + \beta_7 \log(FDI_{i,t}) + \beta_8 SCH_{i,t} + \beta_9 \boldsymbol{Y}_i + e_{i,t}$$

$$(C6)\ log(GDP_{i,t}) = \beta_0 + \beta_1 \log(GDP_{i,t-1}) + \beta_2 \log(ODA_{i,t}) + \beta_3 GOV_{i,t} + \beta_4 \log(INFL_{i,t}) + \beta_5 \log(TRADE_{i,t}) + \beta_6 \log(EXP_{i,t}) + \beta_7 \log(FDI_{i,t}) + \beta_8 SCH_{i,t} + \beta_9 \boldsymbol{C}_i + \beta_{10} \boldsymbol{Y}_t + e_{i,t}$$

The second objective of the quantitative study is to examine the role of institutions in the nexus. In Figure 5 the positive linear relationship between GDP and institutions is shown. If Official Development Assistance is not conducive to economic growth (discussed in chapter V), are institutions acting as a mediator between both variables? In other words, a country having good institutions in place can benefit more from aid than a country with poorer institutions? Are good institutions the missing element in the aid to growth nexus in order for aid to be effective? To answer these questions, the following group of multivariate regression models is added to the study, considering the interaction term *log (ODA)*GOV*. This interaction term will avail the understanding of the institutional role in the aid to growth nexus, as it informs about the effect of foreign aid on economic growth, when aid depends on institutions.

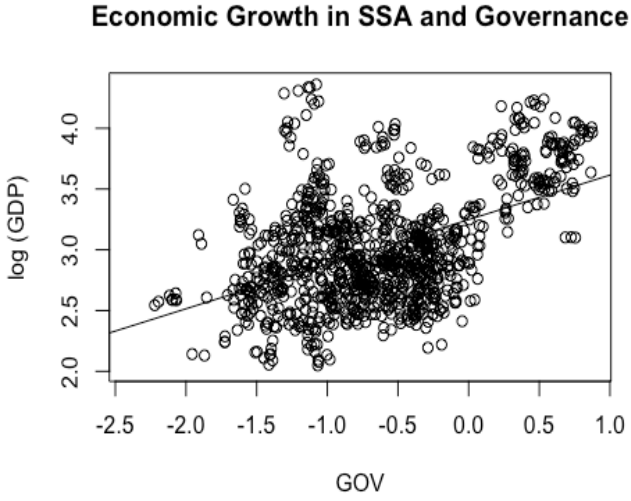

Figure 5 *- Linear relationship between GDP and Governance*

Following the same structure as for models A-C, Model D adds the interaction term and the institutions variable to model A. Model E adds all the control variables to Model D, and finally, Model F integrates the country Fixed Effect (F1), and year Fixed Effect (F2).

(D) $log(GDP_{i,t}) = \beta_0 + \beta_1 \log(GDP_{i,t-1}) + \beta_2 \log(ODA_{i,t}) + \beta_3 GOV_{i,t} + \beta_4 (\log(ODA_{i,t}) * GOV_{i,t}) + e_{i,t}$

(E) $log(GDP_{i,t}) = \beta_0 + \beta_1 \log(GDP_{i,t-1}) + \beta_2 \log(ODA_{i,t}) + \beta_3 \log(INFL_{i,t}) + \beta_4 \log(TRADE_{i,t}) + \beta_5 \log(EXP_{i,t}) + \beta_6 \log(FDI_{i,t}) + \beta_7 SCH_{i,t} + \beta_8 GOV_{i,t} + \beta_9 (\log(ODA_{i,t}) * GOV_{i,t}) + e_{i,t}$

(F1) $log(GDP_{i,t}) = \beta_0 + \beta_1 \log(GDP_{i,t-1}) + \beta_2 \log(ODA_{i,t}) + \beta_3 \log(INFL_{i,t}) + \beta_4 \log(TRADE_{i,t}) + \beta_5 \log(EXP_{i,t}) + \beta_6 \log(FDI_{i,t}) + \beta_7 SCH_{i,t} + \beta_8 GOV_{i,t} + \beta_9 (\log(ODA_{i,t}) * GOV_{i,t}) + \beta_{10} \boldsymbol{C}_i + e_{i,t}$

(F2) $log(GDP_{i,t}) = \beta_0 + \beta_1 \log(GDP_{i,t-1}) + \beta_2 \log(ODA_{i,t}) + \beta_3 \log(INFL_{i,t}) + \beta_4 \log(TRADE_{i,t}) + \beta_5 \log(EXP_{i,t}) + \beta_6 \log(FDI_{i,t}) + \beta_7 SCH_{i,t} + \beta_8 GOV_{i,t} + \beta_9 (\log(ODA_{i,t}) * GOV_{i,t}) + \beta_{10} \boldsymbol{Y}_t + e_{i,t}$

By including all previous Models, A-F into one, the main regression is obtained, containing all control variables, the interaction term, and the fixed effect variables.

$$\boldsymbol{log(GDP_{i,t}) = \beta_0 + \beta_1 \log(GDP_{i,t-1}) + \beta_2 \log(ODA_{i,t}) + \beta_3 \log(INFL_{i,t}) + \beta_4 \log(TRADE_{i,t}) + \beta_5 \log(EXP_{i,t}) + \beta_6 \log(FDI_{i,t}) + \beta_7 SCH_{i,t} + \beta_8 GOV_{i,t} + \beta_9 (\log(ODA_{i,t}) * GOV_{i,t}) + \beta_{10} C_i + \beta_{11} Y_t + e_{i,t}}$$

IV. EMPIRICAL RESULTS

Applying the beforementioned regression models, we obtain the following results, presented in the following five tables.

Table 1:

	Dependent variable:	
	'LOG(GDP)'	
	(1)	(2)
'LOG.(ODA)'	0.009**	0.008
	(0.004)	(0.007)
'LOG.(GDP(t-1))'	0.983***	0.970***
	(0.004)	(0.010)
GOV		0.008
		(0.005)
'LOG.(INFL)'		0.025***
		(0.005)
'LOG.(TRADE)'		0.0005
		(0.014)
'LOG.(EXP)'		0.003
		(0.006)
'LOG(FDI)'		0.003
		(0.004)
SCH		0.00004
		(0.001)
Constant	0.062***	0.069
	(0.013)	(0.062)
Country Fixed Effect	NO	NO
Year Fixed Effect	NO	NO
Observations	1,121	411
R^2	0.980	0.988
Adjusted R^2	0.980	0.988
Residual Std. Error	0.066 (df = 1118)	0.050 (df = 402)
Note:		*p<0.1; **p<0.05; ***p<0.01

Results Table 1 *- Results comparing model A and model B*

The first table exhibits model A in column 1 and model B in column 2. We observe that the coefficient between GDP and ODA (1) is positive but small, as it is very close to 0, with a

small standard error. It is estimated that when ODA increases by 1%, GDP increases by 0.009%. As the p-value is lower than 0.05, it is considered statistically significant. When we add the control variables (2) we find that INFL is statistically significant in the model, and positive. This fact can be explained since GDP is nominal, and therefore it has not been adjusted from inflation. FDI, SCH, GOV, and TRADE do not show any significance in the model. Neither does ODA. This means that, when we control for INFL, FDI, GOV, and SCH we see that the increase in economic growth is not generated because of foreign aid (ODA).

Table 2:

	Dependent variable:		
	'LOG(GDP)'		
	(1)	(2)	(3)
'LOG.(ODA)'	0.038***	0.004	0.015**
	(0.006)	(0.004)	(0.006)
'LOG.(GDP(t-1))'	0.915***	0.987***	0.838***
	(0.009)	(0.004)	(0.015)
Constant	0.283***	0.060***	0.514***
	(0.031)	(0.015)	(0.047)
Country Fixed Effect	YES	NO	YES
Year Fixed Effect	NO	YES	YES
Observations	1,121	1,121	1,121
R^2	0.982	0.983	0.986
Adjusted R^2	0.981	0.983	0.985
Residual Std. Error	0.064 (df = 1071)	0.061 (df = 1094)	0.058 (df = 1047)
Note:			*p<0.1; **p<0.05; ***p<0.01

Results Table 2 - *Results comparing model AC1, AC2, and AC3*

The second table displays model AC1 in column 1, AC2 in column 2 and AC3 in column 3. The country-fixed effects (1), year fixed effects (2), and both country and year-fixed effects (3) variables have been included in the model A. In the first and third columns of the table, we see that ODA is positively correlated with GDP, when foreign aid increases by 1% GDP increases by 0.038% and 0.015% respectively.

Concerning the third table, models BC4 in column 1, BC5 in column 2, and BC6 in column 3 are displayed. When both country and year fixed effect variables are added to model B (3), the correlation between GDP and ODA is negative and shows weak significance (p-value < 0.1), meaning that an increase of 1% in ODA generates a decrease of 0.014% in GDP. By contrast,

when EXP increases by 1%, GDP does also increase by 0.147%. If instead of both fixed effects (country and year), only country fixed effects are taken into consideration (1), then ODA shows, although weak, statistical significance. The variable is considered positively related to GDP, meaning that when ODA increases by 1%, the economy grows by 0.013%. When only year fixed effects are considered (2), then the sole control variable considered statistically significant is inflation and, as expected, lagged GDP.

Table 3:

	Dependent variable:		
	'LOG(GDP)'		
	(1)	(2)	(3)
'LOG.(ODA)'	0.013*	−0.002	−0.014*
	(0.007)	(0.007)	(0.007)
'LOG.(GDP(t-1))'	0.678***	0.978***	0.646***
	(0.029)	(0.009)	(0.032)
GOV	0.006	0.005	0.015
	(0.015)	(0.005)	(0.013)
'LOG.(INFL)'	0.025***	0.015***	0.010
	(0.007)	(0.005)	(0.007)
'LOG.(TRADE)'	−0.002	−0.008	−0.031*
	(0.019)	(0.012)	(0.018)
'LOG.(EXP)'	0.168***	0.003	0.147***
	(0.022)	(0.006)	(0.021)
'LOG(FDI)'	0.007	0.006	0.004
	(0.005)	(0.004)	(0.005)
SCH	−0.0003	0.0005	−0.0002
	(0.001)	(0.0005)	(0.001)
Constant	−0.636***	0.052	−0.241
	(0.151)	(0.060)	(0.185)
Country Fixed Effect	YES	NO	YES
Year Fixed Effect	NO	YES	YES
Observations	411	411	411
R^2	0.992	0.991	0.994
Adjusted R^2	0.991	0.991	0.993
Residual Std. Error	0.043 (df = 363)	0.043 (df = 380)	0.038 (df = 341)
Note:			*p<0.1; **p<0.05; ***p<0.01

Results Table 3 *- Results comparing models BC4, BC5, and BC6*

Table 4:

	Dependent variable:	
	'LOG(GDP)'	
	(1)	(2)
'LOG.(ODA)'	0.009	0.001
	(0.006)	(0.008)
'LOG.(GDP(t-1))'	0.977***	0.969***
	(0.005)	(0.010)
'LOG.(INFL)'		0.023***
		(0.006)
'LOG.(TRADE)'		−0.001
		(0.014)
'LOG.(EXP)'		0.004
		(0.006)
'LOG(FDI)'		0.004
		(0.004)
SCH		−0.0003
		(0.001)
GOV	0.001	0.017**
	(0.006)	(0.008)
'LOG(ODA)*GOV'	−0.005	0.011
	(0.004)	(0.008)
Constant	0.087***	0.070
	(0.018)	(0.062)
Country Fixed Effect	NO	NO
Year Fixed Effect	NO	NO
Observations	991	411
R^2	0.980	0.988
Adjusted R^2	0.980	0.988
Residual Std. Error	0.066 (df = 986)	0.050 (df = 401)
Note:		*p<0.1; **p<0.05; ***p<0.01

Results Table 4 *- Results comparing model D and model E*

Regarding the fourth table, the first column (1) depicts model D and the second column (2) displays model E, with the addition of control variables. We can see that in the first case, no variables are considered statistically relevant, with p-values higher than 0.05. By contrast, when adding the control variables (2), governance gains relevance and shows a positive

correlation with GDP. Specifically, it is estimated that when GOV increases by 1 unit, GDP also increases by 1.7%.

Table 5:

	Dependent variable:		
	'LOG(GDP)'		
	(1)	(2)	(3)
'LOG.(ODA)'	−0.014	−0.008	−0.040***
	(0.010)	(0.008)	(0.009)
'LOG.(GDP(t-1))'	0.666***	0.977***	0.624***
	(0.029)	(0.009)	(0.031)
'LOG.(INFL)'	0.025***	0.014***	0.010
	(0.007)	(0.005)	(0.007)
'LOG.(TRADE)'	−0.020	−0.009	−0.050***
	(0.019)	(0.012)	(0.018)
'LOG.(EXP)'	0.170***	0.004	0.144***
	(0.021)	(0.006)	(0.021)
'LOG(FDI)'	0.009*	0.007*	0.004
	(0.005)	(0.004)	(0.005)
SCH	−0.001	0.0002	−0.001
	(0.001)	(0.001)	(0.001)
GOV	0.052***	0.012*	0.064***
	(0.018)	(0.007)	(0.017)
'LOG(ODA)*GOV'	0.043***	0.009	0.043***
	(0.011)	(0.007)	(0.010)
Constant	−0.546***	0.056	−0.067
	(0.150)	(0.060)	(0.185)
Country Fixed Effect	YES	NO	YES
Year Fixed Effect	NO	YES	YES
Observations	411	411	411
R^2	0.992	0.991	0.994
Adjusted R^2	0.991	0.991	0.993
Residual Std. Error	0.042 (df = 362)	0.043 (df = 379)	0.037 (df = 340)
Note:			*p<0.1; **p<0.05; ***p<0.01

Results Table 5 *- Results comparing model F1, F2, and the main regression*

Concerning the fifth and last table, model F1 is exhibited in column 1, model F2 is exhibited in column 2 and, the main regression is exhibited in the third column, adding both country and year fixed effects variables as well as the interaction term *log (ODA)*GOV*.

In the first column (1), only country-fixed effect variables have been considered. In that case, ODA is not considered statistically significant but, governance and the interaction term show a positive and significant correlation with GDP. From this we can extract two ideas, firstly, when ODA is held constant, an increase of 1 unit in GOV increases GDP by 5.2%, and, secondly, when institutions are good then ODA positively impacts GDP. Concerning the interaction term, we can see that when ODA increases by 1% then the effect of aid on GDP is equal to 0.043%*GOV. Meaning that if institutions are neutral (equal to 1), the effect changes by 0% but, if institutions are good (higher than 1) then the effect of aid on growth increases. By contrast, if institutions are poor (lower than 0) then the effect of aid on growth is negative. In addition, we see a third variable positively impacting GDP: EXP, with a regression coefficient of 0.170. In the second column (2), only year-fixed effects have been considered, and the variables considered statistically significant in the first column of that last table, are no longer relevant, as the majority have p-values higher than 0.05. Finally, the third column (3) exhibits the **main regression**, including both country and year fixed effect variables. In that case, ODA is negatively correlated with GDP. When foreign aid increases by 1%, GDP decreases by 0.04%. Nevertheless, we also see that, in line with the first column, an increase in good governance by 1 unit affects GDP positively, increasing it by 6.4%. Regarding the interaction term, the result is the same as in column 1, and therefore, the interpretation is the same: when good institutions (higher than 1 unit) are present then the effect of aid on growth is positive and bigger than if poor institutions (lower than 1 unit) were in place.

The results show how, when we control for inflation, openness to trade, government expenditure on final consumption, foreign direct investment inflows, lagged GDP per capita, and tertiary school enrolment, and we add the country and year-fixed effects, then governance and foreign aid subject on governance (interaction term) positively impact GDP. In other words, sub-Saharan African countries can benefit from ODA only when the country is subject to good institutions.

V. DISCUSSION

As mentioned above, the purpose of the study is to determine whether financial aid positively impacts economic growth. This study is important as it will show whether these monetary resources are being used efficiently. The paper is novel as it adds value to the literature by focusing on ODA from European institutions instead of overall ODA, which is the variable used in most previous papers. Also, the period considered is recent, going from 1996 until 2020. This will give a more updated view of the current scenario.

In this chapter, I am going to discuss the results obtained and compare them to the existing literature. For that, the chapter is divided into three sections. Section 1 will discuss the effect of aid on growth, the second section will focus on the effect of aid on growth when institutions are considered, and finally, the third section will provide some guidance for governments and individuals to rethink aid.

1. Aid and economic growth

Some authors found a positive relationship between foreign aid and economic growth. That is the case of McGillivray (2004), who analyzed foreign aid tendencies over the period from 1960 until 2002 and found that aid explained the increase in growth. In addition, Azam & Feng (2021) reached a similar result after applying the Fixed Effects method and the Robust Least Square method (RLS) as well as controlling for Foreign Direct Investment (FDI), population, exports, education, and inflation. Nevertheless, this result was only consistent with lower-middle-income developing countries. Finally, Yiew & Lau (2018) found a positive relationship between ODA and GDP in the long term, after controlling for population and FDI. In my case, the only way of reaching a positive relationship between foreign aid and economic growth is by not controlling for any variables and only considering ODA and GDP per capita, as shown in Table 1 (model A).

Nevertheless, when I introduce the seven control variables (institutions, tertiary school enrolment, inflation, openness to trade, general government final consumption expenditure, and foreign direct investment) as well as both country and year fixed effects, then the relationship between the two variables becomes statistically insignificant. This result is in line with Adedokun (2017) and Azam & Feng (2021). On one hand, Adedokun (2017) found an insignificant relationship between ODA and GDP when studying aggregate sub-Saharan Africa. On the other hand, Azam & Feng (2021) found that lower and higher-middle-income developing countries did not obtain any benefits from foreign aid either.

In conclusion, the positive result obtained when only considering ODA and GDP per capita may suggest that model A lacks information, given the fact that when we add control variables

and both country and year-fixed effects the relationship between the two variables becomes statistically insignificant. This might be explained by the fact that the other variables I am controlling for have a more significant impact on the GDP than ODA has; and thus, could explain the increase in growth. By that, we can deduce that foreign aid cannot explain economic growth by itself. After reaching this first conclusion, I am going to focus on the role that institutions have in the effect of aid on growth, with the objective to determine whether they are the missing ingredient in this nexus.

2. Aid, economic growth, and institutions

By contrast, when the interaction term between aid and growth is introduced in addition to the control variables and the country and year fixed effects (referring to the main regression, shown in column 3 in Table 5) to see whether institutions act as a mediator between aid and economic growth, then the results suggest that the statistical relationship between aid and economic growth is significantly negative. This result is obtained after controlling for the seven explanatory variables, as well as applying the country and year fixed effect, in addition to the interaction term *log (ODA)*GOV*. The result obtained is in line with Ayenew (2022), Yiew & Lau (2018), and Bouchoucha & Yahyaoui (2021), whose research papers reached the conclusion that aid negatively affects economic growth. Moreover, the control variable EXP resulted in positively impacting GDP. This result is inconsistent with Adedokun (2017), who found a negative relationship between both variables. In addition, the control variable GOV is found to have a positive impact on GDP, which is consistent with other papers in the literature such as Burnside & Dollar (2000), Adedokun (2017) (partially, explained below), and Bouchoucha & Yahyaoui (2021). By contrast, the control variable TRADE is shown to be negatively affecting GDP, which is in line with Bouchoucha & Yahyaoui (2021) but is inconsistent with Azam & Feng (2021) who found a positive relationship between both variables, and with Ayenew (2022) who found the relationship to be insignificant.

The result of the interaction term obtained can be interpreted as follows: in the presence of good institutions, the effect of aid on growth is positive. Instead, without the presence of good institutions the effect is negative. Therefore, a country with good institutions can benefit more from ODA than a country with worse institutions. This result is consistent with Adedokun (2017) and Ayenew (2022), who applied the same interaction term and obtained the same result.

The result on the relationship between ODA and GDP when considering institutions is partially inconsistent with Adeokun (2017), who applied the same interaction term, and, while it resulted in positive and significant for West Africa, non-oil producing countries, and low-income developing countries, it resulted insignificant for aggregate SSA. According to the author, the importance of heterogeneity when considering African countries is what explains these

differences. By contrast, the result obtained is consistent with Burnside & Dollar's paper (2000), after considering 56 countries over the period 1970 until 1993 and applying the Ordinary Least Squares method, found that for aid to be effective and positively impact economic growth, good economic policies had to be in place. Furthermore, Bouchoucha & Yahyaoui (2021) reached similar results, concluding that good institutions improve the effect of aid on growth after studying 48 African countries over the period 1996-2004 and applying the DOLS (Dynamic Ordinary Least Squares) model.

3. Rethinking aid: Policy recommendations

The literature shows how entrenched extraction is in many African regions. Institutions have been built over (centuries of) absolutism, exploitation, slavery, and insecurity (civil wars etc.). So, how can developed nations today help these regions overcome the challenges posed by their historical economic model based on slave trade and exploitation? Is foreign aid enough to recover the region's economy?

After carrying out this study, results suggest that having good institutions is key for foreign aid to be effective. Nevertheless, sub-Saharan African institutions are currently facing numerous challenges posed by their historical economic model based on slave trade and exploitation, which explains the poorer quality of current SSA institutions. These two ideas clash, as on one hand we see how good institutions are needed but, on the other hand, the majority of sub-Saharan African countries' institutions are considered poor. This implies that aid allocation should be rethought to be effective and, actually, conducive to the economic development of sub-Saharan Africa.

When wanting to offer productive aid to a nation, especially Africa, Easterly (2009) introduces the marginal approach, also known as the "West takes one small step at a time to help individual Africans" approach. This outlook defends focusing on individual persons or specific projects, taking one step at a time, and constantly evaluating the measures applied or projects started. In comparison, he calls for caution when carrying out transformational large-scale projects, also called by the author the "West saves Africa Approach". This transformational (and most applied) approach, according to Easterly, shows how biased the richer nations wanting to help are. As the author states, these "outside actors" intrinsically and disproportionately believe that Africa is completely incapable of "fixing itself". This poses the following issue: not incentivizing ideas and projects from within, but instead, relying on foreign aid. External aid is understood as any way of help, ranging from financing new projects abroad to Foreign Direct Investment to structural modifications and institutional changes. When these negative results are seen, the reaction of the West is to increment the transformational measures, escalating their efforts. This, not surprisingly, increasingly harms Africa.

Taking into consideration Easterly's (2009) approach to productive aid, altogether with the research carried out throughout the paper, and the results obtained, I suggest the three following policy recommendations:

- To condition the allocation of financial aid on countries with rather good institutions. Using the Kaufman Governance Indicators, the allocation could be based on those countries with an aggregated indicator higher than one (positive).
- To those countries with lower than one governance indicators, foreign aid should be offered in a different format. An interesting alternative could be investing in on-site projects to promote education and training. This way citizens (and future leaders) would have more tools when it comes to managing the country.
- To restructure the EU aid scheme into an inclusive model that takes into consideration the uniqueness and the different historical (and more recent) shocks the different SSA countries have been through. For that, heterogeneous policies must be put in place, as it has been shown how aid policy homogeneity does not work in the case of sub-Saharan Africa.

VI. CONCLUSION

In conclusion, even though the literature on the relationship between aid and development is broad and substantial, there is still insufficient information on the role institutions play in the nexus. To contribute to the current literature, this paper has focused on answering whether European aid is conducive to sub-Saharan African economic growth and, examining the role of institutions in the nexus.

Results suggest that, indeed, good institutions act as the mediator between foreign aid and economic growth. I observe that in a country with good institutions, foreign financial aid has a positive impact on the country's economy. However, in those countries where institutions are not good, aid has a negligible impact and, in fact, may harm the economic growth of the country. This demonstrates that offering aid to countries with poor institutions will not contribute to the economic development of these regions.

It is important to rethink aid allocation by reconsidering the quality of institutions in the recipient countries. Further research is encouraged in aid allocation structures that would allow countries with poor institutions to achieve economic growth and rethink the current aid schemes in place. This would pave the way for new methods to efficiently help developing countries grow economically through intrinsic means. In other words, be less reliant on developed nations and increase self-sufficiency.

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