THE RELATIONSHIP BETWEEN OFFICIAL DEVELOPMENT ASSISTANCE AND HUMAN DEVELOPMENT: AN EMPIRICAL STUDY ON SUB-SAHARAN AFRICA

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DECLARATION OF ORIGINALITY

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ABSTRACT

The Relationship Between Official Development Assistance and Human Development: An Empirical Study on Sub-Saharan Africa

Every year, billions of dollars are being spent in the form of the official development assistance by donor countries and multilateral institutions, to underpin the development process of the Sub-Saharan Africa region. Although these significant amounts of aid flows, current level of human development in the region is not exhibiting a bright picture. Sub-Saharan Africa still stands out as one of the geographies on which the people are suffering from extreme poverty, drought, and hunger the most. This thesis aims to gauge the impact of foreign aids on human development levels of Sub-Saharan African countries and to measure the effectiveness of aid in this way. To this end, panel data of 35 Sub-Saharan African countries spanning 2000-2017 period have been analyzed. Three different models have been established, and estimated utilizing general feasible generalized least squares (FGLS) technique. Across all model specifications, aid was found to have a negative impact on the human development level of the region. The potential reasons behind the negative impact were questioned through the control variables, and the developmental impacts of the initial level of human development, initial level of income, urbanization, investments, existing technological infrastructure, access to drinking water, access to sanitation services, the level of democratization and institutional quality were found out to be positive. Whereas industrialization and malaria prevalence had negative impacts on human development.

ÖZET

Resmi Kalkınma Yardımları ve İnsani Gelişmişlik Arasındaki İlişki:

Sahra Altı Afrika Üzerine Ampirik Bir Çalışma

Sahra Altı Afrika bölgesinin kalkınma sürecini desteklemek amacıyla bağışçı ülkeler ve çok taraflı kuruluşlarca resmi kalkınma yardımları tahtında her yıl milyarlarca dolar harcanmaktadır. Yardım tutarlarının büyüklüğüne rağmen Sahra Altı Afrika bölgesinin mevcut insani gelişmişlik seviyesi parlak bir görünüm arz etmemektedir. Sahra Altı Afrika günümüzde hâlâ, insanların aşırı yoksulluk, kıtlık ve açlıkla mücadele ettiği bir coğrafya olarak karşımıza çıkmaktadır. Bu tez resmi kalkınma yardımlarının Sahra Altı Afrika ülkelerinin insani gelişmişlik seviyeleri üzerindeki etkisini ortaya çıkarmayı ve bu yolla yardımların etkinliğine ilişkin çıkarımlarda bulunmayı amaçlamaktadır. Bu amaçla, 35 Sahra Altı Afrika ülkesine ilişkin olarak 2000-2017 yıllarını kapsayan bir panel veri analizi gerçekleştirilmiştir. Yardımların etkinliğini ölçmek adına kurulan üç model, genel uygun genelleştirilmiş en küçük kareler yöntemi marifetiyle tahmin edilmiştir. Tüm modellere ilişkin tahmin sonuçları resmi kalkınma yardımlarının insani gelişmişlik üzerinde olumsuz etkisini ortaya koymuştur. Bu olumsuzluğu açıklamak amacıyla kontrol değişkenleri test edilmiş, başlangıç insani gelişmişlik seviyesi, başlangıç gelir seviyesi, kentleşme, yatırımlar, mevcut teknolojik altyapı, içme suyuna ve sanitasyon hizmetlerine erişim, demokrasi ve kurumsal kalite değişkenlerinin insani gelişmişlik üzerinde olumlu bir etkiye sahip oldukları sonucuna ulaşılmıştır. Sanayileşme ve sıtma görülme sıklığının ise insani gelişmişliği olumsuz etkilediği görülmüştür.

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DEDICATION

In today's world, all rights and freedoms that we possess now should be interpreted as a gift from previous generations who have bright and enlightened future vision. We owe our peaceful lives to them. I dedicate my thesis to all who exerted any effort in the way of democracy for the weak's voice to be heard, justice for the weak's sufferings to be indemnified, inclusivity for the weak to get what is deserved, and for the dignity of whole humanity.

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ABBREVIATIONS

2SLS	Two Stage Least Squares
AGR	Agricultural Land Endowment
AS	Access to Sanitation
AW	Access to Water
BG	Breusch-Godfrey
BP	Breusch-Pagan
CL	Civil Liberties
COR	Corruption
cVAR	Cointegrated Vector Auto-Regression
DAC	Development Assistance Committee
FDI	Foreign Direct Investments
FE	Fixed Effects
FGLS	Feasible Generalized Least Squares
G	Government Expenditure
G-8	Group of Eight
GDP	Gross Domestic Product
GMM	Generalized Method of Moments
GNI	Gross National Income
HDI	Human Development Index
HIDC	High Income Developing Countries
HIPC	Heavily Indebted Poor Countries

HLTH	Habitants' Health Expenditures
I	Investments
IBRD	International Bank of Reconstruction and Development
IGDP	Initial Level of Income
IHD	Initial Level of Human Development
IMF	International Monetary Fund
IND	Industrialization
INF	Existing Technological Infrastructure
INV	Investment
IQ	Institutional Quality
IRLS	Iterated Reweighted Least Squares
LDC	Least Developed Countries
LIC	Low Income Countries
LIDC	Low Income Developing Countries
LMIC	Low and Middle Income Countries
Log	Logarithm
M	Imports
MAL	Malaria Prevalence
Max	Maximum
MDB	Multilateral Development Bank
MDG	Millenium Development Goals
Min	Minimum
NGO	Non-Governmental Organisations

ODA	Official Development Assistance
OECD	Organisation for Economic Co-operation and Development
OLS	Ordinary Least Squares
POPG	Population Growth
PR	Political Rights
pVAR	Panel Vector Auto-Regression
QR	Quantile Regression
S	Savings
SD	Standard Deviation
SDG	Sustainable Development Goals
SSA	Sub-Saharan Africa
T	Taxes
TİKA	Turkish Cooperation and Coordination Agency
TO	Trade Openness
U.S.A.	United States of America
U.S.S.R.	Union of Soviet Socialist Republics
UMIC	Upper Middle Income Countries
UN	United Nations
UNDP	United Nations Development Programme
UNHCR	United Nations High Commissioner for Refugees
URB	Urbanization
WDI	World Development Indicators
WEO	World Economic Outlook

WGI	Worldwide Governance Indicators
WWII	Second World War
X	Exports

CHAPTER 1

INTRODUCTION

1.1 Background information

Every year, billions of dollars are being spent for development purposes of the countries in need of foreign aid influx, by donor countries and multilateral institutions. According to the data provided by the Organisation for Economic Co-operation and Development (OECD), in the timespan between 1960 and 2018, approximately USD 1.36 trillion (in constant prices of 2018 / inflation-adjusted) of net Official Development Assistance (ODA) flowed to the Sub-Saharan Africa (SSA) region. In 2018, net ODA flows from all official donors to SSA countries has amounted to nearly USD 47.5 billion, and roughly USD 26.5 billion of this amount was originating from the Development Assistance Committee (DAC) member countries (OECD, n.d.-a). Besides, according to the preliminary data announced by the OECD, in 2019, net ODA flows from DAC member countries to all recipients have totaled USD 147.4 billion, where the share of SSA countries was USD 31 billion (OECD, 2020). The fact that the yearly amount of the net ODA from all donors to SSA countries is above the GDP levels of 114 countries (World Bank, n.d.-h) of which data are available, motivates this thesis to study the value of the significant amount of assistance provided.

Figure 1 shows the historical trend in ODA flows to SSA countries between 1960 and 2018. Aid flows to SSA region has been in an increasing trend in general, with exceptions of a sudden halt in 2008, which is most probably due to the global financial crisis, and a temporary gradual decrease in 1990s which is being attributed to the

collapse of the Union of Soviet Socialist Republics (U.S.S.R.) by some researchers (Ali, Malwanda, & Suliman, 1999).

The widening gap between the ODA flows from DAC members and all donors indicates that there have been new players emerged over the time. It might be explained by the increasing awareness on the development cooperation, especially arisen with the proclamation of the Millennium Development Goals (MDG) in 2000 (World Health Organization [WHO], 2018).

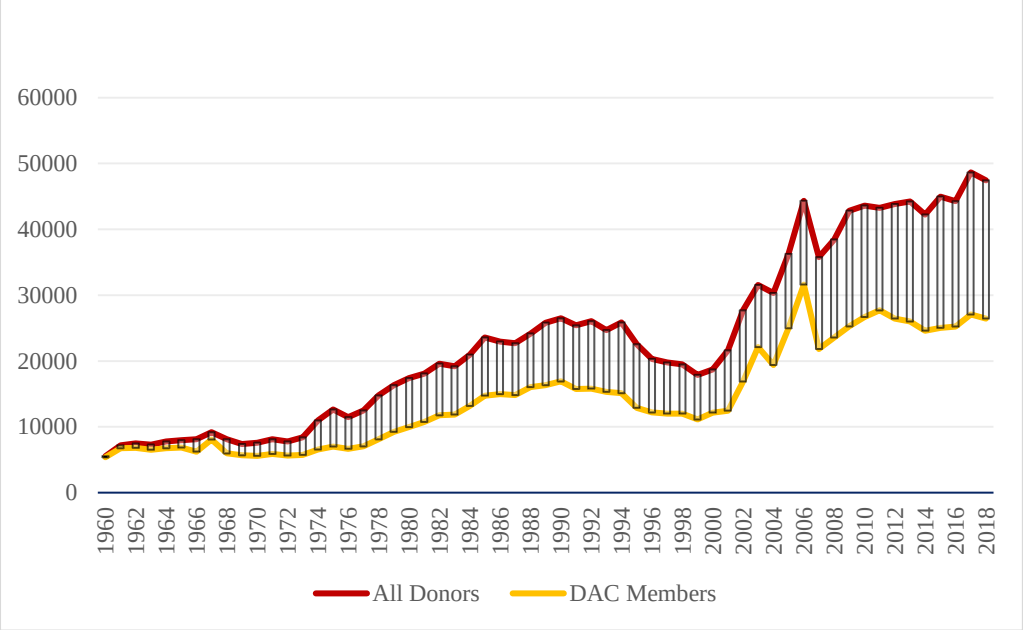


Fig. 1 Net ODA to SSA countries between 1960 - 2018, from all donors and DAC members, in constant 2018 prices (in million USD)
Source: (OECD, n.d.-a)

Figure 2 given below demonstrates the regional trends in net ODA flows. As it can be inferred, Africa and Asia are the most outstanding aid flow destinations and a noticeably big portion of the aid flowed to Africa belongs to the SSA region. On the

other hand, there is a remarkable spike on the aid flows to Africa which is observable especially after 2005. It might be interpreted as a reflection of the decision taken in the Group of Eight (G-8) summit, held in July 2005, to double the amount of foreign aids to African continent, in order to better underpinning the targeted “Big Push” over savings, investments and continiuous growth in the continent (Asongu, 2014).

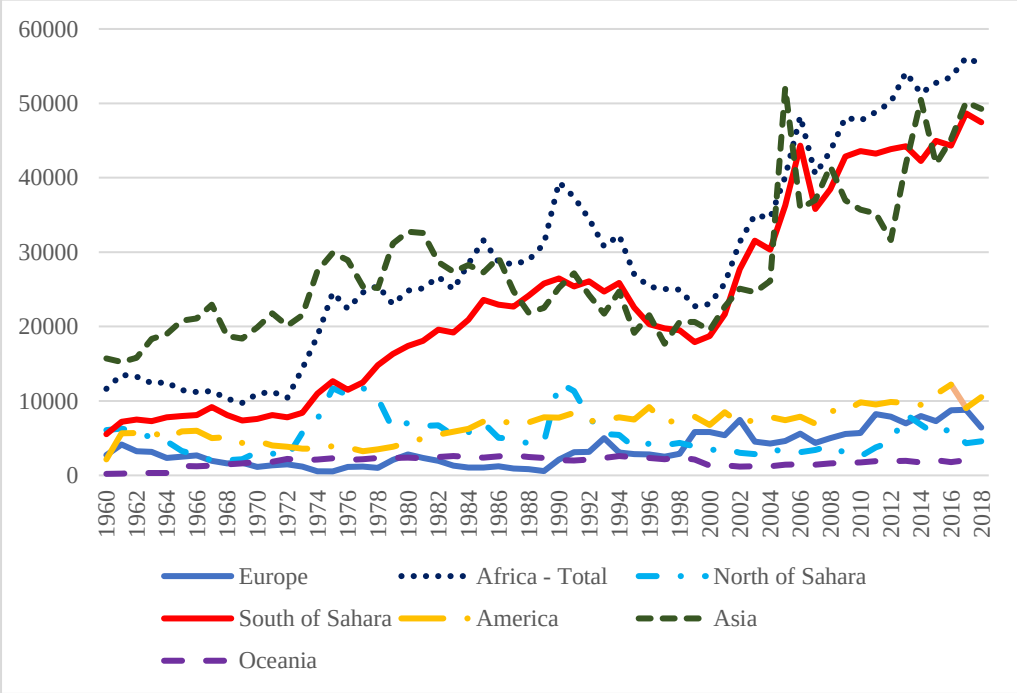


Fig. 2 Net ODA between 1960 - 2018, from all donors, regional distribution, in constant 2018 prices (in million USD)
Source: (OECD, n.d.-b)

1.2 Problem statement

Although all the development efforts exerted by the donors, Sub-Saharan Africa still stands out as one of the geographies in which the people are suffering from extreme poverty, hunger, and drought the most over the World.

Currently, 31 out of 37 countries that are listed as Heavily Indebted Poor Countries (HIPCs) by the International Monetary Fund (IMF) are SSA countries (IMF, 2021). Moreover, In Sustainable Development Goals (SDG) Report (United Nations [UN], 2019), it is stated that %45 of the employed people in SSA are living with a daily income of less than USD 1.90 (threshold value for extreme poverty). In addition, according to the United Nations Development Programme (UNDP, 2019), the percentage of the ones living in the SSA region is exceeding the half of the overall number of the people living under extreme poverty and more than 300 million people are expected to be living under extremely poor conditions by 2030, even in the most optimistic projections.

The level of income inequality in the region, an indicator of how the total economic surplus is being distributed through the population clusters, is also drawing a bleak picture into the bargain. The income share of the top ten percent of the population in the region is around %55-60 (UNDP, 2019).

Moreover, political turmoil-linked refugee problems are another aspect of the crisis in the region. According to the United Nations' (UN) SDG Report (2019), countries witnessing conflicts and political upheavals are also where extreme poverty is encountered the most as well as the countries with lower income levels. In this sense, for instance, five out of nine current emergency situations declared by the United Nations High Commissioner for Refugees (UNHCR) are for the SSA region (UNHCR, n.d.) and in 2019, the number of uprooted people in the region has reached its record high level with 33.4 million people, which represents %39 of the overall number on global scale (UNHCR, 2019).

Last but not the least, SSA region has ranked last among the other regional groups -such as Arab States, East Asia and the Pacific, Europe and Central Asia, Latin America and the Caribbean, and South Asia- with an Human Development Index (HDI) of 0.541 in 2018, as recording the least levels in the comparison within the fields of life expectancy at birth, expected years of schooling and Gross National Income (GNI) per capita, through which the overall HDI figure is reached (UNDP, 2019).

Turkey's rising interest in the region is another factor on the intellectual curiosity that motivates this thesis. Turkey has commenced its outreach policy to Africa first in 1998. In time, with the swift progress recorded in the areas of trade, investments, cultural/ developmental projects, and military cooperation /security, this policy has turned out to be called as Africa Partnership Policy in 2013 (Ministry of Foreign Affairs, n.d.). Turkish Cooperation and Coordination Agency (TİKA), an official institution of Turkey which is entitled and instructed to publish reports on and to facilitate coordination in development assistance activities of Turkey (Official Gazette of the Republic of Turkey, 2018), has 62 program coordination offices over the World. 21 of its program coordination offices have been situated in the SSA region (Turkish Cooperation and Coordination Agency, 2019). It is also a sign of the importance which Turkey has attached to the region.

In sum, a significant amount of money has been invested into the region. However, it is ambiguous that how the countries in the region have performed in return for the aid flows that they have received during the past. Furthermore, no consensus has been reached regarding the impacts of foreign aid on macroeconomic variables and development in the literature (Pickbourn & Ndikumana, 2013), nevertheless current figures indicate that the human development level in the region are not drawing a bright

picture. Today, even if it lost its acceleration (Keeley, 2012), the SSA is still one of the top priorities for most of the developed countries' international development assistance policies (OECD, 2018). On the other hand, despite the abundance of the studies that analyze the aid-effectiveness, the number of the recent studies that focus on the human development in the SSA region is limited. The major contribution of the thesis is to provide a comprehensive and a recent analysis on the effects of ODA/foreign aids on human development in the SSA region. Moreover, to the best of author's knowledge, this thesis is the first study that comprises existing technological infrastructure (access to internet), agricultural land endowment (agricultural land, % of total land area), habitant's health expenditures and government effectiveness index (proxy of institutional quality) as control variables. The terms "ODA, aid, and foreign aid" will be used interchangeably in this thesis.

1.3 The objective of the study

This thesis aims to measure the impact of the ODA flows on the human development of SSA region by focusing on the relationship between the ODA in-flows and HDI figures of SSA countries. In this way, it is aimed to investigate the extent of aid effectiveness on the human development in the region.

1.4 Organization of the study

The remainder of the thesis is organized as follows:

- In literature review part, the conceptual framework regarding the official development assistance activities will be drawn, the history of these activities will be summarized, and the relevant studies will be encapsulated.

- Following this, the sample, research period, variable definitions and data sources will be given, the hypotheses will be established, the methodology employed in the analyses will be presented and the results will be shown.
- Finally, in the last chapter, the results reached through the empirical analyses will be presented and policy implications will be discussed.

CHAPTER 2

LITERATURE REVIEW

In the literature, there are many studies conducted to measure the effectiveness of foreign aids as well as the studies handling foreign aids from a conceptual and historical window. While a considerable part of the relevant literature is focusing on gauging the impact of the foreign aids/development assistance activities on the overall economic performance of the recipient countries, there are also some studies approaching the issue from donors' perspective (See Hwang, Park, & Kim, 2018; Yoon & Moon, 2014). This thesis adopts a recipient-centered approach, and it is concentrating on the SSA region as an aid flow destination.

The samplings on which the relevant studies are done also differ. SSA region, developing countries and Asian countries are the most popular destinations on which the literature concentrates. Studies focusing on Asia will not be covered in the literature review part of this thesis since the methods of those studies are not interestingly different, as well as the regional characteristics of Asia are not in the scope of this study.

Studies measuring the recipients' performance and focusing on the relationship between the ODA inflows and the progress recorded by the recipients in turn, can be divided into two main categories. Namely, those that are taking the growth rates as a parameter of progress and those that are taking the development notion as a focal point, as using HDI and some others indicating the development level of a country, such as infant mortality, poverty, illiteracy, etc. The majority of the studies in vast aid effectiveness literature have focused on macro facets of the issue by concentrating on conventional concepts such as growth, savings, public expenditures with reference to the

saving-investment gap and poverty trap that poor countries suffer from, whereas there is limited but promising literature that is handling the aid effectiveness issue within the frame of human development (Asiama & Quartey, 2009; Boone, 1996; Gillanders, 2016; Gomanee, Morrissey, Mosley, & Verschoor, 2005; Suphian & Kim, 2017; Yontcheva & Masud, 2005).

This study focuses on aid's developmental manifestations. There are two reasons for this preference. First, the development measures are reflecting the life quality/satisfaction of the individual better than economic growth measures which focus on aggregate and average income improvements. In other words, in a country with promising economic growth, the poor may not benefit from this aggregate income progress, if the bigger portion of the pie is allocated among the lucky top 5 percentile of the population (Kosack, 2003; Suphian & Kim, 2017). Second, the fact that the growth performance of a country is not positively associated with the received aid, may not indicate that the aid endeavors are futile. Assume that the aid injections are distributed to the citizens in the form of social transfers or social services, not to the investments. In this scenario, the aid would not manifest itself as growth performance since it has not been channeled to promote growth, but it still, nonetheless, reduces poverty and enhances people's standard of living (Yontcheva & Masud, 2005). Although Burnside and Dollar (2000) asserted that aid would be effective as long as it is invested since investments entail growth, the aid flows in the form of social transfers should be deemed as effective, to the extent that they can contribute to the life quality. As Anand and Sen (1994) stated, when it comes to measuring development, the point that has the primary importance is the standards of living, capabilities, achievements, and freedoms which the people possess, rather than the commodities and the income alone.

In this chapter, the conceptual framework regarding the official development assistance activities will be drawn, to have a better understanding of the general modus operandi. Then, the historical background behind the current practices will be introduced, and the relevant studies will be encapsulated.

2.1 Conceptual Frame

The term, Official Development Assistance (ODA), which has been first defined and accepted as a "gold standard" in foreign aid activities by OECD in 1969, is defined as: "government aid that promotes and specifically targets the economic development and welfare of developing countries*"* by the Development Assistance Committee (DAC) of the OECD (OECD, n.d.-e).

As one would appreciate, official development assistance or aid alone are very much wide concepts to measure. Progress of the recipients may not always be the main purpose of the foreign aids since they may be provided due to strategic, political, commercial, and in most cases colonial interests of the donors (Burnside & Dollar, 2000; Clemens, Radelet, & Bhavnani, 2004; Minoiu & Reddy, 2010). More radically, foreign aid practices are accused of having recipient countries' voices turned down and indicating a potential resurrection of colonialism (Amin, 2014). Thus, there should be a tangible line between the transactions bearing a sincere motivation to promote the welfare in the target country/region, and the others. In this regard, the ODA represents the resource flows from donor countries to multilateral institutions and/or to the countries which are found eligible for being included in the DAC List of ODA Recipient Countries, which is being updated in three years periods depending on the levels of per capita income of the recipient countries (OECD, n.d.-e). While the development

assistance flows to multilateral institutions are referred to as multilateral ODA, the aids flowing from a donor country directly to the recipient ones are being traced under the title of bilateral ODA.

ODA flows can take three forms, which are grants, soft loans, and technical assistance (OECD, n.d.-e, n.d.-c). The ODA is a firmly established measure that has been figured by the DAC since 1961 (OECD, n.d.-d).

International flows ought to meet three requirements to be regarded as ODA. First of all, it should be originated from an official agency of the donor country. Secondly, it must be oriented to the aim of promoting development and welfare in the recipient country. For this reason, loan and credit transactions having the aim of military capacity enhancement in the recipient countries are not taken into consideration in data-building processes. Likewise, the cultural programs aimed at the fortification of the donor's image perception overseas, rather than the development of the recipients' cultural capacities, are excluded from the scope of the ODA. Third, it should have a concessional characteristic and include a grant element, which reflects the concessionality of a loan, at least %25 (OECD, n.d.-d). In other words, to be qualified as ODA, the present value of the debt repayments on the date of disbursement should not surpass the %75 of the nominal value of the transaction (OECD, n.d.-c).

In 2014, The DAC has decided to commence a modernization process that regulates the principles of ODA statistics. According to the decision, concessional loans have been rearranged to be reported on the grant element portion and discount rates differentiating upon the income levels of the recipients (OECD, 2020). The new approach has reflections only on the third requirement. Whereas just %25 principle was applying regardless of the income level of the recipient, which was the prevailing

condition before the aforementioned change adopted, in the new structure, a concessional loan is expected to have a grant element of;

- %45, if the loan is granted to the Least Developed Countries (LDCs) and other Low-Income Countries (LICs) (a discount rate of %9 shall apply for that kind of cases),
- %15, if the loan is granted to the Low and Middle Income Countries (LMICs) (a discount rate of %7 shall apply for that kind of cases),
- %10, if the loan is granted to the Upper Middle Income Countries (UMICs) (a discount rate of %6 shall apply for that kind of cases),
- %10, if the loan is granted to the multilateral organizations (respectively, a discount rate of %5 and %6 shall apply for multilateral development banks (MDBs), and other organizations),

for being qualified as an ODA (OECD, n.d.-d).

It is important to note that the provisions listed above have taken effect on the ODA data, starting from 2018 (OECD, 2020). Thus, the data built with the new understanding is incomparable with the data corresponding to 2017 and before.

2.2 Historical background: The political economy of the development assistance endeavors

The first practices of development assistance have been commenced right after WWII (Boone, 1996). The International Monetary Fund (IMF) and the International Bank of Reconstruction and Development (IBRD), which are the institutions representing the multilateral front of development endeavors, have been established in 1945, then became organs of the UN in 1947.

Rudel (2005) states that the underlying stimulus in the creation processes of the aforementioned institutions was the concerns regarding the recurrence risk of the Great Depression of 1929 and explains the inauguration of the development assistance activities as referring to the general mindset of the humanity after WWII. Ali et al. (1999) put forward similar views regarding when the first samples of development assistance are observed, as dating the origins of international aids back to the post-WWII era and the beginning of the cold war.

While the mentioned efforts had been exerted in the multilateral dimension, the first actions of bilateral ODA were realized by the United States of America (U.S.A.). In this sense, the first steps were taken with the initiatives of the Marshall Plan and Truman's Point Four program. Bräutigam & Knack (2004) argues that foreign aid has gained an institutional formation with the commencement of the Marshall Plan.

The target of the Marshall Plan, which was the most widely ranged aid campaign the World ever witnessed, was to assist war-ravaged European countries in their recovery processes after WWII (Ali et al., 1999). Rudel (2005) asserts that the U.S.A. initiated this plan to compensate for the loss after the war, especially because of the fact that high levels of unemployment in France and Italy had the potential to give rise to a political turmoil, similar to that after WWI. According to Britannica (Encyclopaedia Britannica, 2020), the U.S.A. decided to start this plan because of the fear that poverty in the European countries might have the people mesmerized by the discourses of communist parties.

On the other hand, the Point Four program has targeted to assist least developed countries. It was comprising technical assistance and economic aid (Encyclopaedia Britannica, 2016). It could be deduced that the main aim of the Point Four program was

to assist the development of recipient countries (mainly former colonies of the European countries, see (Rudel, 2005)) since it was focusing on the sectors which have a fundamental importance in terms of development, such as health, agriculture, and education, rather than helping recipient countries so that they could catch the former level of prosperity they had possessed once. Eventually, with the establishment of the OECD in 1961, the support activities to donor countries' aid endeavors (data collection, analysis, discussion, etc.) have been gathered under a single roof.

The competition between the U.S.A. and the U.S.S.R. influenced the dynamics in the decision-making processes of the donor countries regarding the destination of aids. Both of the aforementioned countries had used the ODA as a tool to reinforce their hegemony and to deploy their soft powers in the Third World (Rudel, 2005). For instance, there are proofs concerning that the aids to SSA decreased in 1990s, in comparison with 1970s and 1980s. The ODA flows were redirected to the former republics of the U.S.S.R. with the end of the cold war, with a motivation to make benefit of the power vacuum in the mentioned area, which emerged especially due to the collapse of the U.S.S.R. (Yasin, 2005).

2.3 Studies taking the growth rate as a parameter of progress

There are two main approaches prominent in the aid effectiveness literature. A group of studies focuses on the impacts of aid on some macro proxies such as growth, gross domestic product (GDP), investment, etc., and another group focuses on the development. A wider literature is encountered on the growth-centric line. On the other hand, it is important to note that growth-centric studies were the mainstream especially between the 1960s and 1990s when the structural adjustment programs -that is

representing the strong economics paradigm which has later evolved into soft economics that centralizes human capability development (See Kuada, 2015)- were popular among donor countries (Amin, 2014).

Growth-centric studies were mainly built upon the theoretical framework of some fundamental models, such as Harrod-Domar growth model and the Two-Gap of Chenery and Strout (1966) (Arndt, Jones, & Tarp, 2010; Asiama & Quartey, 2009; Asongu, 2014; Dalgaard & Hansen, 2001; Hansen & Tarp, 2000; Juselius, Møller, & Tarp, 2014; Minoiu & Reddy, 2010; Rahmana, Fawaz, & Gittings, 2017; Suphian & Kim, 2017; Yontcheva & Masud, 2005). In this strand, aid is seen as an external financing source to fill the financing (S-I or X-M) and fiscal gaps (T-G) of the low income countries which have low export earnings, insufficient/inefficient taxation, weak savings, and limited access to international lending opportunities (Wamboye, Adekola, & Sergi, 2013). Aid is posited to contribute GDP, through accumulated capital which is considered to be very much transitive into future investments and growth (Ekanayake & Chatrna, 2010).

Debates are still ongoing regarding whether aid is effective on growth or not. The findings of the studies are mixed and highly criticized over a variety of methodological points. Many authors are sharing similar views that the majority of the studies in the growth-centric literature found no evidence that the aid is of a positive impact on growth. That being said, some researchers advocate just the opposite (Fielding, McGillivray, & Torres, 2007; Gomanee, Morrissey, Mosley, & Verschoor, 2003; Gomanee, Morrissey, et al., 2005; Hansen & Tarp, 2000; McGillivray & Noorbakhsh, 2004). For instance, in the study in which they have made a comprehensive literature review, Hansen and Tarp (2000) revealed that the majority of three categories of

previous work (which are labeled as aid, savings, and growth – aid, investment, and growth – aid, policy, and growth) have reported a positive impact of aid over savings, investments and the growth.

In their seminal study which laid the foundations of the growth-policy quality nexus in the aid effectiveness literature, Burnside and Dollar (2000) have conducted a panel data analysis, regressing the GDP levels of 56 countries on the ODA provided to these countries between 1970-1973 and 1990-1993. They concluded that foreign aid has affected growth levels positively, in the countries particularly with sound policies (i.e. fiscal, trade and monetary), and has a slight influence on growth in poor policy environments. Besides, they noted that bilateral aid, which has a high correlation with government expenditures, has been shaped by the interests of donors, whereas the multilateral outflows are heavily depending on the income level, population, and policies of the recipients, in a way to reward the governments that achieved a good policy frame.

Dalgaard and Hansen (2001) have reassessed Burnside and Dollar's (2000) study. They analyzed the same data set. But conversely, they reported that the relationship between aid and sound policies is vague, and in fact, good policies may even undermine the impact of aid on growth. In addition, they argued that the effect of aid on per capita income is positive.

Easterly, Levine and Roodman (2003) have revisited Burnside and Dollar's (2000) study and tested its findings so as to re-evaluate the relationship between aid and growth in the context of political frames of the recipients. They extended the research period with the data corresponding to the interval between 1993-1997. Missing data in the original study were also attained. A wider sample (62 countries) has been worked on in the study, in which the authors stick to Burnside and Dollar's (2000) methodology,

except for minor interferences. They couldn't reach consistent results across different regressions which they have exercised, and concluded that further work is needed to reach a solid evidence to claim that the aid is more effective on growth in a sound policy environment.

Clemens et al.(2004) have criticized the previous literature, remarking that the aid's impact on growth has been tried to be measured over a relatively short period (mainly depending on four years of observations) than it is expected to emerge. They claimed that the aid flows that could have a growth-igniting impact within four years from disbursement (support on balance of payments/budget, aid for infrastructure investments or productive sectors like industry, agriculture, services, and trade) represented just over a half of total aid figures. They centralized that sort of aid which is considered to show an impact on growth within four years. Aids granted for democratization, education, health, and environment are considered to affect growth figures in the long run. In the study, ordinary least squares (OLS), two stage least squares (2SLS), and system generalized method of moments (GMM) approaches have been employed for the estimations. They concluded that foreign aid has a statistically significant positive impact on growth and this impact is proved to be stronger for the SSA countries. Moreover, the impact is shown to be independent of the institutional quality, policy frame, and initial income levels of the recipient countries. Dalgaard, Hansen and Tarp (2004) also reported that aid has a positive impact on growth, however, this impact is found to be weaker for the countries having tropical climates.

Ram (2004) also tested Burnside and Dollar's (2000) findings. In contrast with the findings of the original study, Ram found that the policy environment has no influence on the effectiveness of ODA on economic growth, and the general belief that

foreign aid ought to be directed to the countries with sound policies (fiscal, monetary and trade) to make further progress on growth and poverty reduction depends on weak empirical evidence.

Gomanee, Girma and Morrissey (2005b) have brought a regional focus to the growth-centric strand of the aid effectiveness literature, questioning whether further amounts of aid would spur economic growth in the SSA region. A sample comprising a pooled data of 25 SSA countries for the period between 1970-1997 has been examined. The study suggested that aid has a positive impact on growth and the main transmission station intermediating this impact is the investments.

Karras (2006) has assessed aid's effectiveness on growth for 71 developing countries, with the data corresponding to the interval between 1960-1997. The core novelty of this study is that both aid per capita and aid figures relative to the GDP are considered, whereas mainly the latter is regarded in the literature. All in all, the study revealed that foreign aid has a significant positive impact on growth across two different aid specifications mentioned above.

In the study in which they shed light on the previous debates on the aid's effectiveness on growth, Arndt et al. (2010) claimed that the aid has a positive effect on growth for both periods between 1960-2000 and 1970-2000, and they stated that the pessimistic climate that engulfed the aid effectiveness literature is of no justification. Overall, they recommended that development assistance activities should be sustained. Furthermore, it is defended that cessation of aid would be a wrong decision that lacks correctly interpreted evidence-based underpinnings.

Ekanayake and Chatrna (2010) have reached different conclusions regarding the impact of ODA on growth, in different empirical paths followed. Authors have studied

panel data of 85 developing countries for the years spanning between 1980-2007, for time period, region and income level differentiated analyses. However, the results are ambiguous. The ODA has been argued to have a negative (statistically insignificant), negative (except for Africa) and positive (except for LMICs) influence on growth, for time, region and income level differentiated estimations, respectively.

Minoiu and Reddy (2010) concentrated on the geopolitical links between donors and aid recipients. Depending on the previous literature, they set out from the assumption that aid flows bearing geostrategic rationales would have less or no progressive impact on growth, whereas those that have no political agendas would have the potential to contribute growth performance in the long run. Aid effectiveness issue has been handled taking its growth-spurring characteristic into the center. In other words, they questioned "what kind of aid is influential on growth?", rather than measuring the overall effectiveness of the donor struggles. They problematized that whether aid granted in the form of budgetary support to a recipient government having huge military expenditures have the same impact as an aid that is oriented to developmental projects such as irrigation, education, infrastructure, housing, etc. Hence, aid flows are included in the estimations, categorized as developmental and non-developmental aid. Bilateral ODA flows originating from some selected countries (Sweden, Denmark, Netherlands, Norway, Finland, Canada, Luxembourg, Ireland, Austria, and Switzerland) which are believed to have a progress-focused manner in aid disbursement processes, and multilateral ODA (the correct term should be "multilateral outflows" since multilateral ODA refers to the flows from donor countries to multilateral institutions) are deemed as developmental aid. They analyzed the data of developing countries for the years between 1960-2000, with the system GMM method. In

conclusion, the study proved that there is a strong relationship between developmental aid and growth, while non-developmental aid is ineffective and may be harmful to growth on some occasions.

Wamboye et al. (2013) studied on 26 African countries which are classified as LDCs, with the data that correspond between 1984-2010. The focal point of the study was to measure the effect of aid on growth figures. The type of legal system (Anglo-Saxon or Continental Civil Law) that the recipients have, has been included in the study as an explanatory variable. They assumed that the countries adopting civil law principles are more prone to have bigger size of governments, relatively more nonparticipant characteristic in regulations, and more corruption. Similar to the Minoiu and Reddy's (2010) approach, they also differentiated the aid types as geostrategic and non-geostrategic. Following Burnside and Dollar (2000), the success of the recipients' trade, monetary and fiscal policies are taken into consideration as well as some other proxies representing the level of governance, depth of the financial markets etc. In conclusion, they discovered that aid flows have a positive impact on growth especially for the former colonies of United Kingdom (adopting Anglo-Saxon legal system). As for the countries having a colonial past with France (following the Continental Civil Law), it was argued that the aid is of a hampering impact on growth.

Underlining that most of the studies in the literature have used the same data sources, Juselius et al. (2014) explained the contradictory results as referring to the methodological preferences that may shape the outcomes. They asserted that they have built an econometrically sound methodological approach which reflects the linkages between aid and macroeconomic indicators in a more coherent way. In the study, country-specific time series were preferred to be analyzed, rather than a cross-country

panel. In addition, the study has a regional focus, and it examines 36 SSA countries. Research period of the study covers the years between 1960-2007. The effect of aid on growth has been examined with the assumption that it is transmitted through private consumption, government expenditures and investments. For estimations, cointegrated Vector Auto-Regression (cVAR) was employed. Results suggested that aid has a significantly positive impact on growth and investments for 27 countries, while a positive but insignificant impact was found for 7 countries. In just Ghana and Comoros, results implied a significant negative effect.

Arndt, Jones and Tarp (2015) have examined the impact of foreign aid both on growth and some development proxies such as poverty and infant mortality. This study suggested that aid has a positive impact on growth, life expectancy at birth, average years of schooling, infant mortality, and poverty.

Emphasizing that the previous literature treated all developing countries as if they all are sharing the same developmental characteristic and drawing attention to the heterogeneity issue which may lurk behind the inconsistent results reached, Rahmana et al. (2017) claimed that the foreign aids should have different manifestations on growth for Low Income Developing Countries (LIDCs) and High Income Developing Countries (HIDCs). Hence, the impact of aid on growth has been investigated for two sub-groupings mentioned above, to ensure a more homogenous sampling. The sample of the study covers data of 111 developing countries (56-HIDCs, 55-LIDCs) for the period spanning 1970-2010. GMM technique has been utilized to avoid possible endogeneities. In conclusion, foreign aid was suggested to have a positive impact on growth for HIDCs, whereas this relationship was negative for the LIDCs. On top of it, the higher levels of unemployment, corruption and inflation were found to have a negative impact on growth

for all developing countries, while the impacts of increased trade openness, budget surplus and capital formation were proved to be positive.

Suphian and Kim (2017) have focused on Kenya, Tanzania and Uganda, and developed an approach that concentrates on the impact of ODA, human development, terms of trade and foreign direct investments (FDI) on growth levels. In the study covering a period between 1980-2014, human development was measured on two pillars, which are education (school enrollment) and health (life expectancy at birth). In conclusion, ODA has been discovered to have a significant impact on the economic growth for all three countries, even if it was revealed to have a negative influence on the growth levels of Kenya and Uganda in the short run. However, it turned out to be positive in the long run for all three countries.

Van Dan and Binh (2019) have investigated the impact of the development assistance on the economic growth of 60 developing countries for a timespan between 1996-2016, employing GMM approach to estimate the panel data. The level of domestic investments, inflation rate, infrastructure index, labor growth, and trade openness have also been included in their study as explanatory variables. They found that ODA has direct and indirect positive impacts on growth and the indirect impact is channeled through domestic investments.

2.4 Studies focusing on the development notion

The proclamation of the MDGs at the beginning of the millennium, paved the way to a paradigm shift in the aid effectiveness literature, following a new era in which the development notion has gained a considerable attention. In the aftermath of the millennium turn, the focus shifted on the developmental progress, rather than growth

and GDP, since it is believed to reflect the life quality/satisfaction and general well-being of individuals better than the growth itself.

In his highly debated and cited study, Boone (1996) developed a model to grasp the implications of the foreign aids, in three different governmental environments, which were labeled as Elitist (with a policy bundle empowering a specific circle of a political elite), Egalitarian (with preferences maximizing the welfare of disadvantageous clusters of citizens with low labor endowments) and Laissez-faire (using foreign aids to reduce distortionary taxes). Looking at the progress on human development indicators (infant mortality, primary schooling, and life expectancy), his study suggested that, foreign aids have not resulted in favor of the poor, but given rise to the bigger size of governments and can only be effective if they are granted conditional on political reforms.

Gomanee et al. (2003) posited that the aid would flourish the living standards of the poor in both direct and indirect channels. The indirect effect was assumed to be intermediated by external aid-financed public expenditures which target social services such as sanitation, education, and health. The study focused on aid's indirect impact on the welfare. Infant mortality and HDI values have been used to measure the welfare of the bottom cluster of the population. A dataset of a panel covering 38 countries for a timespan between 1980-1998 was estimated with the random-effects model. The study revealed that aid-financed public expenditures have a positive impact on welfare proxies (i.e. HDI and infant mortality), and aid is useful for the advancement of welfare indicators since as long as it finances such expenditures.

Considering that the effectiveness of the aid is not independent of the political atmosphere which is prevailing in the recipient country, Kosack (2003) has adopted a combined/politically-enriched approach to the aid effectiveness issue as reckoning it in a

political context, evaluating aid recipients on the democratic/autocratic axis. The HDI is used as a proxy of life quality. The author has estimated the models with OLS and 2SLS for three periods between 1974-1977, 1978-1981, and 1982-1985. However, as for the sampling, it is ambiguous how many countries are taken in the study since the number of countries with available data differs across different regressions. The study reported that the aid is effective in enhancing the quality of life only in democratic settings. On top of it, aid being granted to autocratic countries seems to have a detrimental impact on the overall quality of life.

To discover the impact of aid and conflict on the HDI, McGillivray and Noorbakhsh (2004) have conducted a research for 94 countries, 26 of which experienced conflicts. Total aid between 1975-1999 was considered in the estimations. The HDI figures of 2001 have been used in estimations and a negative impact of both aid and conflict was found on HDI. It has also been argued that aid does not compensate for the conflict-caused deterioration in HDI figures.

Yontcheva and Masud (2005) have investigated the aid effectiveness in poverty alleviation, with its developmental aspects. Similar to Boone's (1996) study, infant mortality and education (i.e. illiteracy) were accepted as proxies of human development. On the other hand, the aid flows originating from Non-Governmental Organisations (NGOs) have also been measured, as well as bilateral ones. The study has been conducted for the period between 1990 and 2001. The samples consist of 58 and 76 countries in the regressions for infant mortality and illiteracy, respectively. In building samples, data availability was the only criterion, with no further spatial focus. Results showed that foreign aid from NGOs is effective in lowering infant mortality, while the

impact of bilateral aid is insignificant. In addition, no solid clue has been found regarding the impact of both bilateral and NGO aid on illiteracy.

Gomanee, Girma and Morrissey (2005a) have established a model to find out the impact of the aid and public expenditures favoring the poor, on aggregate welfare. Human Development Index (HDI) and infant mortality rate have been used as welfare measures. Quantile regressions were used to estimate panels comprising 38 countries for the research period between 1980-1998. Their study suggested that aid has a positive impact on human development and infant mortality. Moreover, it has been noted that this relationship is even stronger for the recipient countries having lower human development levels. Depending on the negative correlation that is asserted to exist between aggregate welfare and poverty, it has been claimed that aid has the potential to support poverty reduction, and this potential would be more robust for the less developed countries in parallel to the pattern over the aggregate welfare.

In their study that has a quite similar research design to the previous ones (Gomanee et al., 2003; Gomanee, Girma, et al., 2005a), Gomanee, Morrissey, et al. (2005) have investigated the impact of foreign aid on HDI and infant mortality which were assumed to be proxies of aggregate welfare in the recipient countries. A wider cross-country data covering 104 countries and a prolonged research period that represents 1980-2000 were considered. Overall, they stated that aid has a positive impact on HDI and infant mortality, and the impact on HDI is stronger for LICs.

Khakoo's (2006) study yielded mixed results regarding the impact of foreign aid on human development. In the study, aid has been taken into consideration in its sub-dimensions. Namely, the impacts of grants, concessional loans and technical assistance were examined separately. On the other hand, the dependent variable, HDI was reckoned

in both aggregate form and in split of its basic dimensions, i.e. life expectancy, education and income. A sample of 38 SSA countries has been examined for the research period covering 1975-2003. Results showed that different types of ODA have different impacts on HDI and its constituents. Aid in the form of grants has been proved to have a positive impact on merely life expectancy at birth, not significant pattern has been observed for its impact on overall HDI. Aid in the form of multilateral concessional loans and technical assistance was shown to have a statistically significant negative impact on overall HDI, for the 1975-2003 period. Notwithstanding this, impacts of both have been suggested to be significantly positive for 1996-2003.

Fielding et al. (2007) have looked into the influence of aid on economic and social development, for 48 countries. They built an index (household asset index) to represent the material assets which the individuals of aid recipient countries own, such as radio, television, electricity, refrigerator, automobile, etc. Sanitation, fertility, education, and health have also been included in the study as development proxies. The authors adopted a different methodology than the others working in the field. They did not proceed with the panel, but with the accumulated aid amounts on the year for which the observations within the aforementioned proxies were made. In conclusion, the study discovered that aid has a positive effect on development indicators.

In the study having a regional focus on SSA, Asiama & Quartey (2009) analyzed the impact of aids on welfare indicators such as HDI and infant mortality. A panel of 49 countries has been estimated using system GMM technique. Different estimators were also utilized, however, the results reached were just used for the confirmation of the results shown by system GMM. Aid has been handled both in the form of total aid and disaggregated aid (i.e. project/sector aid – program aid). Results showed that the

aggregate bilateral aid does not have a significant impact on both HDI and infant mortality. Nonetheless, when aid is considered disaggregated, both project/sector aid and program aid have been shown to have positive impacts on proxies of human development.

In his country-specific study, Okon (2012) sought to find out whether the aid has contributed to human development or not, in Nigeria. Estimations have been done using 2SLS technique, with the data covering 1960-2010. HDI and infant mortality were considered as proxies of human development. The study concluded that aid has affected human development and per capita GDP negatively and this relationship has been proved to be significant.

Tamer (2013) considered the African countries in income level-differentiated sub-groups (i.e. low, lower-middle, upper-middle, and high income) to explore the impacts of ODA and FDI on HDI. A dataset of 52 African countries covering the years between 1980-2011 has been scrutinized in the study. In conclusion, the ODA was found to have a negative impact on HDI across all sub-groups and for the whole Africa.

Specifying that the growth and development are not neutral to gender equality, Pickbourn and Ndikumana (2013) have brought a combined perspective as seeking the effects of foreign aids on human development and gender equality. They noted that there are contradictory results in the literature regarding the influence of aid on some micro variables such as infant mortality, primary school enrollment, etc., and overall macroeconomic performance which is measured by growth. While the results on the macro-level are mixed, there have been positive results observed on the micro-level. This state of contradiction is called the micro-macro paradox (firstly conceptualized by Mosley (1986)) which represents the dichotomy between micro-level and macro-level

indicators, caused by some structural problems. In their study, aid figures have been reckoned as split into the sectors, with a motivation to better explain the micro and macro implications of the aid. A panel data analysis has been employed, yet estimation techniques imposed in this study differ. GMM, fixed effect estimations, and iterated reweighted least squares (IRLS) have been used in order to investigate potential endogeneities, country-specific effects, and potential outliers respectively. The time interval of the data which constitutes the base for the development-related conclusions was between 1980-2010. No regional approach has been adopted in the study. Namely, all the countries of which data are available for the research period have been included regardless of the region on which they have situated. The results showed that the influence of the ODA on HDI figures are sensitive to the recipients' initial level of human development and per capita income. When the aforementioned variables were taken into account, the higher level of foreign aid has been found to be associated with a lower level of HDI, whereas this association has been proved to be positive for the scenario in which the initial levels were neglected. Authors have explained these findings referring to two potential reasons. First, it may be stemming from the fact that the development gap between the countries with higher level of initial development and the countries those having less, tends to increase. The second is that the countries having a lower level of development are receiving more ODA than the others. When these two factors are considered together, higher amounts of aid are flowing to the countries which have less development potential. Thus, this may be the reason laying behind the findings of the study.

Asongu (2014) has conducted a study for 22 African countries for the research period between 1996-2009. The model developed in the study problematized whether or

to what extent primary levels of GDP growth, GDP per capita growth, and HDI are influential over foreign aids' impact on development. The strength of the relationship between net ODA and development/growth proxies across different growth level distributions has been investigated through a model where the trade openness, population growth, investment (domestic, public, and private), inflation, and institutional quality (democracy and polity) have been comprised as control variables. The focal point of the study was to elucidate potential differences regarding the developmental influence of foreign aids in different settings of economic prosperity, rather than discovering the overall impact of the aid on development. For this purpose, the model has been estimated through the quantile regression (QR) technique. As for the conclusions, a higher level of foreign aid effectiveness has been found in higher prosperity levels, which means that countries with higher GDP growth levels are likely to display better growth performance in return for the foreign aids they have received. In addition, the relationship between foreign aid and GDP per capita growth has been revealed to be positive, whilst the impact on HDI was suggested to be negative.

Similar to Tamer's (2013) study, Agusty & Damayanti (2015) conducted a research on the developmental impact of ODA and FDI simultaneously. The sample of this study covered 129 developing countries of which data were able to be attained for the interval between 2009-2013. It has been stated that both FDI and ODA have a statistically significant positive impact on HDI.

Afoakwa (2016) stated that, for SSA, the ODA is of a short term positive effect on HDI, and in the long run, this relationship turns out to be negative, while the impact of FDI is positive both in the short and long run. Fixed effects estimation technique has

been employed for the panel of 46 SSA countries, covering the data spanning 2003-2014.

Gillanders (2016) has implemented panel vector auto-regression (pVAR) to a panel of 31 SSA countries to figure out how a reaction would have been observed in economic development and human development against a shock in aid in-flows. The research period covers the interval between 1973-2005. In the study, GDP per capita growth rate has been used as a proxy of economic development, while the growth rate of life expectancy at birth has been used to measure human development. The study also sought to elicit the distinctions between good/bad policy environments and democracies/autocracies in terms of aids' economic and human development implications. Reserving that the results discovered by the study are ambiguous or not much solid in magnitude, all in all, it is concluded that a slight upward motion, which does not last very long, has been shown in GDP growth, and human development has been asserted to react positively to the shocks in aid in-flows just in democracies.

Berhane (2017) investigated the impact of foreign aid on HDI for 45 SSA countries with the data corresponding to the interval between 2000-2014. OLS regression technique has been exercised to estimate the panel. The results revealed that there is no significant positive impact of ODA on HDI.

Following the suggestion that a new approach called "soft economics" that highlights the human capability development should be paid more attention than the "strong economics" that concentrates on the structural policies (Kuada, 2015), Asongu and Nwachukwu (2017), in their approach to the aid effectiveness issue, have brought a perspective which takes the inclusivity matter in development debates into account. They referred to the shift in the foreign aid discussions that emerged within the

transition from the MDG to SDG agenda in 2015, as a reason to adopt such an approach. Regarding the model specifications, first of all, the role of aid on inclusive human development has been questioned in the study. 53 African countries have been included in the study for the timespan between 2005-2012, where the Inequality-Adjusted HDI was selected as the dependent variable in order to explore the inclusivity implications of foreign aids. Authors have implemented OLS, fixed effects and Arellano & Bover system GMM techniques to estimate the panel. They have reached mixed results depending on the estimation technique employed. Nevertheless, they concluded that the foreign aids aiming at the social infrastructure (i.e. bearing a developmental purpose – like education, sanitation, and water supply), economic infrastructure (funding infrastructure projects – such as communication, energy, and transport), the productive sectors (tourism, mining, trade, agriculture, industry, construction, etc.) and the multisector (e.g. rural development) have a positive impact on the Inequality-Adjusted HDI, whereas the influence of humanitarian assistance has been revealed to be negative across all different models employed. Besides, the impacts of program assistance and action on debts (debt reliefs) have been found to be inconsistent across different models exercised.

CHAPTER 3

DATA AND METHODOLOGY

3.1 Research period and the sample

The empirical analyses in this thesis have been done with the longitudinal data of 35 SSA countries spanning the 2000-2017 period. The period covered by this thesis starts at 2000 due to data availability problems that are faced for most of the variables and countries. The last year of the research period had to be 2017 to ensure the alignment between the data for each year, since a new methodology and understanding apply in the ODA data starting from 2018. Annual figures have been used for all variables. Now that they have missing data at a major level, Central African Republic, Equatorial Guinea, Eritrea, Ethiopia, Lesotho, Liberia, Mauritius, Sao Tome and Principe, Seychelles, Somalia, South Sudan, Sudan, and Zimbabwe have been excluded from the empirical analyses. World Bank's World Development Indicators (WDI) and Worldwide Governance Indicators (WGI) databases (World Bank, n.d.-j, n.d.-i), IMF's World Economic Outlook (WEO) database (IMF, n.d.), and Freedom House's publication archives (Freedom House, n.d.) are the main sources of the data used in the empirical analyses.

3.2 Hypotheses, variables, and data descriptions

The dependent variable included in the analyses is human development proxied by HDI, and the independent variable is foreign aids that are measured via Total Net ODA relative to GNI. This thesis also controls for the impact of a set of control variables on human development, such as initial level of human development, initial level of income,

urbanization, population growth, trade openness, industrialization, investments, malaria prevalence, existing technological infrastructure (access to the internet), agricultural land endowment, habitants' health expenditures, access to sanitation services, access to drinking water, democratization (political rights and civil liberties separately), corruption and institutional quality. Table 1 given below provides a summary of the variables, with their proxies, and sources. Hypotheses will be given with detailed information regarding the variable/data descriptions, below, under related sub-sections.

Table 1. Summarized Information on Variables and Data Sources

Variable		Proxy	Source
Dependent Variable	Human Development	HDI	UNDP - Human Development Data Center
Independent Variable	Aid	Total Net ODA (% of GNI)	World Bank - WDI Database
Conrol Variables	Initial Level of Human Development - IHD	Frist year's HDI value	UNDP - Human Development Data Center
	Initial Level of Income - IGDP	First year's GDP per capita figure - Constant USD - 2010	World Bank - WDI Database
	Urbanization - URB	Urban pop. (% of total pop.)	World Bank - WDI Database
	Population Growth - POPG	Population growth (Annual %)	World Bank - WDI Database
	Trade Openness - TO	Trade (% of GDP)	World Bank - WDI Database
	Industrialization - IND	Industry including construction (% of GDP)	World Bank - WDI Database
	Investments - INV	Investments (% of GDP)	IMF - WEO Database
	Malaria Prevalence - MAL	Incidence of Malaria per 1000 people at risk	World Bank - WDI Database
	Existing Technological Infrastructure - INF	Individuals with access to the internet (% of Population)	World Bank - WDI Database
	Agricultural Land Endowment - AGR	Agricultural land (% of total land area)	World Bank - WDI Database
	Habitants' Health Expenditures - HLTH	Current health exp. (% of GDP)	World Bank - WDI Database
	Access to Drinking Water - AW	People with access to drinking water (% of Pop.)	World Bank - WDI Database
	Access to Sanitation Services - AS	People with access to basic san. (% of Pop.)	World Bank - WDI Database
	Democratization - Political Rights - PR	Political rights index	Freedom House
	Democratization - Civil Liberties - CL	Civil liberties index	Freedom House
	Corruption - COR	Control of corruption index	World Bank - WGI Database
	Institutional Quality - IQ	Government effectiveness index	World Bank - WGI Database

3.2.1. Dependent variable: Human Development

This thesis aims to discover the impact of foreign aids on human development levels of SSA countries. The Human Development Index compiled by UNDP (UNDP, n.d.-a) has been used as a proxy of human development. Cross-country HDI data used in the analyses have been obtained from the Human Development Data Center of UNDP (UNDP, n.d.-a).

According to the technical notes published by UNDP (2020), it takes a value ranging from zero to one where the one represents the best and the zero stands for the worst human development level. It shows the social and economic development level of a given country, as measuring the capabilities of the people in terms of health, education, and income. It is a composite index that is built upon three fundamental dimensions, namely, Life Expectancy, Education, and GNI indices. While the first represents people's ability to dwell a long and healthy life (health), the second and the third denote the level of knowledge (education) and a decent standard of living (income), respectively. Since countries having similar income levels may have different overall HDI ratings, it provides an opportunity to make deductions regarding the impact of different policy choices, over the capabilities of the people. Besides, it reflects human capability better than aggregate and average income figures (UNDP, n.d.-b). Hence, the HDI is a suitable and sufficient measure of human development in terms of the purposes of this thesis, although there may be some other indicators over which the impact of aids can be investigated.

3.2.1. Independent variable: Aid (Total Net ODA / GNI)

The portion of the Net ODA in the GNI of the receiving country has been used as a measure of foreign aid in the empirical analyses. Net ODA includes all aid flows meeting the necessary criteria, from donor countries (regardless of whether they are DAC members or not) and multilateral institutions. It shows the total amount of grants and concessional loans which is net of principal repayments (i.e. interest repayments are not deducted) (World Bank, n.d.-d).

Net ODA has been included in the analyses as a share of an income level indicator, following the approach which most of the studies adopted (Afoakwa, 2016; Arndt et al., 2010, 2015; Asiama & Quartey, 2009; Boone, 1996; Burnside & Dollar, 2000; Dalgaard et al., 2004; Dalgaard & Hansen, 2001; Ekanayake & Chatrna, 2010; Karras, 2006; Kosack, 2003; McGillivray & Noorbakhsh, 2004; Okon, 2012; Rahmana et al., 2017; Van Dan & Binh, 2019). Noting that GDP figures have been accepted as denominator in most of the studies, it is important to highlight that the income level indicator through which the percentage of the Net ODA is calculated is GNI in this thesis. As for the data source, all foreign aid data have been taken from the World Bank's WDI database in the form of Total Net ODA/GNI (World Bank, n.d.-i).

GNI is a figure that shows the extent of income that could be produced by the national capabilities of a given country. A higher portion of Net ODA in GNI means more external aid influx relative to the national capabilities. Thus, it is expected that an increase in the magnitude of development assistance flows in GNI affects human development positively. Therefore, the first hypothesis of this thesis can be derived as follows:

H_1: *Aid has a positive impact on human development.*

3.2.2. Control variables

Initial level of human development (IHD): This variable has been included in the analyses, following Kosack (2003) and Pickbourn and Ndikumana (2013). It represents the HDI value of each country in 2000, which is the first year of the research period. The data have been obtained from the Human Development Data Center of UNDP (UNDP, n.d.-a). Considering that the current development level is one of the most influential determinants of the future level of development due to its exponential/cumulative nature, it is expected that the counties with higher initial levels of human development are more advantageous in recording further progress in development. Thus, the second hypothesis of this thesis can be produced as below:

H_2: *Initial level of human development has a positive impact on human development.*

Initial level of income (IGDP): Inclusion of initial level of income in the empirical analyses has been inspired by Arndt et al. (2010), Burnside and Dollar(2000), Clemens et al. (2004), Dalgaard et al. (2004), Dalgaard and Hansen (2001), Easterly et al. (2003), Ekanayake and Chatrna (2010), and Minoiu and Reddy (2010). It shows the GDP per capita (constant – 2010 USD) figure of each country in 2000, first year of the research period. The data have been reached through World Bank's WDI database (World Bank, n.d.-i). Similar to the assumptions that have been put forward for the initial level of human development, initial level of income is also expected to contribute human development positively.

H_3: *Initial level of income has a postive impact on human development.*

Urbanization (URB): This variable has been covered in the empirical analyses following Yontcheva and Masud (2005). It represents the percentage of the people living in urban

areas, over total population (World Bank, n.d.-g). The data have been obtained from World Bank's WDI database (World Bank, n.d.-i). In urban areas, the people have broader access to the sanitation, health, and education services provided by the government. On the other hand, urban life provides more diversified employment and business engagement opportunities to the individual, therefore more income is expected to be earned in urban areas on which the commercial and industrial activities are more vivid. For these reasons, a positive impact of urbanization is expected to be found on human development.

H_4: *Urbanization has a positive impact on human development.*

Population growth (POPG): It has been measured by the annual growth rate of the population. The source of the data is World Bank's WDI database (World Bank, n.d.-i). In general, growth-centric studies in the aid effectiveness literature have seen the population as a human capital or labor source which contributes to the GDP and did not consider its growth rate. Few studies focused on the influence of the population growth on HDI (Asiama & Quartey, 2009; Asongu, 2014; Berhane, 2017; Ekanayake & Chatrna, 2010; Karras, 2006; Khakoo, 2006; Wamboye et al., 2013; Yontcheva & Masud, 2005). It should be admitted that the population represents the labor factor which is of a great importance over GDP. Nevertheless, the main focus of this thesis is development notion, and a different point of view is needed accordingly. Population policies should be made in accordance with socio-economic policies. It should be given shape with an awareness of the economic limitations. Let us imagine a hypothetical country that failed to compensate for the economic burden brought by population growth. In other words, it could not create additional employment prospects to hire the

newcomers and could not enhance the efficiency and the accessibility of the public services. What should be expected regarding the level of human development in that country? Naturally, the answer should be "a deterioration", considering that unemployment and weak public services are some of the current problems which SSA countries are suffering from. Thus, the fifth hypothesis can be derived as follows:

H_5: *Population growth has a negative impact on human development.*

Trade openness (TO): It has been proxied by the percentage of total export and import of goods and services in GDP. The data have been taken from World Bank's WDI database (World Bank, n.d.-i). Plenty of studies have included trade openness in the empirical analyses (Afoakwa, 2016; Asongu, 2014; Burnside & Dollar, 2000; Dalgaard & Hansen, 2001; Easterly et al., 2003; Kosack, 2003; Minoiu & Reddy, 2010; Rahmana et al., 2017; Ram, 2004; Tamer, 2013; Van Dan & Binh, 2019; Wamboye et al., 2013). While some of the researchers have used it in a policy index that accounts for trade, fiscal and monetary policies of a government, the others directly controlled for it. It is a highly debated issue whether openness to trade goes hand in hand with further welfare or income enhancements or not. Within pro-trade circles, it is seen beneficial as it directs the sources to the most lucrative areas for a given economy and it facilitates the cultural interaction between countries, but for the conservatives, it is perceived as a grave threat to national sovereignty, natural wealth, and local cultures. Let aside these disputes, Davies and Quinlivan (2006) revealed that trade has a positive impact on both HDI and per capita income. Hence, a positive impact of trade openness on human development is expected.

H_6: *Trade openness has a positive impact on human development.*

Industrialization (IND): It has been proxied by the percentage share of the total value added by the sectors such as manufacturing, mining, construction, water, electricity, and gas in the GDP (World Bank, n.d.-c). The data have been obtained from World Bank's WDI database (World Bank, n.d.-i). It has been included in the empirical analyses following Arndt et al. (2015). Industrialization is a process that a country must have undergone in transition from being a traditional society to the future take-off (conceptualized by Rostow (1959)). Therefore, it would be plausible to expect positive reflections of it on human development although its impacts are not clear to expect at the first sight.

H_7: *Industrialization has a positive impact on human development.*

Investments (INV): It has been measured by the percentage share of the investments (gross capital formation) in the GDP. The data have been retrieved from IMF's WEO database (IMF, n.d.). Some researchers have considered it in raw values, while the others preferred to reckon it relative to GDP (Asongu, 2014; Ekanayake & Chatrna, 2010; Gomanee, Girma, et al., 2005b; Karras, 2006; Van Dan & Binh, 2019; Wamboye et al., 2013). An increase in the share of investments is expected to be associated with higher levels of human development since it implies a boosted economic activity.

H_8: *Investments have a positive impact on human development.*

Malaria prevalence (MAL): It shows the number of new malaria infections per 1,000 people at risk (World Bank, n.d.-a). The data have been taken from the World Bank's WDI database (World Bank, n.d.-i). It has been included as control variables in the analyses conducted by Arndt et al. (2010, 2015). Malaria prevalence is expected to have

a negative impact on human development as it would have affected the HDI through its health dimension.

H_9: *Malaria prevalence has a negative impact on human development.*

Existing technological infrastructure (INF): It has been proxied by the percentage of the people who have accessed the internet at least once in the last three months, in total population (World Bank, n.d.-b). The data have been obtained from World Bank's WDI database. Tamer (2013) used the total number of fixed and mobile phone subscribers over 1,000 people, whereas Van Dan and Binh (2019) considered only the number of fixed phone subscribers as a proxy of infrastructure. In this thesis, internet access has been included in the analyses due to both data availability and the fact that it is considered to bear more importance in terms of development as it provides more advanced and multidimensional communication and interaction opportunities to the individuals. Hence, its impact on human development is expected to be positive.

H_{10}: *Existing technological infrastructure has a positive impact on human development.*

Agricultural land endowment (AGR): Agriculture is crucial for the enhancement of human development as it relieves the risk of malnutrition and hunger in a country. In addition, it may be a source of foreign exchange earnings once it could be channeled to the exports. It has been proxied by the percentage share of the agricultural land in total land area. The data have been retrieved from World Bank's WDI database (World Bank, n.d.-i). In the literature, Arndt et al. (2015) used the share of agriculture in GDP, whilst Yontcheva and Masud considered (2005) agricultural value added per worker. In this thesis, the share of agricultural land has been used since what is aimed is to gauge the

impact of agricultural endowments of a country, rather than how they utilize it. Overall, a positive impact of agricultural land endowment is expected on human development.

H_{11}: *Agricultural land endowment has a positive impact on human development.*

Habitants' health expenditures (HLTH): Many authors have included the government health expenditures in their analyses (Arndt et al., 2015; Berhane, 2017; Gomanee et al., 2003; Gomanee, Girma, et al., 2005a; Gomanee, Morrissey, et al., 2005; Pickbourn & Ndikumana, 2013; Yontcheva & Masud, 2005). Apart from the general tendency prevailing in the literature, in this thesis, general spending on healthcare services and products have been considered, regardless of the party that actualized those spendings. These amounts do not cover the health investments. The share of that sort of expenditures in the GDP has been included in the empirical analyses. The data have been obtained from World Bank's WDI database (World Bank, n.d.-i). It is expected that habitants' health expenditures have a positive impact on human development since it is considered to underpin the longevity of the people.

H_{12}: *Habitants' health expenditures have a positive impact on human development.*

Access to Water (AW): It has been measured by the percentage of the population having access to drinking water with a maximum 30 minutes distance (World Bank, n.d.-e). The data have been retrieved from the World Bank's WDI database (World Bank, n.d.-i). The only study that considered this indicator is Pickbourn Ndikumana's (2013) study. As for the expectations, it is expected that people's access to water has a positive impact on human development.

H_{13}: *Access to water has a positive impact on human development.*

Access to Sanitation (AS): It has been proxied by the percentage of population with access to sanitation facilities which is not for common use (World Bank, n.d.-f). The data have been obtained from the World Bank's WDI database. It is included in the analyses by one study in the literature solely (Pickbourn & Ndikumana, 2013). A positive relationship is expected to be discovered between people's access to sanitation and human development.

H_{14}: *Access to sanitation has a positive impact on human development.*

Political Rights (PR) and Civil Liberties(CL) : Some studies in the literature accounted for the level of democratization in the recipient countries (Arndt et al., 2010, 2015; Asongu, 2014; Gillanders, 2016; Gomanee, Girma, et al., 2005b; Khakoo, 2006; Kosack, 2003; McGillivray & Noorbakhsh, 2004; Tamer, 2013), but fewer has measured it via the indices provided by Freedom House (Arndt et al., 2010, 2015; Khakoo, 2006; Kosack, 2003; Tamer, 2013). In this thesis, the level of democratization will be measured by two different indices separately, political rights and civil liberties. These are being announced via Freedom in the World survey which has been published annually since 1972 (Freedom House, n.d.). Countries have been rated under the titles of political rights and civil liberties between one and seven, where the one denotes the highest level of freedom and the seven signals the worst (Freedom House, 2019).

Political Rights (PR) have been proxied by the political rights index that is constructed upon questions regarding the electoral system, functioning of government, and political participation and pluralism (Freedom House, 2019). The data have been obtained from Freedom House's publication archives (Freedom House, n.d.). Considering that an increase in the index indicates a deterioration, and a decrease symbolizes an

improvement over democratization, a negative relationship is expected between the political rights index and human development. To avoid any potential misinterpretation, the hypothesis can be established as follows:

H_{15}: *An improvement in political rights has a positive impact on human development.*

Civil Liberties (CL) have been measured by the civil liberties index which is an overall indicator of personal autonomy and individual rights, associational and organizational rights, rule of law, and freedom of expression and belief (Freedom House, 2019). The data have been taken from Freedom House's publication archives (Freedom House, n.d.). Same misinterpretation concern is valid for the civil liberties index as well since it has the same scale as the political rights index. Thus, the next hypothesis can be drawn as below:

H_{16}: *An improvement in civil liberties has a positive impact on human development.*

Corruption (COR): Control of corruption index has been used as a proxy of corruption. It is an index representing the perceptions regarding the extent of the abuse of administrative power to provide personal benefits (Kaufmann et al., 2010). Index values are ranging from -2.5 to +2.5, where the first stands for the highest corruption and the latter rates the least. The cross-country data have been obtained from World Bank's WGI database (World Bank, n.d.-j). Some studies considered corruption (Afoakwa, 2016; Berhane, 2017; Khakoo, 2006; Pickbourn & Ndikumana, 2013; Rahmana et al., 2017), however only one of them used control of corruption index to measure it (Khakoo, 2006). As an increase in the index implies an improvement due to the decrease in corruption, it can be deduced that corruption should be deemed to have a negative

impact on human development if the relationship between the index and HDI is proved to be positive.

H_{17}: *A deterioration in corruption has a negative impact on human development.*

Institutional Quality (IQ): It has been measured by government effectiveness index that reflects the perceptions regarding the quality of the public services and policies, people's trust in government's boundness to the policies, and the extent of the independence of these services from the political influence (Kaufmann et al., 2010). It takes a value between -2.5 and +2.5, where higher values imply a better state of government effectiveness. The data have been retrieved from World Bank's WGI database (World Bank, n.d.-j). In the literature, there are no studies that proxied the institutional quality via government effectiveness index. A higher institutional quality is expected to be associated with a higher level of human development.

H_{18}: *Institutional quality has a positive impact on human development.*

3.3 Methodology and empirical models

In this thesis, the relationship between human development and foreign aids has been investigated. Human development was considered as a dependent variable, whereas foreign aid was the independent variable. In addition, 17 different control variables have been included in the analyses in light of the previous literature. Since the data covers 35 SSA countries for the years between 2000-2017, panel data analysis techniques have been employed.

Panel data analyses have become more common in recent years. Simultaneous usage of cross-section and time dimensions makes the results reached more reliable.

Analyzing panel data yields more observations to the researcher, increased observations boost the extent of freedom and lessen collinearity between independent variables (Hsiao, 2003).

The data used in this thesis have an unbalanced nature due to the fact that a minor part of the HDI data of Nigeria and Guinea-Bissau were missing. Hence, the techniques which are convenient for the unbalanced panel structures have been exercised in the empirical analyses as it is explained in detail later in this section.

Table 2 given below shows the descriptions of the control variables included in the analyses, with their abbreviations.

Table 2. Descriptions of the Control Variables

Variable	Description
IHD	Initial HDI
IGDP (log)	Initial Income
URB	Urbanization
POPG	Pop Growth
TO	Trade Openness
IND	Industrialization
INV	Investment
MAL	Malaria Prevalence
INF	Existing T. Infrastructure -Access to Inter.
AGR	Agricultural Land Endow.
HLTH	Habitants' Health Exp.
AW	Access to Water
AS	Access to Sanitation
PR	Democ. - Political Rights
CL	Democ. - Civil Liberties
COR	Control of Corr. Ind. - Corruption
IQ	Government Effec. Ind. – Ins. Quality

Table 3 given below provides the descriptive statistics for each variable in the analyses. The mean, standard deviation (SD), minimum (Min), and maximum (Max) values are presented for dependent variable and independent variable, as well as 17

control variables. Amongst the control variables, just the initial level of income has been used in its natural logarithm to avoid outliers, because its variance was quite high.

Table 3. Descriptive Statistics

Variable	Mean	SD	Min	Max
IHD	0.418	0.091	0.262	0.631
IGDP (log)	6.854	0.929	5.435	9.227
URB	38.576	16.566	8.246	88.976
POPG	2.643	0.684	0.300	5.600
TO	66.651	26.966	20.700	175.800
IND	24.991	12.435	4.600	72.200
INV	22.907	10.090	4.562	78.301
MAL	248.272	166.070	0.008	589.326
INF	7.223	10.230	0.006	57.162
AGR	48.150	19.098	8.022	80.888
HLTH	5.521	2.372	1.453	20.413
AW	60.242	15.341	19.897	92.679
AS	29.662	17.189	4.321	77.269
PR	4.259	1.734	1.000	7.000
CL	3.973	1.312	1.000	6.000
COR	-0.618	0.586	-1.600	1.200
IQ	-0.716	0.541	-1.900	0.700
ODA	9.024	9.257	-0.188	92.141
HDI	0.476	0.091	0.262	0.726

The correlations between HDI and each control variable have been assessed using Pearson correlation analysis. The control variables that do not have a significant correlation with HDI have been determined and excluded from the panel regression model. Table 4 given below demonstrates the results of the Pearson correlation analysis. As the results suggested, the initial level of human development, the initial level of income, urbanization, trade openness, industrialization, investments, existing technological infrastructure (access to the internet), access to sanitation services, access to drinking water, improved control of corruption and institutional quality have a significant positive correlation with HDI, whereas the direction of the correlation turned

to be negative for population growth, malaria prevalence, and political rights and civil liberties indices (an increase implies deteriorated democratization levels), preserving its statistical significance. As for agricultural land endowment and habitants' health expenditure, no significant correlation has been found. For this reason, they have been excluded from the panel regression models estimated.

Table 4. Pearson Correlation Analysis Results

Variable	Correlation (*p*)
IHD	0.880*** (0.000)
IGDP (log)	0.770*** (0.000)
URB	0.667*** (0.000)
POPG	-0.479*** (0.000)
TO	0.347*** (0.000)
IND	0.342*** (0.000)
INV	0.330*** (0.000)
MAL	-0.605*** (0.000)
INF	0.650*** (0.000)
AGR	0.006 (1.000)
HLTH	-0.104 (0.257)
AW	0.688*** (0.000)
AS	0.579*** (0.000)
PR	-0.275*** (0.000)
CL	-0.362*** (0.000)
COR	0.471*** (0.000)
IQ	0.506*** (0.000)

*, **, and *** denote the significance level at %10, %5 and %1, respectively.

In panel data analyses, it is of a great importance to detect unit roots in the panel series, if any. Otherwise, undetected unit roots may lead to deceiving results to be reached by the estimations as yielding spurious relations. Most of the unit root tests that are commonly used in panel data analyses have an assumption that the panel is balanced. The tests allowing unbalanced structures are Im-Peseran-Shin, and Fisher-Type tests which are the tests developed by Maddala and Wu (1999), and Choi (2001) (Hurlin &

Mignon, 2007; Stata, n.d.). In this thesis, two different stationarity tests have been applied to check if unit root/random walk exists in the variable datasets. These are MADWU and Pm tests developed by Maddala and Wu (1999), and Choi (2001), respectively. The reason why these tests were preferred to be used is their convenience to be used for unbalanced panel structures. Table 5 given below presents the results of two stationarity tests applied. The values suggested that all panel series were stationary at level I(0), as the values given in the brackets are less than 0.05 for all series. In other words, no unit roots or random walk pattern has been detected for all series. Thus, there was no need to resort to looking at differences to attain stationarity in the panel series.

Table 5. Results of Stationarity Tests

Variable	MADWU[1]		Pm[2]	
	Intercept	Intercept+Trend	Intercept	Intercept+Trend
IHD	1316.271*** (0.000)	1181.203*** (0.000)	103.689*** (0.000)	92.434*** (0.000)
logIGDP	944.870*** (0.000)	774.760*** (0.000)	73.940*** (0.000)	59.563*** (0.000)
URB	495.285*** (0.000)	683.197*** (0.000)	35.943*** (0.000)	51.825*** (0.000)
POPG	699.972*** (0.000)	617.585*** (0.000)	53.242*** (0.000)	46.279*** (0.000)
TO	697.433*** (0.000)	777.258*** (0.000)	53.028*** (0.000)	59.774*** (0.000)
IND	576.709*** (0.000)	494.666*** (0.000)	42.825*** (0.000)	35.891*** (0.000)
INV	638.484*** (0.000)	586.772*** (0.000)	48.046*** (0.000)	43.675*** (0.000)
MAL	1021.459*** (0.000)	921.686*** (0.000)	80.413*** (0.000)	71.981*** (0.000)
INF	553.715*** (0.000)	569.621*** (0.000)	40.881*** (0.000)	42.226*** (0.000)
AGR	371.749*** (0.000)	873.413*** (0.000)	25.502*** (0.000)	67.901*** (0.000)
HLTH	565.547*** (0.000)	777.412*** (0.000)	41.881*** (0.000)	59.787*** (0.000)
AW	914.555*** (0.000)	925.014*** (0.000)	71.378*** (0.000)	72.262*** (0.000)
AS	602579*** (0.000)	692.750*** (0.000)	45.011*** (0.000)	52.632*** (0.000)
PR	465.967*** (0.000)	467.238*** (0.000)	33.465*** (0.000)	33.573*** (0.000)
CL	587.844*** (0.000)	618.113*** (0.000)	43.766*** (0.000)	46.324*** (0.000)
COR	580.112*** (0.000)	578.056*** (0.000)	43.112*** (0.000)	42.939*** (0.000)
IQ	530.822*** (0.000)	782.157*** (0.000)	38.947*** (0.000)	60.188*** (0.000)
ODA	770.143*** (0.000)	1116.617*** (0.000)	58.179*** (0.000)	87.051*** (0.000)
HDI	1245.238*** (0.000)	1217.132*** (0.000)	97.770*** (0.000)	95.428*** (0.000)

*, **, and *** denote the significance level at %10, %5 and %1, respectively.

[1] The values given in the brackets are the P test (inverse chi-squared test) values (See Pesaran, 2007).
[2] The values given in the brackets are the Z test (inverse normal test) values (See Pesaran, 2007).

Three different panel regression models were estimated in this thesis. The first model includes the control variables, foreign aid (Net ODA/GNI) and the one period lagged foreign aid, noting that the control variables that do not have a significant correlation with HDI were excluded. In the second model, IHD, PR and COR have been excluded. Having estimated the first model (as it can be inferred from Table 8), IHD has found to have a predominant impact on the dependent variable, and PR and COR were discovered to have insignificant influences. In addition, there were some other variables such as IGDP, CL and IQ which may substitute IHD, PR and COR to some extent. For these reasons, it has been decided to establish a different model excluding IHD, PR and COR. The third model comprises only foreign aid and one period lagged foreign aid as explanatory variables. Such an approach was adopted with a motivation to elicit the stand-alone impact of ODA on human development, independent of the control variables. Three models established to explain the impact of the selected determinants of the human development are presented as follows:

(I) $HDI_{it} = \beta_0 + \beta_1 AID_{it-1} + \beta_2 AID_{it} + \beta_3 IHD_{it} + \beta_4 logIGDP_{it} + \beta_5 URB_{it} + \beta_6 POPG_{it} + \beta_7 TO_{it} + \beta_8 IND_{it} + \beta_9 INV_{it} + \beta_{10} MAL_{it} + \beta_{11} INF_{it} + \beta_{13} AW_{it} + \beta_{14} AS_{it} + \beta_{15} PR_{it} + \beta_{16} CL_{it} + \beta_{17} COR_{it} + \beta_{18} IQ_{it} + u_{it}$

(II) $HDI_{it} = \beta_0 + \beta_1 AID_{it-1} + \beta_2 AID_{it} + \beta_3 logIGDP_{it} + \beta_4 URB_{it} + \beta_5 POPG_{it} + \beta_6 TO_{it} + \beta_7 IND_{it} + \beta_8 INV_{it} + \beta_9 MAL_{it} + \beta_{10} INF_{it} + \beta_{11} AW_{it} + \beta_{12} AS_{it} + \beta_{13} CL_{it} + \beta_{14} IQ_{it} + u_{it}$

(III) $HDI_{it} = \beta_0 + \beta_1 AID_{it-1} + \beta_2 AID_{it} + u_{it}$

where *i* represents country and *t* denotes time and u_{it} symbolizes the error term.

In the empirical analyses, first, Hausman test has been applied (Torres-Reyna, 2010) in order to decide whether random effects or fixed effects model to be used in the estimations. Then, Breusch-Godfrey (BG) LM test has been carried out to see whether the autocorrelation (i.e. serial correlation) problem exists. In order to detect possible heteroscedasticity problems, Breusch-Pagan (BP) test has been exercised. The models have been regressed using the general feasible generalized least squares (FGLS) estimator. All test results are presented in corresponding tables with significance values (given in the brackets) and test statistics. The error levels are considered for %1, %5, and %10. All analyses have been performed through the plm and lmtest packages available at R statistics software (Croissant & Millo, 2008; Zeileis & Hothorn, 2002).

Table 6 given below shows the results of Hausman test that was applied in order to determine whether fixed effects or random effects model to be used in the estimations. This test has been developed by its eponym Hausman (1978). The assumption that there is no correlation between unit effects and explanatory variables is tested through Hausman test. In the absence of such correlation, random effect model becomes unbiased, consistent and efficient, whereas the fixed effect is consistent but not efficient. In cases where H_0 is rejected, in other words, in the existence of a correlation between unit effects and explanatory variables, it is construed that the fixed effects model is consistent and efficient, while the random effects is not consistent (Johnston & Dinardo, 1997). Thus, if such correlation is detected, the fixed effects model ought to be used to avoid that time-invariant patterns so that the clear impact of independent variables can

be discovered (Torres-Reyna, 2007), now that the random effects model would generate biased results (Troeger, 2008). The null hypothesis in the Hausman test is "H_0: no correlation between unit effects and explanatory variables - the differences in the coefficients is not systematic – random effects model is consistent". As it can be seen in Table 6, the null hypothesis was accepted for all models. In other words, no correlation between unit effects and explanatory variables has been found across all model specifications. As per the results, random effects model has been used in the estimations through all model specifications (i.e. model I, model II and model III).

Table 6. Results of the Hausman Test

Model	**Hausman test**
I (control variables included)	11.350 (0.727)
II (IHD, PR and COR excluded)	10.438 (0.576)
III (all control variables excluded)	3.020 (0.221)

*, **, and *** denote the significance level at %10, %5 and %1, respectively.

Table 7 given below shows the results of the BG LM (Breusch, 1978; Godfrey, 1978) and BP (Breusch & Pagan, 1979) tests employed in order to detect if any possible autocorrelation and heteroscedasticity problems prevail for each model.

BG LM test examines the statistical significance of a regression where the original OLS regression residuals are dependent variable and lagged original regression residuals are independent variables. If the *p* value yielded by the test is less than 0.05, it means that the model includes autocorrelation problem.

In BP test, first, the original relation is estimated through an OLS estimator. Then squared residuals of the original OLS (ε_t^2) is divided by the estimated disturbance variance (σ^2). The OLS regression is repeated taking the ε_t^2/σ^2 as dependent variable

where the original independent variables are at the right-hand side (Johnston & Dinardo, 1997). It checks whether independent variables are statistically significant in explaining the residuals of the original regression. This can be shown in equational form as follows:

$$\frac{\varepsilon_t^2}{\sigma^2} = \alpha + \beta_1 x_{1,t} + \beta_2 x_{2,t} + e_t$$

where the ε_t^2 denotes the squared residuals of the original regression, σ^2 stands for estimated disturbance variance, α is constant term, β_t represents regression coefficients, $x_1$and $x_2$are independent variables, *t* is time and e_t is the error term. By these processes, a *p* value, which represents the power of the relationship between independent variables and residuals, is reached. If the *p* value < 0.05, then it is construed that the residuals are heteroscedastic.

As it can be inferred from Table 7, the relevant null hypotheses that "H_0: Autocorrelation does not exist." and "H_0: Heteroscedasticity does not exist." were rejected, as the *p* values are less than 0.05 for both tests across all model specifications. Results indicate that both autocorrelation and heteroscedasticity assumptions were violated for each model. Hence, all models include serial correlation and heteroscedasticity problems.

Table 7. Results of Autocorrelation (Breusch-Godfrey LM Test) and Heteroscedasticity (Breusch-Pagan) Tests

Model	**Breusch–Godfrey LM Test**	**Breusch–Pagan Test**
I (control variables included)	387.160*** (0.000)	78.697*** (0.000)
II (IHD, PR and COR excluded)	397.813*** (0.000)	94.592*** (0.000)
III (control variables excluded)	448.300*** (0.000)	13.906*** (0.000)

*, **, and *** denote the significance level at %10, %5 and %1, respectively.

Even if the OLS is one of the most widely accepted estimators, it is not a suitable regressor for the models where at least one of autocorrelation and heteroscedasticity problems exists. Croissant and Millo (2008) stated that the general FGLS estimator is still robust, in the cases where any kind of autocorrelation and heteroscedasticity problems occur. Likewise, Baum (2006) suggested that general FGLS is a convenient estimator in the existence of autocorrelation and/or heteroscedasticity problems. Johnston and Dinardo (1997) also suggested feasible generalized least squares (FGLS) estimator if heteroscedasticity problem is encountered. Following these suggestions, in this study, general FGLS estimator has been preferred to estimate the panel regression models.

FGLS method has first been introduced by Parks (1967) in his study which responded the serial correlation problem in the regression models. This model offers a double-tiered process to avoid the impacts of autocorrelation and heteroscedasticity on estimation results. First, the model is estimated using the OLS estimator. The residuals of initial regression are used to estimate error covariance matrix. Then, the FGLS estimations are calculated using these variance compounds (Croissant & Millo, 2008; Özaytürk & Alper, 2017; Özer & Biçerli, 2003).

3.4 Results

As mentioned earlier, three different models have been established in this thesis. The first includes aid, one period lagged aid, and the control variables that have a significant correlation with human development, as explanatory variables.

In the second model, IHD, PR and COR have been excluded, while aid, one period lagged aid and other control variables were still comprised. As one can see from

the Table 8, regression results of model I suggested that the human development is predominantly determined by the initial level of human development (with a β coefficient value of 0.79043). For this reason, it was deemed necessary to see how the results will be in the absence of IHD. In addition to that, having estimated the model I, the impacts of PR, COR and TO have been revealed to be insignificant. Considering the fact that CL and IQ may substitute the PR and COR to some extent, these also have been decided to be excluded from the regression model.

Besides, there was an alternative model that looks only at the impacts of aid and one period lagged aid on human development, excluding all control variables. Such an approach was adopted so as to distinguish the individual impact of the aid, independent of the control variables.

Table 8 shows the results of panel regression analyses exercised for three different empirical specifications. Through all models, statistically significant results have been reached pertaining to the developmental impacts of ODA, ODA(t-1), IHD, IGDP, URB, IND, INV, MAL, INF, AW, AS, CL, and IQ, whereas no significant impact could have been observed for TO, PR and COR. In addition, estimations yielded inconsistent results regarding the impact of POPG. While it has been found to have a significant positive effect in model I, this impact turned to be insignificant and negative in model II where IHD, PR and COR were neglected. As for the hypotheses, regressions rendered statistically significant conclusions regarding H_1, H_2, H_3, H_4, H_7, H_8, H_9, H_{10}, H_{13}, H_{14}, H_{16} and H_{18} across all model specifications, yet no significant results could have been reached concerning the H_6, H_{15} and H_{17}. Similarly, no final judgement could

have been constructed regarding the H_5 since the result reached concerning the impact of POPG were insignificant in one of the models estimated.

When we look at the R^2 values, a performance metric that indicates the model's power in explaining the impact, it was 0.879, 0.749 and 0.084, for model I, model II and model III respectively. Hence, it can be deduced that the existence of the control variables increased the R^2 value and the robustness of the regressions accordingly.

Table 8. Results of Panel Regression Analyses

Coefficient	**I**	**II**	**III**
(Intercept)	0.26048*** (0.000)	0.14337*** (0.000)	0.48287*** (0.000)
ODA (t-1)	-0.00036*** (0.000)	-0.00004*** (0.009)	-0.00059*** (0.000)
ODA	-0.00062*** (0.000)	-0.00028*** (0.000)	-0.00089*** (0.000)
IHD	0.79043*** (0.000)	-	-
logIGDP	-0.03400** (0.000)	0.01558** (0.043)	-
URB	-0.00066*** (0.003)	0.00162*** (0.000)	-
POPG	0.01091*** (0.000)	-0.00121 (0.674)	-
TO	-0.00002 (0.147)	-0.00003*** (0.450)	-
IND	0.00058*** (0.000)	-0.00018** (0.033)	-
INV	0.00014*** (0.000)	0.00012** (0.034)	-
MAL	-0.00005*** (0.000)	-0.00005*** (0.000)	-
INF	0.00101*** (0.000)	0.00093*** (0.000)	-
AW	0.00085*** (0.001)	0.00151*** (0.000)	-
AS	0.00071*** (0.001)	0.00074** (0.025)	-
PR	0.00012 (0.663)	-	-
CL	-0.00250*** (0.000)	-0.00174** (0.028)	-
COR	-0.00211 (0.058)	-	-
IQ	0.00541*** (0.000)	0.00800*** (0.000)	-
R^2	0.879	0.749	0.084

*, **, and *** denote the significance level at %10, %5 and %1, respectively.
I: Model including the control variables having a significant correlation with HDI, aid, and one period lagged aid
II: Model including the control variables having a significant correlation with HDI (except for IHD, PR and COR), aid, and one period lagged aid
III: Model including aid and one period lagged aid
Note: Regression coefficients (β) and significance values (p) are given as β(p).

As it can be inferred from the table, foreign aid has been revealed to have a statistically significant negative impact on human development across three different

model specifications. In addition, this impact is even stronger when the control variables are not reckoned in the estimations. Besides, one period lagged aid also has a negative impact on human development for all models estimated. However, it is important to note that its effect on human development converged to be neutral when IHD, PR and COR have been neglected. When we look at the coefficients, the results imply that a one percentage point increase in aid to GNI entails a 0.00062, 0.00028 and 0.00036 of decrease in HDI, respectively in model I, II and III. So, the increased aid relative to GNI causes deteriorated human development levels. Thus, the H_1 stating that aid has a positive impact on human development was rejected across all model specifications. These results are consistent with the findings of McGillivray and Noorbakhsh (2004), Asiama and Quartey (2009), Okon (2012), Pickbourn and Ndikumana (2013), Tamer (2013) and Asongu (2014).

As for the impacts of control variables, the results reached are presented in corresponding bullets as follows;

- The initial level of human development has a statistically significant positive impact on human development. It has been revealed to be the main determinant of the human development with the highest β coefficient. Thus, H_2 is confirmed.
- In model I, the initial level of income was discovered to have a statistically significant negative impact on human development. That being said, having estimated the model II (which excludes IHD, PR and COR), IGDP was revealed to have a statistically significant positive impact on human development. Since the IHD has been found to have such a major impact on human development that can be deemed predominant, it would be convenient to rely on the results yielded

by model II when analyzing the developmental impact of the initial level of income. Hence, H_3 is confirmed.

- The results reached regarding the impact of urbanization were inconsistent through different models estimated. Estimation results of model I suggested that URB has a significant negative impact on human development, whereas results of model II indicated just the opposite. Similar to the IGDP, it would be plausible to regard the results of model II when constructing deductions over the hypothesis since predominant impact of IHD was avoided in the model II. For this reason, H_4 is confirmed.
- No consistent results could have been reached regarding the population growth through different models estimated. In model I, population growth was explored to have a statistically significant positive impact on human development. However, its impact has been found insignificantly negative when IHD, PR and COR were neglected. Thus, no judgement could have been reached regarding H_5 since the results were not consistent.
- In both model I and model II, trade openness has been revealed to have a statistically insignificant negative impact on human development. Thus, no significant results could have been reached to confirm H_6.
- Results regarding the impact of industrialization on human development were mixed. Model I suggested a statistically significant positive impact on human development while results reached estimating the model II showed just the opposite. Since the results reached through the model II has been considered in

reaching final deductions regarding the hypotheses, it can be concluded that H_7 is rejected.

- According to the results reached through both model I and model II, investment (gross capital formation) has a statistically significant positive impact on human development. H_8 is confirmed.
- According to the results reached through both model I and model II, malaria prevalence has a statistically significant negative impact on human development. H_9 is confirmed.
- According to the results reached through both model I and model II, existing technological infrastructure (access to internet) has a statistically significant positive impact on human development. H_{10} is confirmed.
- According to the results reached through both model I and model II, access to water has a statistically significant positive impact on human development. H_{13} is confirmed.
- According to the results reached through both model I and model II, access to sanitation has a statistically significant positive impact on human development. H_{14} is confirmed.
- Results regarding the impact of the level of democratization on human development were mixed. A statistically insignificant positive impact was found regarding the political rights index in model I, whereas a significant negative impact has been reached for the developmental impact of the civil liberties index in both model I and model II. Therefore, H_{16} is confirmed, whilst no significant conclusions could have been drawn for H_{15}. Since the positive impact spotted for

the PR is insignificant, interpretations can be predicated upon the results regarding the CL. Hence, all in all, it can be deduced that the impact of the level of democratization on human development is positive, due to the fact that a decrease in both mentioned indices implies an improvement in democracy.

- According to the results reached estimating the model I, control of corruption index has a statistically insignificant negative impact on human development. Thus, no significant results could have been reached to confirm H_{17}.
- According to the results reached through both model I and model II, institutional quality measured by the government effectiveness index has a statistically significant positive impact on human development. Therefore, H_{18} is confirmed.

Overall, statistically significant patterns could have been observed for 12 out of 18 hypotheses established in this study. Ten hypotheses have been confirmed, whereas two of them have been rejected. The variables (habitants' health expenditures and agricultural land endowment) upon which the H_{11} and H_{12} have been established have not been included in the regressions. Thus, no results have been attained regarding them. On the other hand, no conclusions could have been drawn for H_6, H_{15}, H_{17}, as the results reached regarding them were not statistically significant. Likewise, no overall judgement could have been constructed regarding H_5 since an insignificant impact have been observed by estimating the model II, whereas a significant positive impact was reported by the estimation results of model I.

The final equations drawn upon the results of the panel regression analyses can be presented in equational form as follows:

(I) $HDI_{it} = 0.26048 - 0.00036 * AID_{it-1} - 0.00062 * AID_{it} + 0.79043 * IHD_{it} - 0.03400 * logIGDP_{it} - 0.00066 * URB_{it} + 0.01091 * POPG_{it} - 0.00002 * TO_{it} + 0.00058 * IND_{it} + 0.00014 * INV_{it} - 0.00005 * MAL_{it} + 0.00101 * INF_{it} + 0.00085 * AW_{it} + 0.00071 * AS_{it} + 0.00012 * PR_{it} - 0.0025 * CL_{it} - 0.00211 * COR_{it} + 0.00541 * IQ_{it}$

(II) $HDI_{it} = 0.14337 - 0.00004 * AID_{it-1} - 0.00028 * AID_{it} + 0.01558 * logIGDP_{it} + 0.00162 * URB_{it} - 0.00121 * POPG_{it} - 0.00003 * TO_{it} - 0.00018 * IND_{it} + 0.00012 * INV_{it} - 0.00005 * MAL_{it} + 0.00093 * INF_{it} + 0.00151 * AW_{it} + 0.00074 * AS_{it} - 0.00174 * CL_{it} + 0.00800 * IQ_{it}$

(III) $HDI_{it} = 0.48287 - 0.00059 * AID_{it-1} - 0.00089 * AID_{it}$

CHAPTER 4

CONCLUSIONS AND POLICY IMPLICATIONS

In this thesis, the impact of the ODA in-flows on human development has been analyzed. This study has adopted a regional approach, focusing on 35 SSA countries with the annual data corresponding to the interval between 2000-2017. In the empirical analyses, foreign aids provided by donor countries and multilateral institutions have been considered as independent variables, relative to the GNI figures of the corresponding years. In addition to this, 15 and 12 different control variables have been included in panel regression models I and II respectively. HDI compiled by UNDP has been used as a proxy of human development.

Three different models have been developed. The first model covers aid and one period lagged aid as well as all control variables. Having estimated the model I, it has been realized that human development was predominantly determined by the initial level of human development (with a β coefficient value of 0.79043) and the existence of initial level of income has the power to replenish the absence of initial level of human development. On the other hand, political rights and corruption have been found to be of no significant impact on human development, and civil liberties and institutional quality may substitute these variables to some extent. For these reasons, initial level of human development, political rights and control of corruption indices have been neglected in the second model. Apart from these, a third model that comprises only the aid and one period lagged aid have been established with a motivation to better shed light on the individual impact of aid on human development. These models have been estimated

employing the general FGLS estimator. The R^2 statistics shown by the model I, II and. III were %87.9, %74.9 and %8.4, respectively.

Aid-effectiveness has been a highly debated issue since the 1960s. The majority of the studies in the literature have focused on conventional parameters such as GDP growth, investments, savings, etc. There was limited but growing literature concentrating on the developmental progress. Methodological approaches of the previous researchers to the topic also differ. No optimum and widely accepted methodology in the measurement of aid-effectiveness could have been put forward to date. Not surprisingly, the conclusions suggested by the previous literature on aid-effectiveness were mixed and highly criticized over a variety of methodological points.

The aggregate impact of aid has been tried to be revealed in this thesis. In other words, its specific forms such as programme aid, budgetary support, debt relief, etc. have not been accounted for. The main reason behind this preference is the thought that all aid flows must have reflections on the development level of the recipient country with no excuses, regardless of the form which they have taken. That is, an external flow must have a development enhancing impact if it is called “development assistance”.

As mentioned in the previous chapter, aid flows have been discovered to have a negative impact on human development across all model specifications glanced in this study. These results are in line with the findings of McGillivray and Noorbakhsh (2004), Asiama and Quartey (2009), Okon (2012), Pickbourn and Ndikumana (2013), Tamer (2013), and Asongu (2014).

As Yontcheva and Masud (2005) summarized, there are three main points in the literature, that have been referred the most in justifying frustrating results reached on the aid-effectiveness. First, these findings may be explained by the misuse of the aid flows.

The aid flows might have been used by the governments of recipient countries, in such a policy context that does not focus on human development as following non-productive and even deconstructive agendas. Moreover, misallocation of aids could be another factor laying behind the ineffectiveness of the aids. These flows might have been allocated with no developmental focus but a colonial/strategic rationale. Last but not the least, GDP growth might not be a suitable parameter in measuring the effectiveness of aid since aid might be channeled to the poor in a way to increase consumption, not to investments. First two are also valid for the findings of this study, however, the third does not apply in our case since the mentioned problem has been overcome by using the HDI as a parameter of progress.

Aid to GNI ratio can also be seen as a proxy of aid dependency (World Bank, n.d.-d) which had been vastly debated within the leftist circles till the 1980s (Bräutigam & Knack, 2004). The negative results regarding the impact of foreign aids may also be attributed to the aid dependency problem which leads developing countries to rely increasingly more on external aids rather than seeking ways to bolster the economic productivity depending on their original sources. Thus, it would not be wrong to suggest that the aid dependency has a negative impact on human development, depending on the findings of this study.

It is now an incontestable reality that the European countries recovered very well after the WWII utilizing the aids that have been flowed within the Marshall Plan. Similarly, the Asia region has shown a considerably quick and successful development performance in the last half-century, and the role of foreign aid in this development story is undeniable. In essence, these regions can be good examples for the SSA countries and can be seen as a laboratory for further comparative studies.

As for the results regarding the control variables, statistically significant positive impacts have been revealed for the initial level of human development, initial level of income, urbanization, investments, existing technological infrastructure (access to the internet), access to water, access to sanitation, and institutional quality, while the impacts of industrialization, malaria prevalence and civil liberties index have been discovered to be significantly negative. No significant evidence was found regarding the developmental impacts of trade openness, political rights index, and control of corruption index. Regarding the population growth, no overall conclusion could have been drawn since its impact was revealed to be insignificant by estimating the model II, even if the results reached through the model I suggested a significant positive impact. It is important to note that a negative impact of the civil liberties index means a positive impact of the democratization level on human development, as the lower index values imply more democratic settings.

As explained at the end of previous chapter, model I and II rendered contradictory results regarding the impacts of initial level of income, urbanization and industrialization. Final deductions upon these variables have been made depending on the results reached through the model II since this model avoided the dominance of initial level of human development which has been observed in the model I.

The negative results reached through the model I concerning the impacts of the initial level of income, urbanization, population growth were surprising since just the opposites were posited for all of them in this thesis.

For the initial level of income, it is an indicator that is somehow included in the initial human development since it is one of three dimensions on which the HDI is built. Therefore, results may indicate that the education and health dimensions of initial HDI

are stronger determinants of the current level of human development, in comparison with the income dimension.

Regarding the urbanization levels, the negative impact might be stemming from two different factors, one is related to health and education, and one is pertaining to the income dimension of human development. The first, urbanization process might have accelerated faster than the acceleration of the infrastructure. In other words, the progress in the provision of drinking water, sanitation, and telecommunication services, the impacts of which have been proved to be positive in this study, might have not been able to compensate for the burden caused by the intensifying population in the urban areas. The second factor may be the insufficient employment opportunities in the urban areas. The people are moving from the rural areas to the urban areas with a motivation and hope to attain better standards of living, even if they have already a preoccupation through which they can earn money for living. In this sense, the SSA economies might have failed to create sufficient employment opportunities for the newcomers in the urban areas, which may cause a deterioration in the human development level, affecting its income dimension.

Having estimated the model II, the surprising results regarding the initial level of income and urbanization have turned to be positive which is aligned with the expectations of this thesis. Nevertheless, the impact of industrialization has been suggested to be significantly negative which is also in contrast with the expectations of this thesis. This finding might be justified with reference to the repercussions/negative externalities of the industrialization process, such as pollution, deforestation, occupational accidents, etc.

Depending on the results reached regarding the control variables, the suggestions which may be offered to improve the quality of the aid activities can be listed as follows:

- Donors should create thematic aid programs focusing more on specific investment projects and/or on the obtainment of production machinery rather than providing budgetary/debt relief support to the countries having weak institutional/policy quality,
- The combat against malaria and other diseases should be funded more,
- The aid funds should be oriented to the enhancement of the people's access to drinking water, sanitation, and communication services,
- An effective and impartial multilateral diplomacy frame that actively monitors and reports the state of democratization in the aid recipient countries should be created and these reports should be taken into consideration in allocation of aids without any secret colonial/strategic/pragmatic agendas,
- Non-governmental organizations conducting social projects on individual rights, associational and organizational rights, rule of law, and freedom of expression/belief should be funded more,
- Bilateral cooperation grounds should be established in order to provide the well-functioning of the recipient governments and to increase the institutional quality.

All in all, foreign aid practices have been sustained by donor countries and multilateral institutions since WWII, and a considerable amount of money has flowed to the SSA region. In this study, it has been revealed that aids have been ineffective in enhancing human development level of the region across three different empirical

specifications and some suggestions have been brought forward to increase the effectiveness of the aid activities.

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