



**FOREIGN AID, CONSUMPTION SMOOTHING AND WELFARE GAINS IN
LEAST DEVELOPED COUNTRIES**

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ÖZET

DAHA AZ GELİŞMİŞ ÜLKELERDE YABANCI YARDIM, TÜKETİM DÜZENLEME VE REFAH KAZANIMLARI

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Bu tez, dış yardım kanallarının hane halkı tüketimini yumuşatmadaki etkililiğini, belirleyicilerini ve refah kazanımlarını incelemektedir. Bunu yaparken, 1975-2016 döneminde 48 Az Gelişmiş Ülke (EAGÜ'ler) için Dünya bankası göstergeler veri tabanından, BM veri tabanından ve OECD veri tabanından veriler toplanmıştır. Asdrubali ve ark. (1996) tarafından geliştirilen ve Hadsri (2006), Kose ve ark. (2015) Bali ve ark. (2015) tarafından geliştirilen metodolojiyi kullanarak bir etkileşim değişkeni (dış yardım ve yurtiçi üretim ve dünya üretimindeki farklılıklar) yarattık. Ülke başına ve tüm örneklem için tüketimi yumuşatan ülkeyi tahmin yapıldı. Ayrıca, ülkeler arasındaki değişkenliği açıklayan faktörleri belirlemek için bir kesit denklemi geliştirdik ve son olarak tüketim yardımı ile dış yardım yoluyla ilişkilendirilen refah kazanımlarını elde ettik. Sonuçlar, kısmi tüketim yumuşatma hipotezinin reddedilmediğini göstermektedir. Dış yardım yoluyla ortalama tüketim yumuşatma seviyeleri oldukça düşüktür (% -0,28) ve gelişmekte olan ülkelerle ilgili önceki çalışmaları doğrulamaktadır. Ayrıca, dış yardım yoluyla tüketimin yumuşatılması % -5,73 (Butan) ile % 9,36 (Yemen) arasında değişmektedir ve gelir eşitsizliği, finans sektörü puanı, ekonomik yönetim, yolsuzluk ve şeffaflık algılama endeksi gibi ülkeye özgü faktörlerle açıklanmaktadır. Tüm örnek için refah kazancı % 0,89'dur. Bu nedenle, politika yapımcıların daha iyi bir yardım etkinliği için bu değişkenleri dahil etmeleri gerekmektedir. Ayrıca, yardımın yıllar içindeki değişkenliği nedeniyle, alıcı ülkeler, işçi dövizleri ve vergilerin iyileştirilmesi gibi başka kaynak seferber etme alternatifleri stratejileri aranmalıdır.

Anahtar Kelimeler: Dış yardım, Tüketim yumuşatma, Refah kazancı, Az Gelişmiş Ülkeler

ABSTRACT

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This thesis examines the effectiveness, the determinants and the welfare gains of foreign aid channel in smoothing out household consumption. In doing so, data have been collected from World bank indicators database, UN database and OECD database over the period 1975-2016 for 48 Least Developed Countries (LDCs). Using the methodology developed by Asdrubali et al (1996) and adapted by Hadsri (2006), Kose et al (2015) Bali et al (2015), we created an interaction variable (foreign aid and the differences domestic output and world output) and estimate the consumption smoothing country per country and for the whole sample. Moreover, we develop a cross-section equation to determine the explaining factors of variability between countries and finally we derived the welfare gains associate with the consumption smoothing via foreign aid. The results indicate that the hypothesis of partial consumption smoothing is not rejected. The average levels of consumption smoothing via foreign aid is quite low (-0,28%) and confirm previous studies on developing countries. Furthermore, consumption smoothing via foreign aid range from -5,73 % (Bhutan) to 9,36 % (Yemen) and are explain by country-specific factors such as income inequality, financial sector score, economic management, corruption and transparency perception index. The welfare gains for the whole sample is 0,89 %. There is therefore a necessity for policy makers to include these variables for a better effectiveness of aid. Furthermore, due the volatility of aid over the years, recipient countries should look for other strategies of resources mobilization alternatives such as remittances and improvements of taxes.

Keywords: Foreign aid, Consumption smoothing, Welfare gains, Least Developed Countries

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ABBREVIATIONS

ASY: Adsrubali-Sorensen-Yosha

CAEMC: Central African Economic and Monetary Community

CAPM: Capital Asset Pricing Model

DAC: Development Assistance Committee

DNI: Disposable National Income

DRC: Democratic Republic of Congo

GDP: Gross Domestic Product

GLS: General Least Square

GNP: Gross National Product

LDCs : Least Developed Countries

LFI: Less Financially Integrated Countries

LICs: Low-Income Countries

NI: National Income

ODA: Official Development Assistance

OECD: Organisation for Economic Co-operation and Development

PbR: Payment by Results

TADAT: Tax Administration Diagnostic Assessment Tool

UN: United Nations

VAT: Value-Added Tax

WAEMU: West African Economic and Monetary Union

WDI: World Development Indicators

WG: Welfare Gains



1. INTRODUCTION

1.1. Conceptual Framework

It is generally acknowledged that less developed economies are characterized by strong macroeconomic and exogenous shocks (Kodama,2013). Some shocks are beyond control (climatic and weather shocks) and leave people, households and countries exposed to risk, reduction of well-being and severe hardship (World Bank,2001; Dercon,2004). Roughly 67,86¹ percent of workers in these countries are employed in agriculture. Moreover, an essential feature of agricultural households (characterized by incomplete markets) is the strong link between output and consumption. Indeed, their incomes, in large part, are determined by weather conditions and volatility of prices which affect their consumption decisions. Consequently, high volatility² of outputs and consumption per capita has been recorded in Least Developed Countries (LDCs). Over the last 30 years, consumption volatility in LDCs has been two to six times greater than industrialized countries (Pallage et al,2007). Two main reasons for these excessive fluctuations are: The exposure to external shocks and the lack of effective stabilization policies (Houndonougbo,2017). Among stabilization policies are consumption smoothing policies. Consumption smoothing captures the desire of people to have a stable path of consumption.

The succession of economic crisis, external shocks, high instability in developing countries have thrown millions of people into severe poverty, with high consumption volatility and its corollary of malnutrition³. The drop of consumption in the category of poor was even larger according to some studies (Ravallion and Chaudhuri,1997; Morduch,1999). Indeed, consumption of basic goods such as rice and other staples fall drastically following income shocks (Frankenberg et al 2003, Chetty and Looney 2005). For low-income countries (LICs), finding mechanisms to stabilize consumption can affect the lives of households (Case, 1995). Several studies indicate that households are taking very costly measures such as cutting expenditure on children education or disabled dependents to maintain stable consumption (Case,1995).Moreover, LDCs are very

¹2017 World Bank database

²By “Volatility”, we mean volatility around its growth trends

³WHO (2002) identifies childhood and maternal malnutrition as a major health risk in developing countries

limited in term of access to credits, insurance, networks and financial markets that allow them to smooth consumption easily in the face of negative shocks, which make them extremely reliant on domestic output. Consequently, consumers are either consuming their income or their savings which are both dependent on domestic output; therefore, when output declines, their consumption also falls, and the welfare cost associated is one to two orders of magnitude than developed countries (Obstfeld,1994; Pallage and Robe 2003). The ability to reduce consumption fluctuation is an important step towards improving economic welfare. This underscores the importance of consumption smoothing for poor households in LDCs.

According to macroeconomic concept of consumption smoothing, household consumption should not fluctuate with local business cycles and higher integration between countries means higher risk sharing in case of idiosyncratic shocks. A common consensus in the literature is that benefits of social insurance and welfare loss are small if consumption doesn't fluctuate too much in the face of income shocks (Chetty and Looney,2005). Theoretically, consumption is less volatile than income. However, empirically, consumption volatility in LDCs is actually higher than income volatility (Kodama,2013). There are therefore a potential welfare gains resulting from smoothing out consumption in LDCs.

Through the process of cross-border diversification of its assets, a country can delink the relationship between domestic output and domestic consumption in such manner that the latter totally depend on world output growth (Hadzi-Vaskov,2006). This is known in the literature as international risk sharing. Risk sharing takes place through different channels and represent another way of consumption smoothing. Theoretically, Asdrubali et al (1996) identify three standards risk sharing channels through which countries can smooth their consumption: Capital markets, Credits markets and Transfers. Through capital markets, countries by holding securities on production in other regions or other countries, will depend less on local conditions. As a result, consumption will be less related to domestic production since part of the income has an external origin. Consumption risk channel can take place through transfers. Following a negative shock on the output of a specific region, the country will provide assistance to the affected region (budget transfers or tax cuts) in order to absorb this transitional shock, which will also lead to a decorrelation of households' consumption vis-à-vis the national output.

Finally, through credit markets, a country that experiences a shock may absorb some of its imbalance by borrowing from another country in a surplus position. These channels are very established and clear for the group of advanced economies (see Asdrubali et al,1996; Mélitz and Zumer, 1999; Asdrubali and Kim,2004; Marinheiro 2005; Sorensen et al. 2005 and Afonso and Furceri, 2008)). However, it might not be as important for developing countries. The absence or quasi-absence of financial markets in LDCs and a much smaller weight of social insurance program in these countries (Chetty and Looney,2005) bring us to explore in this thesis the consumption smoothing power of foreign aid in this thesis.

Foreign aid⁴ has long been recognized as an important tool to promote welfare, growth, poverty alleviation, and to finance many projects and programs in less developed part of the World. After the colonial era, foreign aid has been an important tool for developed countries to help achieve better living conditions in developing countries (Calderon et al,2006). More specifically, foreign aid is associated with strong multiplier effects through higher household expenditures. Over the past 40 years, foreign aid has significantly promoted the development in Low-Income Countries (LICs) in educational, medico-social, economic, infrastructure, and even cultural aspect (Ardnt et al, 2010). The total foreign aid inflows in developing countries grew from US\$60,174.56 million to US\$ 3,153 billion from 1994 to 2016 and could therefore play a potential role in smoothing domestic shocks (Yehoue, 2011). In the next figure, we present the evolution of the proportion of foreign aid allocated to LDCs⁵:

⁴Food aid is a component of foreign aid

⁵ Data are in current USD

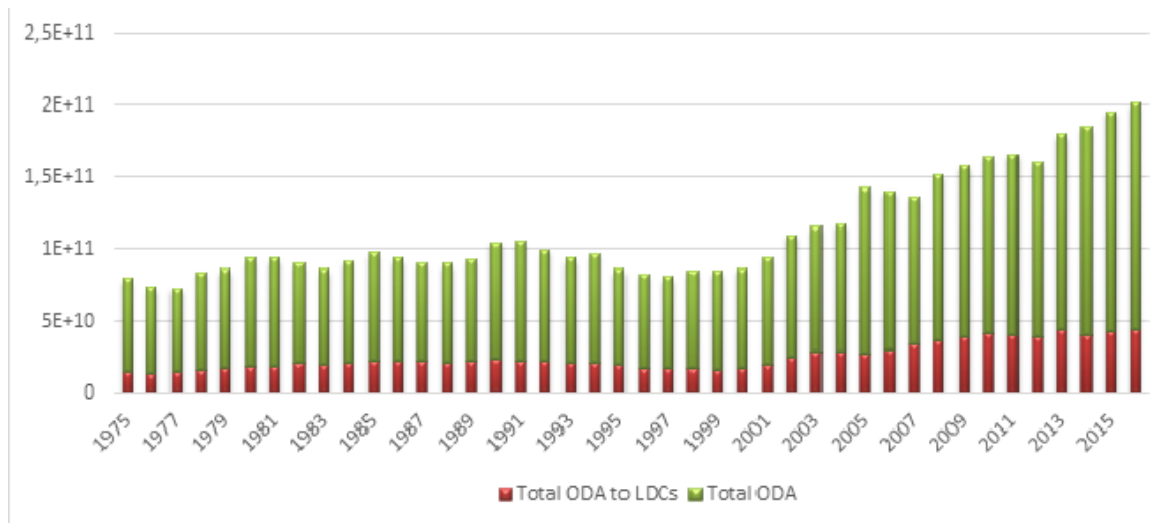


Figure 1 : *Share of ODA in Least Developed Countries (Author using World Bank Development Indicators 2017)*

It indicates that over the years, the proportion of foreign aid to LDCs had an upward trend. However, the evolution is characterized by increases and decreases according to the years, testifying the evolution of motivations that drive the donor countries over the years. The evolution of aid reflects the changes that occurred in the international system following events such as decolonization, the Cold War, the acceleration of globalization, the indebtedness of poor countries, or even natural disasters. The 70s and 80s are indeed characterized by a substantial increase in the amount development aid from \$ 41 billion in 1970 to \$ 87 billion in 1990. The very strong growth of western countries during the Thirty Glorious allowed to free up additional resources for aid. But the political stakes of this period characterized by the cold war and division of the world into blocks of influence and interest largely explain this increase in international aid. Based on the declaration Chair Erik Solheim in 2014, it is believed that the amount of official development assistance (ODA) toward LDCs is projected to continue their upward climb over the coming years. This is in line with a pledge by development assistance committee (DAC) members in December 2014.

1.2 Problematic

There has been some widespread work done on the effect of foreign aid flows in recipient countries both in microeconomic (Azam and Gubert, 2005) and macroeconomic perspectives (e.g. see Chauvet and Guillaumont, 2009; Arndt et al., 2010). Historically, aid has been analyzed through different aspects: its impact on growth (Burnside and Dollar, 2000; Asiedu and Nandwa, 2007; Boone, P., 1994; Minoiu and Reddy, 2009 etc...), on poverty alleviation (Collier. and Dollar, 2002; Arvin and Barillas, 2002; Sawada, 2009) on democracy (Knack, 2004; Brautigam and Knack, 2004), on inequality (Calderon et al, 2009; Herzer and Nunnenkamp, 2012), etc... and its effectiveness over the years has been often questioned. Foreign aid may be beneficial in other aspects, such as improving consumption smoothing and providing welfare gains from risk-sharing in LDCs. In principle, foreign aid can help buffer consumption from output fluctuations. It can be used to finance consumption during bad times. It may also help to smooth out poor household's consumption without automatically having a perceptible impact on average growth. While constituting an important objective of international aid, to our knowledge, there is very limited knowledge on this issue. Very little is known about its role in terms of consumption smoothing in LDCs. Regarding the exogenous character of shocks in LDCs (Köse, 2002), foreign aid has a potential of first order (Pallage et al, 2006).

A possible characteristic of foreign aid is that it could be countercyclical when recipient countries face large adverse shocks during recession period (Dabla-Norris et al, 2016) and within countries with greatest needs (Gupta et al, 2003). Particularly, foreign aid is the main international safety nets for developing countries (Shapouri and Rosen, 2001; Barret, 2002). Many limited-resource countries are heavily reliant on external sources of income such as foreign aid (Pallage et Robe, 2000). It helps offset food shortage due to shortfalls and volatility of commodity prices. Food accounts for at least 60 percent of total consumption expending among poor households in some countries (Van Holst Pellekaan, 2001). Therefore, foreign aid constitutes an important flow for poor households and could help stabilize their consumption from output negative shocks. It supports poor and vulnerable countries. Even though, foreign aid is related to donors' economic conditions of the donors, the total foreign aid towards low income countries is

still rising⁶ (figure 2). Comparing to others financial flows, foreign aid is still important and conserve an upward trend despite a steady rise of remittances this decade. On the other hand, foreign direct investments have been driven away. This mainly due to a fall

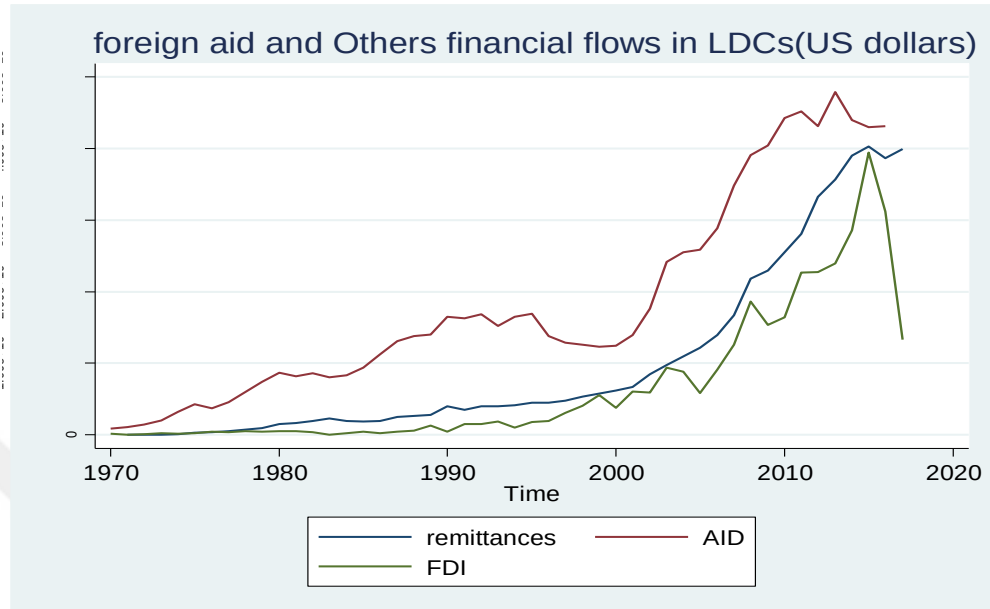


Figure 2: Foreign aid and others financial flows in Least Developed Countries (Author's calculations using 2017 WDI)

of indicators of stability in LDCs. Consequently, despite an upward trend, foreign aid remains highly volatile compared to others flows (figure 3)

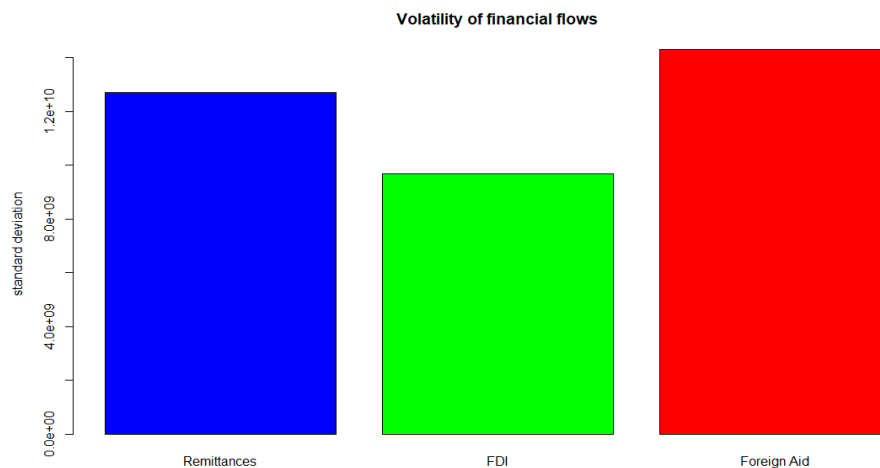


Figure 3: Volatility of financial flows (Author's calculation using 2017 WDI)

However, LDCs which have benefited from international aid since their independence, have hardly changed from their initial situation after half a century of

⁶See <https://data.oecd.org/oda/> : The total foreign aid rose (in absolute value) from US\$ 424,486 million in 2000 to US\$ 3,153 billion in 2016

development aid. Many of them have even regressed. Our objective in this thesis is to understand the consumption smoothing potential of foreign aid when switching to an aid policy that aims at consumption smoothing in recipient countries. We are motivated by the increasing importance of these flows as a possible external source of consumption risk sharing channel and the possible impact of foreign aid on household consumption smoothing without having a discernible impact on growth. This study is related to the larger field of international consumption smoothing channels. A strand of studies originated by the seminal papers of Adsrubali et al (1996) and Sorensen and Yosha (1998). A survey of this strand shows that risk channels for developing countries are relatively sparse. Nevertheless, there is a very little evidence on the consumption smoothing role of foreign aid besides other channels (net factor income and net savings). Understanding the vulnerability of LDCs to shocks and how consumption smoothing is critical to public policy and policy makers, investigating on coping mechanisms and channels that may mitigate shocks is the first step in establishing effective policies. Foreign aid could provide an important welfare gains and smoothing role in countries where consumption is highly volatile (Prasad et al. 2003; Imbs and Mauro 2007). The real challenge in the literature is the identification of economic policies to be carried out in order to guarantee the net benefits in poor countries.

1.3 Research Questions, Objectives and Hypotheses

This thesis finds out the contribution of foreign aid in smoothing consumption in LDCs and the welfare gains derived from it. Specially this thesis focuses on three questions:

- “What is the impact of foreign aid in consumption smoothing in LDCs?”
- “What are the factors explaining the difference in foreign aid smoothing power between countries?”
- “What are the welfare gains derived from elimination of consumption volatility in LDCs?”

This thesis therefore investigates the ability of foreign aid to smooth consumption, reduce the impact of output fluctuations on consumption and also analyse the welfare gains derived from it.

Regarding the importance of foreign aid in absorbing domestic shocks in LDCs, it is crucial to understand this channel of consumption risk sharing for macroeconomic stability in these economies.

To answer the above research questions, this thesis considered the following specific objectives:

- Assess the consumption smoothing via foreign aid for each country
- Assess the determinants the consumption smoothing via foreign aid in LDCs
- Quantify the potential welfare gains of consumption smoothing via foreign aid

Regarding the debate in LDCs on the needs of policy to cope with shocks, it is therefore reasonable in this thesis to analyse foreign aid through these objectives

Based on above specific objectives, we formulate testable hypotheses to capture our different objectives. We identify 3 main testable hypotheses.

Hypothesis 1: The consumption smoothing via foreign aid is positive and significant for each country

We base our hypothesis on the fact that foreign aid flow is an important source of external finance for LDCs and constitutes an important support for low income countries and rise steeply in the face of large adverse shocks (Dabla-Norris et al,2016). Therefore, it could have a potential smoothing role.

Hypothesis 2: Economic indicators (gini index and corruption-transparency score) are the main determinant of consumption risk sharing through foreign aid.

In LDCs, corruption and income inequality are important, and we believe that solving it will contribute to the effectiveness of smoothing role of foreign aid.

Hypothesis 3: The welfare gains derived from consumption smoothing is at least superior at 5% and significant for all countries.

LDCs are characterized by high volatility of their consumption/domestic output. The LDCs are constituted by the low-level group of income in the international community.

Despite significant differences between them, they all present the lowest human development and food security index rating. The living conditions in LDCs is quite poor making population highly exposed to economic shocks. Foreign aid may play an important cushioning role, stabilize consumption and provide welfare gain to recipient countries

1.4 Motivations

To the best of our knowledge, Gupta et al (2003) Yehoue (2011), Pallage et al (2007), Balli et al (2015) and Gardberg (2016) have analysed the risk sharing channel of foreign aid. A major limitation of previous studies is that they only report the average estimate of smoothing for the all sample (except Gardberg,2016). In doing so, they assume that the consumption smoothing via foreign aid is uniform across countries. Two main reasons can explain the cross-countries variability in the degree of risk sharing via foreign aid: First, countries' dependence on foreign aid are different; Second the cyclicity of foreign aid regarding the countries⁷. Countries differ in their productive and financial structures, regulations, economic management, participation in international trade. These differences may affect the degree of absorption of aggregate shocks, the quality of smoothing channels and cause the variability across countries. Unlike (Gupta et al, 2003) who focus on the consumption smoothing role of global food aid and Balli et al (2015) who focus on income smoothing role of foreign aid, this thesis contributes to this field by extending the analysis from global food aid to the total foreign aid received by LDCs and analyse the degree of consumption smoothing rather than income smoothing of each country. Furthermore, our empirical strategy differs from Balli et al (2015), we follow the standard approach developed in the literature and investigate on the co-movement between domestic consumption and output. Like Gardberg (2016), we also identify the determinants of consumption smoothing; However, we focus our analysis only on the determinants of consumption smoothing via foreign aid, especially on country specific factors and we go further to measure the welfare gains from consumption smoothing.

⁷Depending on country, foreign aid may reflect a procyclical or countercyclical patterns which therefore reveal a difference in the extent of smoothing

Since risk sharing between countries can provide substantial gains, it is therefore important to deeply understand the channels through which it is taking place. Specifically, we examine the role of foreign aid in smoothing consumption in LDCs against idiosyncratic output fluctuations⁸.

1.5 Remainder of the Thesis

The thesis is divided into five sections and our dissertation is focused on recipient countries (LDCs). The second section provides a literature review on foreign aid, consumption smoothing and welfare gains with a particular interest on empirical studies. The empirical evidence allows the understanding of authors econometric specifications and give a view of knowledge from existing works. It also indicates the lack/presence of consensus in the effectiveness of foreign aid on different targets and goes further by extending the analysis on a new target: consumption smoothing. It investigates on the ability of foreign aid to be a potential channel of consumption smoothing in LDCs and discusses about the welfare gains associated with smoothing fluctuations. It also gives a further insight on how consumption smoothing via foreign aid can contribute to the gap in the literature. In section 3, we describe the methodology, the estimation procedure and data source. In the methodology, we start by showing the origins of the model and we, then, extend it by adding our targeted variable (foreign aid) following the specification developed by Sorensen et al (2005), Hadzi (2006) and Kose et al (2015). This section also defines the data and explains the intuitions behind choosing them. In section 4, we estimate the model and present empirical results, and then we discuss about economic policy recommendations. In section 5, we provide 2 possible alternatives to mobilize revenues in case of foreign aid decline. Finally, we conclude by giving a brief summary and some concluding remarks.

⁸This is in fact one of the possible channels of risk sharing for low income countries

2. LITERATURE REVIEW

Foreign aid goes back to the 50s and 60s with the main target of helping developing countries. This period was characterized by the end of the second World War, the famous Marshall plan for the rebuilding of devastated countries and the independence of former colonies in need of huge financial flows to start their development. The success of the Marshall Plan in the reconstruction of post-war Europe has indeed inspired the implementation of aid programs, the Harrod-Domar model having served as a basis. Unlike the motivation of humanism that sustained it, aid programs are motivated by various other reasons. These reasons have been discussed, documented and depending on the prevalence of any reason at a given time, aid volumes vary (cyclicality of foreign aid discussed in the section 2.1). These reasons also explain certain differences in the allocation of aid according to the regions of destination. There are three main categories of motivations for foreign aid: personal interest of donors (egoism) and ethical, moral (justice) and humanitarian considerations (altruism).

Since its origins, over 2000 billion US dollars have been allocated to poor countries in the form of development aid (Moyo, 2009). The amount of total aid was 145,7 billion dollars in 2016 according to the OECD. Aid Donors have traditionally been rich countries (member of the Development Assistance Committee) with two main allocation channels that are: Multilateral channel and Bilateral channel. Bilateral aid constitutes most of development aid, almost three quarters according to OECD (2010). However, these large volumes of aid seem to not having achieved its stated goal of eliminating poverty despite 50 years of allocation. Evidence suggests that output volatility, propensity to crisis and faulty policies and structural issues are recurrent characteristics and sources of serious impediments to development in developing countries. Consumption volatility is even higher than output volatility, makes consumers worse off and the welfare loss associated is great (Loayza et al, 2007). The empirical relation between consumption volatility and poverty is undeniable, making consumption smoothing a development concern. Regarding the amount provided to LDCs, foreign aid could play a crucial role in smoothing consumption.

This section is structured into 3 sub-sections. Sub-section 2.1 begins with stylized facts about consumption volatility and welfare loss in LDCs. It examines through different graphs the consumption and output volatility in LDCs. This section also

summarizes main sources and consequences of consumption volatility in developing countries. We focus on the empirical findings because many of connections can be easily justified casually and the level of relevance is first and foremost an empirical question. Sub-section 2.2 examines the concept of consumption risk sharing (consumption smoothing) and explain its origins. It then discusses about studies that analyses consumption risk channels and also analyse the theoretical and empirical foundation of risk sharing. We highlight the fact that most of studies have been oriented to developed countries and reach conclusive results in these countries. However, little is known in developing countries (especially effective mechanisms risk coping). We demonstrate that standard channels of risk sharing are weak in developing countries. Therefore, there is need for alternatives. This section also provides criticisms on the standard model of risk sharing developed by Asdrubali et al (1996) and give some of the limitations of this model.

Section 2.3 discusses about foreign aid as a potential channel of consumption smoothing in LDCs. This starts with a background on the effectiveness of foreign aid. It examines the stylized facts on aid in the literature (sub-section 2.3.1). Most of studies orients their analysis on the impact of foreign aid on economic growth and poverty; Some summarize the cyclical features of foreign aid. This section goes further and discusses the subsequent studies which employ more sophisticated econometric techniques to capture the impact of foreign aid on main macroeconomic variables. The development and extension of new targets of aid associated with new methodological techniques have opened up new possibilities in analysing features of foreign aid (microeconomic or macroeconomic investigations). Section 2.3 also documents the inconclusive results found by studies and compare studies in terms of results. After discussing the literature on the effect of foreign aid on it main targets, the subsection 2.3.2 review studies that argue how foreign can smooth consumption and cope with shocks in developing countries. Finally, section 2.4 discusses about welfare gains.

2.1 Consumption Volatility and Welfare Loss in developing countries

A number of studies have highlighted the concept of volatility and its effects. While a number of empirical studies indicated a declining volatility in developed

countries (Blanchard et Simon,2001; Loayza et al,2007), some developing countries still experience large consumption and output volatility. Over the last 50 years, output volatility in developing countries was far higher than that of advanced countries (figure 4). This volatility is estimated at 2 or 3 times higher in developing countries compared to advanced countries (Pallage and Robe, 2000). The stylized facts on volatility depicted in figure 4 show the inefficiency of financial market and domestic policies to smooth out consumption in developing countries. It indicates the standard deviation of GDP per capita and private consumption. Regarding the standard deviations, developing countries have the highest volatility. Unlike, standard real business cycle which predicts that consumption fluctuations should be smoother than output, in many low-income countries, the volatility of consumption is actually greater than that of output (Azzimonti and Talbert,2011; Kodama,2013). This volatility, in general, makes consumers worse off and entails welfare losses which range from 0,1% to 4,3% (Lucas,1987; Epstein and Zin,1989), while Krebs (2007) considers it to be ranged from 0,2% to 9%. Why is consumption in developing countries so volatile? and what are the main consequences in these countries?

Macroeconomic volatility is a critical issue in developing countries. It has been for long a central point of investigation, especially after the 1980s where the economic effects of volatility were under-estimated and considered as minor (Lucas,1988). There are two strands of literature analysing consumption and output volatility: international business cycles ⁹and literature that largely investigate on determinants of volatility. In summary, there was no consensus on the relationship between volatility and other macroeconomic variables such as economic growth (Caporale and McKiernan,1989). According to macroeconomic theory, its impact may be positive, neutral or negative (Alimi,2016). Whatever the type of data used (cross-section, times series and panel data), mixed results are found (Fountas and Karanasos,2006). Substantial empirical literature provided evidence of negative effect of volatility on growth and thus on future consumption (Bruno and Easterly, 1995; Hnatkovska and loayza, 2005; etc...). They all indicate that the indirect welfare loss associated is accentuated in developing countries.

⁹It focused on stylized facts of business cycles decomposing fluctuations

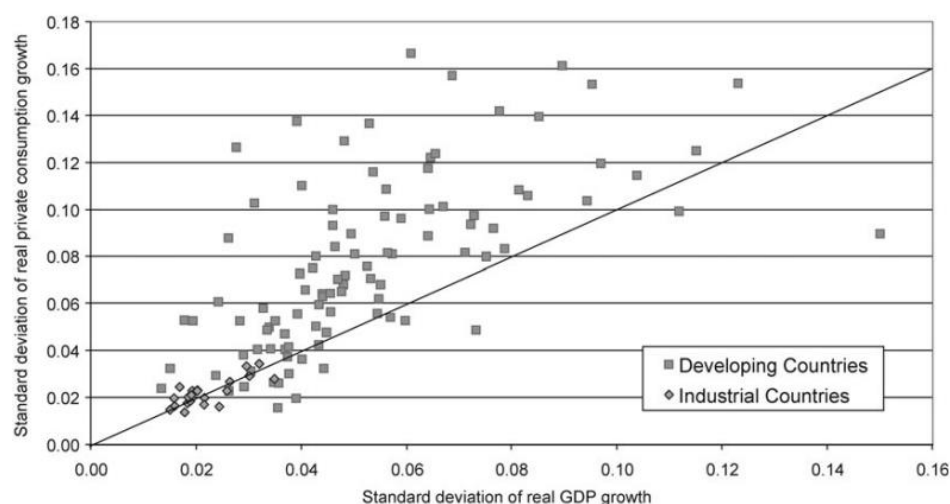


Figure 4: *Output Volatility and Consumption Volatility (Loayza et al (2007))*

Several studies estimated that the welfare loss from consumption volatility in LDCs is equal to reducing household consumption by 10 percent a year (Atahasoulis and van Wincoop, 2000, Pallage and Robe, 2003). Furthermore, volatility is tightly related to the high instability in developing countries (by the standard of OECD) and tend to depress investment and returns (Servén 1997, 1998, 2002; Krebs, Krishna, and Maloney 2005). Unlike previously mentioned authors, quite few authors argue that volatility has a positive effect. They indicate that volatility brings (1) higher yields and superior growth unless there are strong risk sharing mechanisms, (2) more research-development and innovations for companies (3) and more savings (precautionary) necessary for investments (see Kormendi and Meguire, 1985; Sandmo, 1971; Fountas and Karanasos, 2006; Black, 2009). Beside these two arguments emerge a third which consider that volatility has no effect on certain macroeconomic variables, especially economic growth. They suggest that growth only depends on skills, technology and others real factors (Caporale and McKiernan, 1998)

Volatility is endemic in most of developing countries in which it has topped the charts over last decades (Loayza et al 2007). Given the extraordinary high cost of consumption volatility in developing countries, empirical studies investigated on causes of this volatility. Consumption volatility is driven by many factors (Wolf, 2004). Three sources can explain this high volatility. First, developing countries are characterized by strong and big exogenous shocks. Indeed, the incidence of natural disaster which is defined as the number of phenomenon or events in term of their intensity and economic cost (percentage of GDP) seem to be far higher in developing countries than in advanced countries.

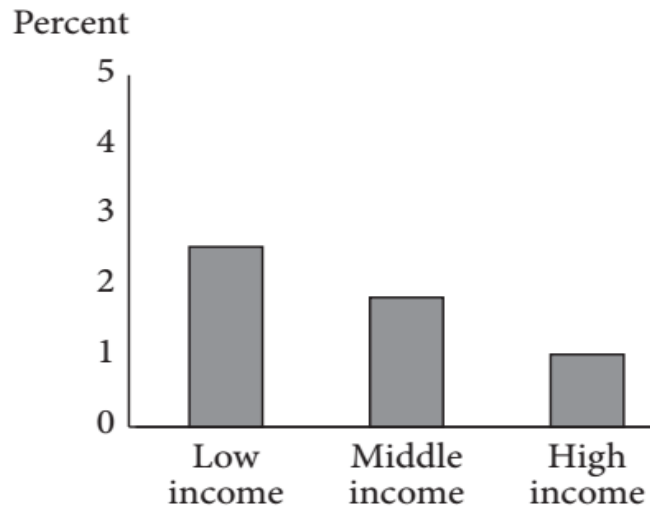


Figure 5: *frequency of natural disasters by income groups (Center for Global Development)*

Figure 5 presents a stylized fact in low income countries as they are hit harder by natural disaster than any other group of countries. The intensity decreases with the group's income. Natural disasters are among the key factors of consumption volatility in developing country. Similar to natural disasters, volatility is strongly determined by crisis (economical, political etc...). One perception of volatility is that it arises from an economic crisis. One of the most damaging consequences as pointed by Atahasoulis and van Wincoop (2000) is consumption instability and its corollary on decumulation of human and physical capital.

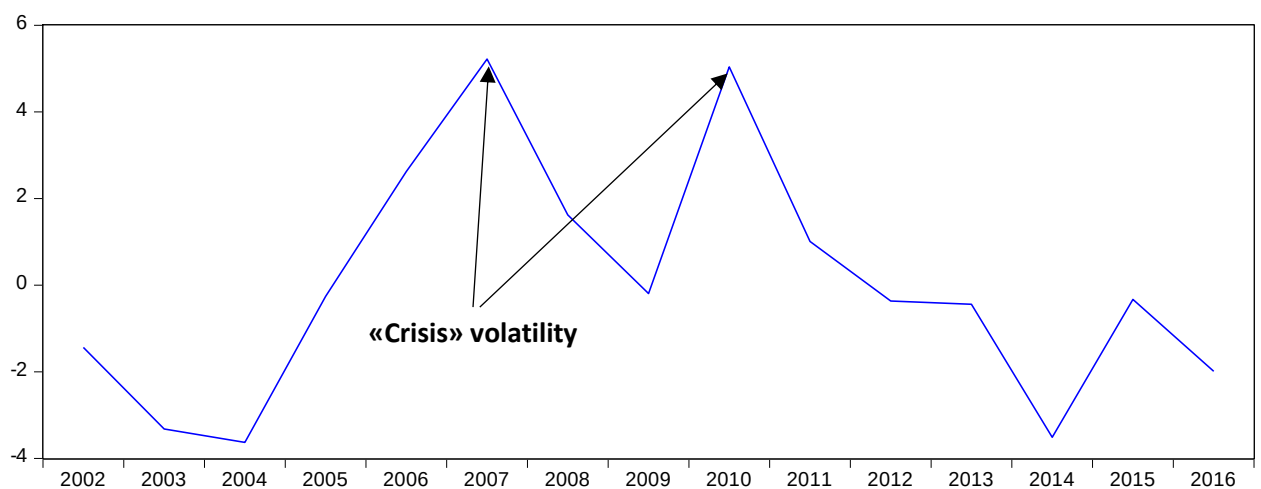


Figure 6: *Consumption Volatility and Crisis in developing countries (Author's calculation¹⁰)*

¹⁰I used WDI database and HP filtering method

However, it is important to note that volatility is endemic in developing countries, compared to other group of countries and is not restricted to crises (Malik and Temple,2009). Figure 6 emphasizes the crisis “volatility” that correspond to large fluctuations.

Malik and Temple (2009) consider that, over the period 1960-1999, the volatility from crisis in low income countries is more than three times higher than for advanced countries. Loayza et al (2007) indicate that the emergence of crisis is the origin of large fluctuations in developing countries. They consider that volatility due to crises is what harms the long run performance of an economy. Fluctuations in the terms of trade also explain volatility in low-income countries. Historically, developing countries are subjected to large swings in terms of trade with its effects on output and consumption. Shocks in terms of trade are considered as an important source of macroeconomic volatility. This importance of these fluctuations has been acknowledged by Easterly et al (1993) and Broda (2004). Kose (2002), using a real business cycle model, confirm that term of trade explains in large part the variance in output in small developing countries. The shocks in term of trade alter the volume of imports for a given volume of exports, thereby affecting domestic income and consumption. However, the transmission of shocks varies across countries. For instance, countries with high international trade openness will likely experience

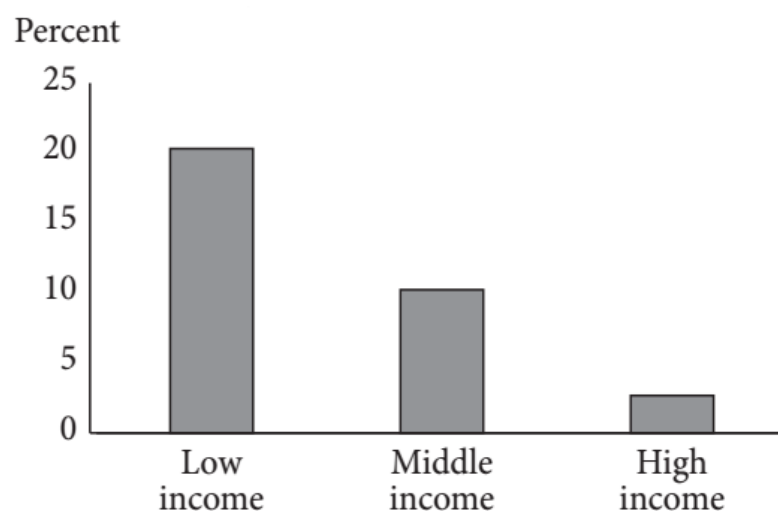


Figure 7: Frequency of term of trade shock per income level (Calderon and Levy Yeayati(2007))

greater effects (especially on tradable sectors) while for others, the effects depend on the nature of economic institutions such as regime of exchange rate and monetary policy

(Blanchard and Wolfers 2000; Beck et al, 2006). The exposure to these external shocks (natural disasters, crisis and terms of trade) are particularly recurrent in developing countries. Other explanations for volatility are provided through empirical studies.

Domestic policy mismanagement, faulty policies and structural issues explain the high intensity of volatility in developing countries. Hausmann and Gavin (1996) indicate that policy mismanagement is the origins of instability in developing countries while Aghenor et al (2000) and Fatas and Mihov (2004) consider respectively that trade policy and discretionary fiscal policy partly explain macroeconomic volatility in developing countries. Similarly, African countries' poor performance and volatility has often been attributed to currency overvaluation and over-expansionary fiscal and monetary policies (Bird,2001). Raddatz (2007) also considers that structural issues and economic mismanagement accounts for the bulk of output volatility. Bleaney (1996) indicates that the importance of policy management and structural policies in minimising the destabilizing impact of negative shocks. The fact that policies are inefficient, and sources of output and consumption volatility, can reflect the complete disarray of developing economies where inequality, poverty and volatility flows in both directions (Calderón and Levy Yeyati, 2007). Policies in developing countries, far from assisting and providing a stabilizing force, often amplify volatility.

A third category of volatility source is the absence or weak “shocks absorbers” in developing countries, so that external shocks effects on volatility are larger. Among weak shocks absorbers are: the quasi absence of credit or financial markets to smooth out households' consumption. The presence of these markets helps to diversify risk, reduce informational asymmetries and contribute to counter aggregate shocks (Ferreira da Silva,2002; Beakaert et al,2006; Loayza et al,2007). Furthermore, the existence of some microeconomic regulations hampers the ability of economic to reallocate resources in case of external shocks (Cabellero et al,2004). Consequently, there is a boost aggregate volatility (Hnatkovska and Loayza,2005).

The previous explanations of different sources of volatility are not mutually exclusive and can interact at the same time and in different ways. However, the consequences of consumption and output volatility are potentially serious. Several empirical studies have investigated on the potential impacts of volatility in developing economies. Malik and Temple (2009) consider that poor households will be adversely affected in so far that there is low access to credit and lack of liquid wealth to smooth out

consumption. This will also translate into an impoverishment of the population in developing countries. Recurrence of shortfall in food supply in low income countries associated with high volatility of output and consumption have thrown millions of people under malnutrition, undernutrition, susceptibility to diseases and inequality. Furthermore, extreme volatility leads up to large welfare losses (Hakura,2009). According to Ramey and Ramey (1995) and Aizenman and Marion (1999), output and consumption volatility are associated with lower economic growth and private investments. In summary, extreme volatility in developing country appears to be serious impediments to development objectives (poverty reduction, economic growth, welfare, etc...).

Understanding how consumption volatility is severe to low income countries and especially to poor households, it is of great importance to analyse policies for consumption smoothing. It is not only an interesting topic but a topic of severe importance for billions of people living in poverty today. In the next section we discuss about the concept of consumption smoothing and provide a brief literature on empirical studies.

2.2 Consumption smoothing

Previous section discussed about the factors and the consequences of high volatility in developing countries. It underscores the need for consumption smoothing and the policies that could reduce consumption fluctuations in low income countries. Consumption smoothing captures the desire of people to have a stable path of consumption (Figure 8). This is mainly due to the fact that consumers have a strong dislike for abrupt shifts in consumption, particularly on the downside. According to the dynamic macroeconomic theory, household consumption is smoothed across period of fluctuations and is totally delinked from income fluctuations. Let us assume an economy where agents produce and consume wheat. During good harvest year, consumers save part of their production for a year of harvest. Consumption is therefore smoothed in two periods the welfare gains associated with it is higher.

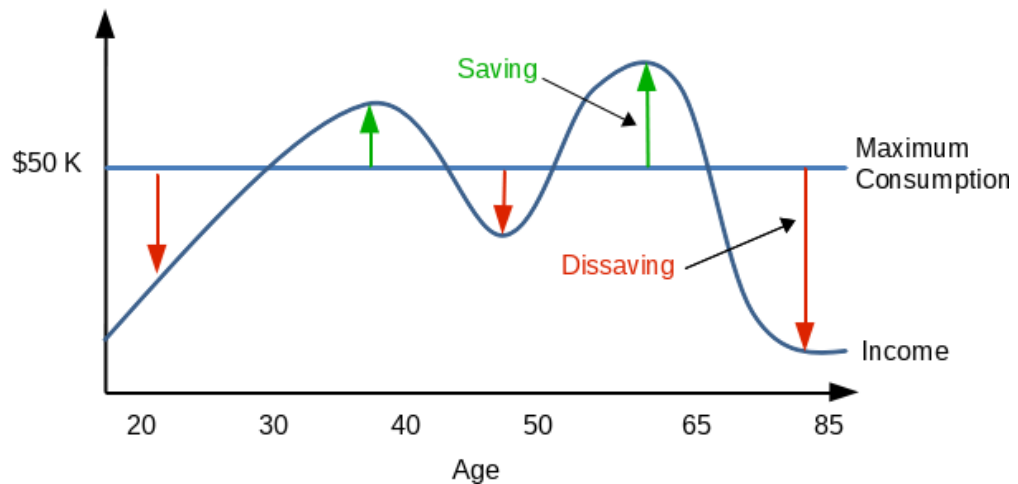


Figure 8: *Consumption smoothing* (www.bogleheads.org)

Some literature has examined the potential of consumption smoothing in developed and developing countries. Risk-sharing mechanisms are “formal or informal institutions that allow consumption smoothing by making “payments” to recession countries from booming economies” (Tapsoba, 2010). Through this mechanism, member countries can share risks, for example by smoothing their income through holding productive assets (diversification of the portfolio) or transfers between states. Consequently, in a face of negative shocks, the affected country loses less in terms of growth comparing to what the income shock could cause due to the stabilizing role of the revenues derived from the possession of financial assets on other non-affected countries (Clévenot and Duwicquet, 2011). A perfect risk-sharing mechanism means that domestic consumption of the households totally disconnected from output and depend solely on aggregate resources, regardless of any shock (Obstfeld, 1994) and lower or quasi absence of consumption volatility. According to macroeconomic theory, this is possible when markets are complete and investments, trade are made in an open economy between countries (Gardberg, 2017). The consequence is a low sensitivity of aggregate consumption. However, in reality, empirical studies found a fairly limited evidence of perfect risk sharing due to the presence of market incompleteness and high costs (see Obstfeld, 1986 1994; Tesar, 1995; Canova and Ravn, 1996, Lewis (1996) and Bai and Zhang (2012)). Economists have conducted numerous analyses regarding the necessity for policy to guard against shocks.

The first article to explicitly measure a degree of international risk-sharing is Brennan and Solnik (1989). The authors focused on the impact of international capital mobility on the volatility of consumption. They conclude that in presence of capital

mobility, consumption turns out to be less volatile compared to the case of absence of international mobility. However, Brennan and Solnik(1989) didn't focus on the external capital revenue channel or the fiscal transfers channel. This limit is removed by the study of Atkeson and Bayoumi (1993) which draws two important conclusions: first, capital mobility between US regions would be much higher than between European countries. Second, despite this strong inter-regional mobility, capital income would not be able to effectively insure a region against an idiosyncratic shock. Regional stabilization through the federal budget (transfers and taxes) would be more effective

Empirically, Sala-i-Martin and Sachs (1992) showed that regional risk sharing through federal budget in United States would be around 35%. Pisani-Ferry et al (1993) find approximately the same coefficient for the French and German regions. However, this high level of risk sharing through budgetary mechanism is not a consensus. Other studies, including von Hagen (1992), postulate that it would be only 10%. Asdrubali, Sorensen and Yosha (1996) found it to be around 13% while market mechanisms (interregional capital and credit income) smoothed 62% of output shock. This importance of market channels as an insurance mechanism in presence of asymmetric shock is confirmed by the work of Melitz and Zumer (1999, 2002), Kalemli-Ozcan, Sorensen and Yosha (2003) and Asdrubali and Kim (2004, 2008), which highlight, in particular, the strong stabilization from capital income within the United States. In conclusion of their work, Méltitz and Zumer (2002) recall: "However, it is far from proven that this important contribution to European risk-sharing will quickly produce sufficient protection to compensate for the lack of support that would emanate from budget sharing of risk".

Internationally, Sorensen and Yosha (1998) postulate that the risk-sharing between European countries is smaller than in the case of USA. The main smoothing channel is savings behavior rather than external capital income, as in the United States. For MENA countries, Sorensen and Yosha (2003) obtain a significant smoothing via savings (42%) and a negative effect of net foreign income (-14%). In other words, the net foreign income received here is of a pro-cyclical nature, which will accentuate a possible shock on production instead of absorbing some of it. For Asia zone Kim et al (2006) obtain 20% of stabilization via savings channel and 0% via external incomes. Finally, the average level of international risk-sharing is around 25%. According to the authors, sharing risk is essentially the result of savings and permanent income behaviors. Among

African countries, Yehoue (2005) analyzes the risk sharing within two monetary unions¹¹ and found that foreign aid from France and the contributions of the central banks are important smoothing channel; however, saving remains the main channel of stabilization. Dedehouanou (2009) analyzes the asymmetric shocks and risk sharing in West African Economic and Monetary Union and found that only 27,5 to 29,8% of asymmetric shocks are smoothed in the union and saving is still the main channel of risk sharing. Moreover, he found that economic integration increases the power of risk sharing channel and the frequency of shock overtime reduce the share of risk shared in the union. Tapsoba (2010) extends the previous study to the whole Africa and found that public saving is the most significant risk sharing channel.

Since foreign aid is considered as one the main vehicles to promote better living conditions (Calderon, 2006) and LDCs are essentially characterized by the absence or quasi-absence of financial credit markets in LDCs, we focus on the possibility consumption smoothing via foreign aid in these countries. We therefore follow one of the conclusions Yehoue (2005). In the next section, we present literature review on the link risk sharing (consumption smoothing)- foreign aid.

2.3 Consumption smoothing and foreign aid

2.3.1 Background on Foreign aid effectiveness

Since its origins, the effectiveness of international assistance is still questioned. Empirical and theoretical researches focused practically on the macroeconomic effects of aid. As mentioned in introduction, foreign aid was considered as one of the main ways for developed countries to achieving better living conditions in low income countries. Two paradigms are considered in international aid: 1-The promotion of development and investment in LICs; 2- The role redistribution to correct inequalities between nations. Since Smith (1776), it is known that countries differ in wealth endowments. Foreign aid is therefore justified to reallocate resources in order to correct these inequalities. This is the “static view” opposed to the “dynamic approach” where aid target improvement of income in poor countries and getting them out of the vicious cycle of poverty.. During

¹¹Monetary and Economic Community of Central Africa (CEMAC) and the West African Economic and Monetary Union (UEMOA)

the last decades, there have been controversy among actors in aid sector over aid effectiveness in developing countries.

The cyclical property of aid flows has been subject to debate. This was addressed on both theoretical and empirical grounds. In fact, cyclical properties of aid mainly depend on the underlying motivations. Basically, Altruism and Egoism are considered as largely referred motivations of foreign aid in the literature. Altruism or selflessness is the principle or practice of concern for the welfare of others. There are many ways to formalize altruism. To simplify, we consider that from a certain level of well-being, the additional consumption becomes a nuisance when it is done to the detriment of others. Altruism would therefore imply foreign aid to rise in case of negative shocks (natural disasters, economic crisis, etc...) occurring in LDCs. Whereas egoism relates aid allocation to self-interest reasons such as political interests etc.... Accordingly, aid could tend to become countercyclical or procyclical depending on the motivations. However, these motivations have not been really analysed through the prism of cyclicity. Most studies found a procyclical character of foreign aid. Pallage and Robe (2001) analyse the empirical regularities in international aid flows to LDCs over the period 1969-1995. They found two main characteristics: high volatility of output and the procyclicality of aid for African recipients. They conclude that these characteristics raise serious questions about welfare and growth in recipient countries. Bulir and Hamman (2001) reached to similar results. Mold et al (2009) found similar results with co-movement aid flows and GDP over the long term. Focusing on bilateral aid, Dabla-Norris et al (2016) find that foreign aid flows is procyclical. However, they become steeply countercyclical in the face of external shocks.

According to Svensson (2000), the procyclicality of aid flows is mainly explained by moral hazard arguments. In the absence of verifiable government actions, donors prefer to tie their aid to the macroeconomic performance of recipient country because they can't distinguish between exogenous shocks and macroeconomic mismanagement (Svensson, 2000). Most of authors conclude that cyclical properties of aid are one of basis of aid effectiveness. Some authors emphasize that its effectiveness is related to institutions and policies (Burnside and Dollar, 2000).

The effectiveness of aid has received considerable attention in the literature and subject to doubts over the years. Many studies with multiple views both positive and negative,

have documented the effect of aid on growth, trade or poverty. Some, however, lack strong methodologies. Despite refining methodological issues, this literature still presents lack of consensus in the results. Most of studies on the relationship foreign aid-economic growth found no, positive or negative effect of aid on growth in developing countries. The relationship aid -economic growth goes back to Chenery and Strout (1966). The authors developed the two-gap model which is considered as the most predominant theoretical analysis in the aid. Their model assumes that exports earnings and savings are subject to constraints hindering investment and economic growth; it also assumes that aid flows should fill the gap investment-saving. The model faced severe criticisms but provided some important principles which guided early policies (Easterly 1999). Since the publication of “Assessing Aid” (World Bank 1998) by Burnside and Dollar (1997, 2000), there was an intense debate on the relationship foreign aid /poverty alleviation and growth. Indeed, Boone (1996) argues that aid doesn’t affect growth in LDCs. it has had no effect either on investment or income growth. Similarly, Hadjimichael (1995) consider that it is only positive good adjusters. Conversely, Burnside and Dollar (2000) note a positive relationship between aid and economic growth case of good disciplines and good institutions (monetary, fiscal and trade). Their findings are confirmed by Collier and Dollar (2001), Gomane et al. (2003) and Minou and Reddy (2010).

In contrast to Burnside and Dollar (2000), many authors¹² find no evidence of effect of aid, even in presence of institutional quality. In the same way, Brautigam and Knack (2004) and Knack (2004) claim that aid could deteriorate the quality of democratic institutions. More specifically, Lensink and White (2001) had related it to the assumption that aid inflows have negative effects when reaching a certain level. The negative returns to aid are much higher than what is assumed in “assessing aid”. Rajan and Subramanian (2008) examine the impact of based on panel and cross-sectional framework¹³. They find ambiguous results of aid inflows on economic growth. They suggest the need to rethought rethink all the aid framework for a better effectiveness. Using another characteristic of aid (its volatility or variability), Hudson and Mosley (2008) continued the analysis of Bulir and Hamann (2003) on aid volatility. They argue that results depend on dataset. In fact, Bulir and Hamman (2003) consider that the low-income countries are highly

¹²See Easterly (2003), Easterly et al (2004) and Rajan and Subramanian (2005)

¹³The authors corrected for the bias that aid typically goes to poorer countries, or to countries after poor performance

volatile; Hudson and Mosley (2008) didn't confirm these findings. Overall aid volatility affects negatively economic growth however its effects differ between a negative and a positive volatility. Arellano et al (2009) analyse the effect of foreign aid fluctuations on different macroeconomic variables. They developed an intertemporal two sector general equilibrium model for top recipient countries in Africa and found no effectiveness of aid towards sustained growth due to the aid flow is oriented towards consumption rather investments.

Unlike the relationship aid-economic growth, decades of controversies surrounded the linkage between aid and poverty in developing countries. In the early 1960, expectations on the ability of foreign aid to reduce poverty were very high when rich countries were called to devote 1% of their GDP to fight poverty in developing countries.

From this view, foreign aid would either rid the world of poverty or at least it could pull millions of people out of poverty. The following figure shows the trend in aid and poverty using data available.

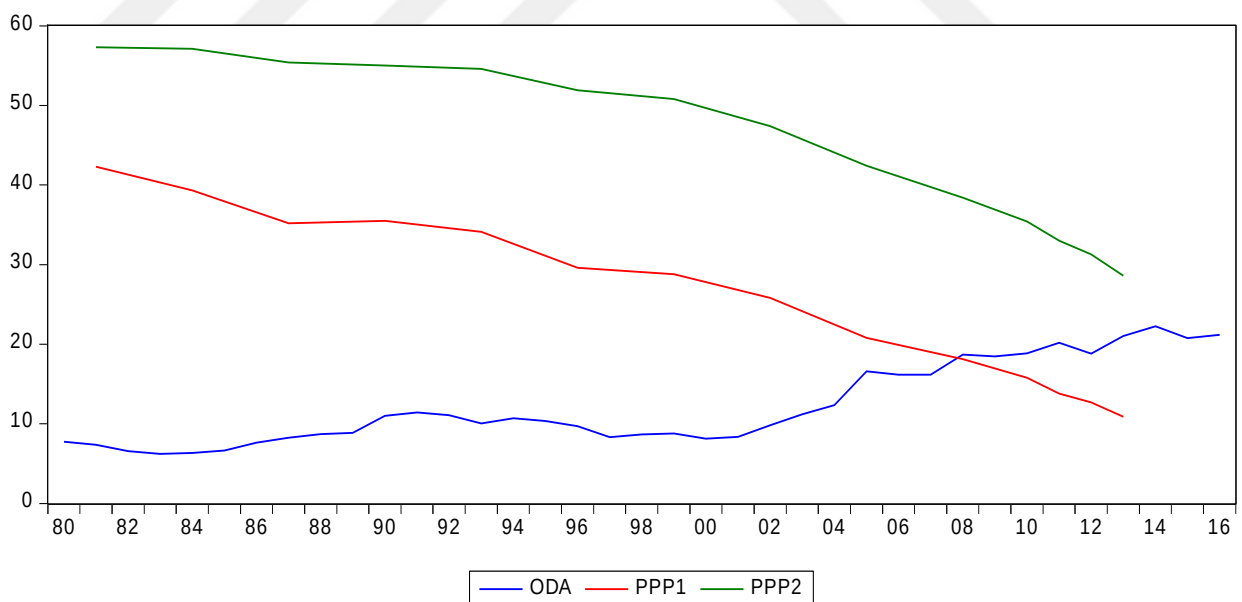


Figure 9: Aid and Poverty, Global Aggregates, 1980 to 2016 (Author's calculations using 2017 WDI)

The above figure indicates an upward trend of aid for the period and a stagnation from 1993 to 1996. Moreover, extreme income poverty is declining over the period. Even though, poverty has multidimensional characteristics it is possible that aid could be

associated with the downward trends of global poverty. Other observers were sceptical as they see aid as an attempt by donor countries to pursue their own interest. Analysing the relationship aid -poverty alleviation, many empirical researches reach to encouraging results. Asra et al. (2005) take fresh look, by analysing the cross-country evidence of foreign aid / poverty reduction. They find that foreign aid impact positively when it relatively moderate, however when it crosses a certain level of critical value (absorptive capacity), it becomes inefficient. Moreover, a strong macroeconomic policy environment and a quality of governance are determinant on poverty reduction. Bahmani-Oskooee and Oyolola (2009), and Alyı and Senbeta (2012) confirm these results. These studies confirm the endogeneity of aid simultaneity bias. Different techniques are used to control for the endogeneity of aid. Conversely, Chong et al (2012) find a weak evidence on the relation aid-poverty reduction even with better institutions. Agenor and Aizenman (2010) analyse the relationship aid volatility/ poverty traps. The authors specify that the volatility of aid in a framework of two-period model. From a standard case where there is no taxation, analysis is then extended to include the taxation. They found that more aid volatility could raise the optimal fund to reduce the poverty. Unlike mentioned studies, Boone (1996) considers that aid doesn't contribute to economic development due to the fact that capital shortage is not the factor of poverty; In case of foreign aid inflows, politicians shouldn't adjust distortionary policies as it is not optimal. Similarly, Moyo (2009) found that foreign aid didn't have any effect on poverty. It has rather increased the dependency of low-income countries, worsened poverty and corruption in recipient countries particularly in Africa.

Whatever different results in the literature, it appears clearly that there is widespread non-consensus about the effect of aid on growth and poverty reduction and that conclusions remains controversial. Moreover, there are other literature on the effect of aid on important macroeconomic variables such as public sector expenditures, trade, governance, health, education, etc.... Based on the evolving debate on aid effectiveness, we argue that aid should target more modest goals such as consumption smoothing low income countries rather than trying to be the catalyst for society-wide transformation. Foreign aid may be beneficial in this aspect.

Table 1: Brief summary of aid literature effectiveness

Mains Studies	Effect of foreign aid
Burnside and Dollar (2000)	Positive effect foreign aid on economy with good policies as well as good institutions
Guillaumont and Chauvet (2001)	Effects depend on factors(environment). The effect of aid on economic growth is positive in country with high vulnerability
Collier and Dollar (2001)	Reduce poverty in lagging regions
Gomane et al. (2003)	The effect of foreign aid on welfare and economic growth is positive when oriented towards social services
Clement et al. (2004)	Positive effect on growth in short term.
Ishfaq (2004)	Foreign aid reduces poverty in Pakistan
Asra et al. (2005)	Moderate inflows of foreign aid are effective
Bahmani-Oskooee and Oyolola (2009)	Aid reduces poverty headcounts
Minou and Reddy (2010)	The positive effect is perceptible in the long term
Mosley, Hudson, and Horrell (1992)	Foreign aid negatively impacts economic growth
Boone (1996)	The effect is negative on economic development due to low impact on poverty and distortionary policies of politicians
Lensink and White (2001)	When aid reach the critical level (absorption capacity)
Easterly (2003), Easterly et al (2004)	Foreign aid has negative effects on economic growth despite high quality of institutions
Brautigam and Knack (2004) and Knack (2004)	Aid impacts negatively on economic growth as it could deteriorate the quality of democratic institutions
Moyo (2009)	

Source: author's compilation

2.3.2 Foreign aid: potential channel of consumption smoothing in Developing Countries

As mentioned in the first section, the effectiveness of foreign aid has been largely analyzed in different aspect of the economy (growth, poverty alleviation etc...). However, little is known on the consumption consumption smoothing power of foreign aid. This issue is even more relevant nowadays as economic integrations and recurrence of shocks characterize LDCs. The analysis of foreign aid as a potential consumption smoothing channel can be traced back through Grupta et al (2003). Indeed, Grupta et al (2003) focused on a specific component of foreign aid: Global food aid. They analyze consumption smoothing from global food aid in 150 developing countries over the period 1970 to 2000. The findings indicate that, for most countries, global food aid is not countercyclical except for countries in greatest need. Furthermore, the amount of food aid provided cannot mitigate contemporaneous shortfalls in consumption.

Using a dynamic model between two endowment economies, Pallage et al (2007) quantify foreign aid as an insurance mechanism against macroeconomic shocks. The results show that foreign aid alleviates the macroeconomic shocks in poor countries (at least three-fourths of the large welfare costs) and end up with a welfare improvement. Guillaumont and Le Goff (2010) analyse the stabilizing role of official development assistance and remittance at a country level and on a cross country basis. They found that at a country level, both variable exhibit a stabilizing role regards to exports fluctuations and on a cross country basis. They found that both aid and remittance dampen the growth volatility. They indicate that foreign aid stabilize consumption in LDCs and contribute to consumption smoothing against asymmetric shocks. Guillaumont and Le Goff (2010) confirm the findings of previous studies such as Casella and Eichengreen (1994) on the capacity of foreign aid to accelerate stabilization and Collier and Dehn (2001) on the ability of foreign aid to mitigate negative exports price shocks.

Tapsoba (2010) analyses the contribution of official development assistance (ODA) to consumption smoothing against asymmetric shocks in a perspective of future monetary union. He indicates that foreign aid smooth 12% of asymmetric shocks in

Africa. He then concludes that in a perspective of monetary integration, foreign aid can be considered as an important risk sharing channels. Yehoue (2011) analyzed the risk-sharing the two monetary area in West Africa (the CFA¹⁴ zone) and found that foreign aid and inflows from central banks are the main insurance mechanisms. Indeed, 63 percent of shocks are absorbed via foreign aid in WAEMU¹⁵ while 44 percent of shocks are absorbed via foreign aid in CAEMC¹⁶. Over the period 2003-2013, Balli et al (2015) analysed the risk sharing role of ODA in 22 developing countries. They find a foreign aid is a strong channel to absorb shocks. During the same period, they found that the average for the whole sample was about 4-6% of the output shocks. Furthermore, foreign aid can prevent civil war through smoothing negative economic shocks and can isolate household consumption from the influence of food price (Combes et al.,2012). Gardberg (2016) investigates the determinants of international consumption risk sharing in a panel of 123 countries. The author finds that consumption risk sharing via foreign aid is quasi absent in developing countries.

The literature on international risk sharing mostly focuses on developed countries. Moreover, little is known on the effectiveness of consumption smoothing channels, particularly the foreign aid channel on a large set of LDCs. So far in the risk sharing literature on foreign aid, it seems that on an average level, foreign aid has an impact on risk sharing in a panel of countries. However, since it implicitly assumes that risk sharing impact is uniform across countries, this thesis aims to contribute to the literature by giving a country-by-country effect of foreign aid on risk sharing, the determinants of the difference between countries and the welfare gains derived.

2.4 Welfare gains

Literature on welfare gains from consumption smoothing have received much interest starting with the seminal paper of Lucas (1987). In his study, Lucas (1987) defines welfare gains as percentage increase in consumption which ensure the indifference of people between stochastic consumption path and the one from risk sharing. This welfare gains results from “a complete elimination of aggregate consumption’s volatility in

¹⁴ The CFA is the local currency

¹⁵WAEMU stands for West African Economic and Monetary Union

¹⁶CAEMC stands for Central African Economic and Monetary Community

USA". He finds that the cost of economic fluctuations is extremely low (1/10 of a percentage point of expected consumption). However, its evaluation of welfare gains is subject to certain numbers of parameters such as discount rate, time horizon (see van Wincoop, 1999; Athanasoulis and van Wincoop, 2000), specifications of preference and stochastic process (see Obstfeld, 1994b; van Wincoop, 1994; 1999), which explain various results in welfare gains. The various use of methodology is presented in Table 2. Van Wincoop (1999) indicates that results range from 0,1% to over 100%. Lucas (1987) considers a non stationary processes of consumption in his framework while, according to Auffret (2001), the stationarity or non-stationarity of consumption is hard to confirm. These difference in parameters explain the large discrepancy found in results. Table 2 show a very small amount of welfare gains in advanced countries. This mainly due to low volatility and variability of their consumptions. Consequently, any minor obstacles to consumption smoothing can wipe out the small welfare gains.

Following Lucas (1987), many authors have sought to assess the welfare gains from risk sharing. International economics identified two main approaches. The first approach is based on a general equilibrium approach where consumption of each country should be correlated each other and uncorrelated with their specific income growth. The second approach is based on partial general equilibrium CAPM framework that considers home bias and portofolio (see Lewis, 1996; Shiller and Athanasouli, 2000). Welfare gains in this approach are obtained from both means and variances. Lewis (1999) considers that welfare gains is 100 times larger under portofolio than under consumption approach. Developing countries can obtain a large welfare gains from risk sharing regarding the high volatile nature of their income and consumption (Prasad et al, 2003)¹⁷.

Beyond the standard risk sharing channels, foreign aid could possibly be a potential smoothing channel. Indeed, foreign aid is among the largest flows towards developing countries and could have a first order welfare impact on recipient countries through reduction consumption volatility even if the growth channel is weak. Van Wincoop (1994) indicate that in a context of an infinite horizon endowment economy, the welfare gains from risk sharing depends on 4 factors: (1) "the implicit risk-free interest", (2) "the risk-adjusted growth rate", (3) "the rate of relative risk-aversion" and (4) "endowment

¹⁷The percentage volatility of consumption in poor countries is three to six times that in their developed counterparts, there is scope for cutting the former by at least two-thirds.

uncertainty". The parametrization of these factors highly affects the welfare gains in different papers. For instance, the implicit risk-free interest rate is considered to be high excessively high ranging from 5,6% to 56% in Cole and Obstfeld (1991) and 7% to 45% in Obstfeld (1994b). Moreover, van Wincoop (1994) show that high interest rates reduce significantly the welfare gain measure. By the same token, assumptions about endowment also affect welfare gains measure. Some studies consider that consumption or shock series follow stationary processes for which generally led to a low welfare gains (see Obstfeld(1994b), Tesar (1995)) while others compute the matrix covariance of output and assumes that expected growth rate are identical for all countries (Shiller and Athanasoulis,1995). Other studies on advanced countries found large welfare gains (see van Wincoop (1999), Athanasoulis and van Wincoop (2000))

Theoretically, full risk sharing increase welfare gains. However, reality indicates that aggregate consumption is very sensitive to internal shocks and studies show a limited evidence international risk sharing among countries (Canova and Ravn,1996; Lewis,1996 and Bai and Zhang,2012) ¹⁸. Clearly the welfare gains and consumption smoothing in developing countries might have been much lower if foreign aid had not been received in the first place. At this stage policy makers should implement policies such as promoting foreign aid to attain a high level of risk sharing and welfare

¹⁸It is considered that "Common explanations to this include financial market incompleteness, frictions and high financial transaction costs.

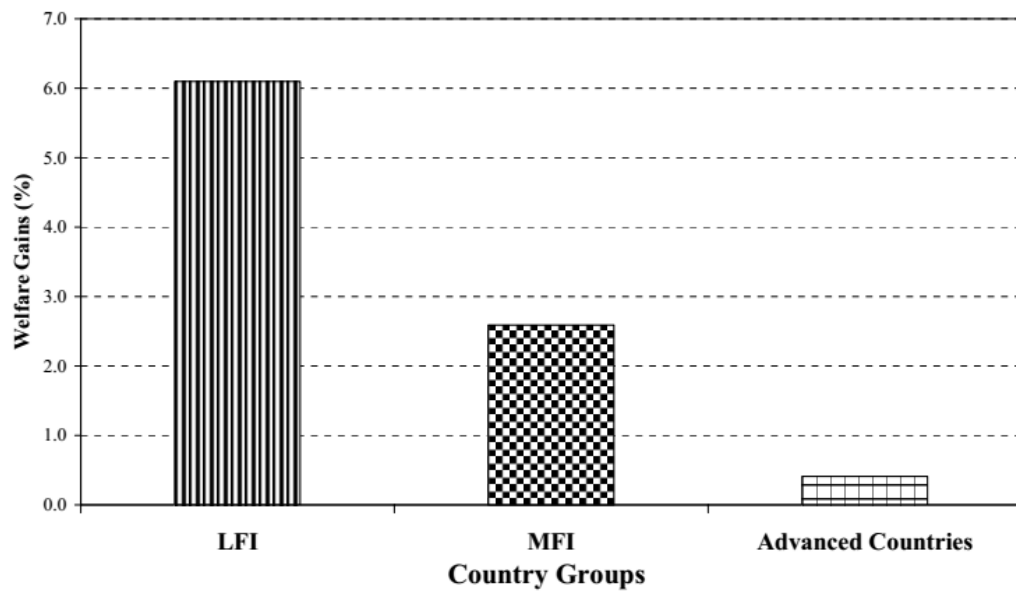
Table 2: Summary of welfare gains from consumption smoothing in the literature

	Lucas (1987)	Cole and Obstfeld (1991)	Obstfeld (1994a)	Van Wincoop (1994)	Tesar (1995)	Lewis (1996)	Athanasoulis and Van Wincoop(2000)	Auffret (2001)
Stochastic process	S	NS	NS	NS	NS	NS	NS	S
$\mu' = \mu$	0,03	0,027	0,0202	0,0170	0	0,0234	0,0187	0,0189
σ (variance)	0,0130	0,0250	0,0163	0,0219	0,0295	0,0191	0,0503	0,0157
σ' (targeted variance)	0	0,0199	0	0,110	0,0172	0,0153	0,0277	0
ρ (risk aversion)	5	4	4	4	2	5	3	3
$e^{-\beta}$	0,95	0,98	0,95	0,99	0,98	0,98	1,03	0,98
n (population growth)	0	0	0	0	0	0	0	0,0116
H (horizon)	∞	50	∞	∞	100	∞	35	35
Reported Welfare gains(percentage)	0,042	0,24	0,36	1,30	1,70	0,080	1,52	0,48

Source: Auffret (2001), S: stationary, NS: Non-stationary

Auffret (2001) explains welfare gains as an additional percentage points of consumption growth that lead consumers indifferent under risk sharing and existing stochastic consumption. He adopts a unifying measure to evaluate welfare gains from risk sharing. The particularity of its method is that it depends on few parameters. The author indicate that more uniform welfare gains would have been derived if papers that used consumption-based approach had used this alternative measure of welfare gains. The results in the case of US consumers show that each increase by 0,5 percent in consumption growth is associated with a gain of \$160 a year on average by US consumers. Similarly, he finds that the absence of consumption fluctuation is associate with a gain of only \$12 a year by a representative US consumer.

Welfare gains have been also analysed through different perspectives. Townsend and Ueda (2010) provides welfare analysis of change in financial sector policy. The methodology developed an explicit model of financial deepening that takes into account the dynamic general equilibrium effects. Townsend and Ueda (2009) measures welfare gain from financial liberalization. Similar to Lucas (1987), Townsend and Ueda (2009) evaluate the welfare gains by removing the cycle. The results show a sizable welfare gains from liberalization (from a 0.5 percent to a 28 percent increase in permanent consumption), however the gains from economic growth is ambiguous (from 0.3 to 0.7 percent in the subsequent ten-year term). These results are actually smaller than previous results which reports less than 0,5% of permanent increase in consumption (van Wincoop 1999 and Prasad, et al. 2003). Prasad et al (2003) followed the methodology developed by van Wincoop(1999) and find that welfare gains from risk sharing is much higher in Less financed integrated countries(figure 10). The welfare gains result in a significant reduction of consumption volatility.



Note: Welfare gains measured in percent of consumption.

Figure 10: *Welfare Gains by group of countries (Prasad et al (2003))*

Callen et al (2015) assess the welfare gains from international risk sharing by computing the means and variance of GDP growth of a sample of 74 countries. They find that welfare gains increase with the number of parties involved. Furthermore, largest gains arise from the fact that countries are heterogenous in the pools.

3. EMPIRICAL METHODOLOGY AND DATA

This section presents the methodological strategies employed in this thesis to capture the consumption smoothing channel via foreign aid in LDCs, how country specific characteristics explain the efficiency of this channel and the welfare gains derived from it.

Section 3.1 presents the general principles and the baseline framework of risk sharing models, which captures the standard risk sharing channels identified in the literature. We provide in this section the origins of this model and define the structure and explain each risk sharing channel. Attention is paid on the different coefficient that capture risk sharing channels and explanation is given to their meaning and properties that sustain them.

Section 3.2 describes our strategy to capture the consumption risk sharing via foreign aid. We present the modified model adapted to this thesis to investigate on the channel of foreign aid. The model is derived from the standard model of risk sharing developed by Asdrubali et al (1996) and adopted by many authors. We start by estimating the model on a panel framework and show the limitation of coefficient associated, then we estimate the model country per country to describe the particularity of each country.

Section 3.3 investigates on the determinants of consumption risk sharing via foreign aid (determined in section 3.2). Some country specific characteristics are used to explain the variability of coefficients found in section 3.2. In this section, a cross-section framework is developed to capture the determinants of consumption risk sharing via foreign aid. This will enable us to quantify the impact of these country specific factors on the foreign aid channel.

Section 3.4 describes the methodology developed to capture the welfare gains in LDCs. This methodology is based on the one developed by Van Wincoop (1994) and adapted by Prasad et al (2003). It compares two scenarios with different parameters and the difference between the scenarios will describe the welfare gains for the country.

Finally, section 3.5 provides overview on our data, the source and explanation of variables used in this study. It also describes some adjustments made on the data to suit the line of this thesis.

3.1 Baseline Framework and General Principles

Tapsoba (2010) defines risk-sharing as “mechanisms are defined as formal or informal institutions that ensure consumption smoothing through “payments” from booming economies towards countries, experiencing recession”. Technically, risk sharing corresponds to a disconnection between consumption and output which means decorrelation between consumption and output. The decorrelation coefficient simply equals to $1-\beta_u$ of specification 1. Following Obstfeld and Rogoff (1996), the basic specification can be set as follows:

$$\Delta \log C_{i,t} = \beta_u \Delta \log GDP_{i,t} + v_{u,t} + u_{i,u,t} \quad (1)$$

Where $C_{i,t}$ and $GDP_{i,t}$ stand respectively for the consumption and output of country i at time t . $v_{u,t}$ represents the time effects and $u_{i,u,t}$ the identically, independently distributed errors terms.

If $\beta_u = 0$, there is perfect risk sharing where consumption is totally decorrelated from output. In this case, countries' consumptions are perfectly correlated. However, some inequalities can appear among countries due to difference in consumers preferences. Conversely, if $\beta_u = 1$ consumption exclusively depends on domestic output, which means there is no risk sharing.

In their seminal paper, Asdrubali et al (1996) developed a framework to quantify the level of interstate risk sharing in United States. The methodology developed is based on a decomposition of the cross-sectional variance in gross state product. The decomposition follows the standard identities in the balance of payments and provides a view of channels through which risk sharing is taking place. Asdrubali et al (1996) consider gross state product as a homogenous nondurable goods and ignore capital (capital gains as well as capital losses). The methodology was adopted and revised by Mélitz and Zumer (1999) Asdrubali and Kim (2004), Marinheiro (2005), Sorensen et al. (2005) and Afonso and Furceri (2008).

Let's consider the following accounting identities:

$$GNP = GDP + \text{net international factor income},$$

$$NI = GNP - \text{capital depreciation},$$

$$DNI = NI + \text{Net transfers}$$

$$C + G = DNI - \text{Net saving},$$

Where $C+G$ stands for total consumption (C =private consumption and G =public consumption); GNP for Gross National Product, GDP for Gross Domestic Product, DNI for Disposable National Income and NI for National Income. It is important to consider the balancing items in the national accounts.

The first equality represents the risk sharing via net international factor income. This channel takes place in the factor market. The bigger the difference between GNP and GDP and the lower its correlation over time with GDP , the more the risk sharing via net international factor income there is. It simply means that income earned from investment of capital or income earned by citizens working abroad may help improve the interstate risk sharing.

The second equality shows the risk sharing through capital depreciation. Capital depreciation contributes to the stabilization of consumption if consumption of fixed capital falls during the phases of recession and increases during the phases of expansion. It is not a risk-sharing channel in the same way as other channels, since it does not involve cross-border flows. Asdrubali et al (1996) include it to simply not overestimate adjustments through capital income.

The third equality indicates risk sharing through fiscal redistribution (transfers) and occurs when transfers move from booming countries towards the recession economies. It can be public or private transfers and tend to be countercyclical absorbing shocks in recession period.

The fourth equality shows the channel of saving through which consumption can be smoothed. It takes place in the credit market and occurs when the components of the economy such government, firms and household accumulate during expansion periods and dis-save during recession periods.

A group of countries perfectly shares asymmetric shocks if shocks do not affect the consumption of individual states. Consumption is not affected by specific shocks, if net factor income, capital depreciation, net international transfers and savings are countercyclical with respect to these shocks. Asdrubali et al (1996) have proposed a series of regressions of these balancing items to estimate the relative importance of each risk sharing channels.

To highlight the risk sharing phenomenon, let's consider the following decomposition of GDP for a country i in year t :

$$GDP_{it} = \frac{GDP_{it}}{GNP_{it}} \times \frac{GNP_{it}}{NI_{it}} \times \frac{NI_{it}}{DNI_{it}} \times \frac{DNI_{it}}{(C+G)_{it}} \times (C + G)_{it} \quad (2)$$

As mentioned by Asdrubali et al (1996), smoothing takes place via capital markets, transfer system and credit markets if $\frac{GDP_{it}}{GNP_{it}}$, $\frac{GNP_{it}}{NI_{it}}$, $\frac{NI_{it}}{DNI_{it}}$ and $\frac{DNI_{it}}{(C+G)_{it}}$ vary positively with GDP_{it} . It means that an increase in GDP leads to a smaller increase of GNP_{it} which in turn will lead to an even smaller increase in NI_{it} and so forth. The above equation's process works as follows: After a specific shock to GDP if net factor income contributes to fully offset the effect of the shock to GDP, so GNP remains unchanged. Similarly, if net international transfers fully absorb the shock, DNI remains constant, while GDP, GNP and NI vary. If savings also offset the entire shock, total consumption remains constant while GDP, GNP and NI and DNI vary. Finally, the shock is not completely neutralized if consumption varies.

In order to obtain a simple measure of smoothing, logs and difference are used on the previous identity and then multiplying both sides of the identity by $\Delta \log GDP_{it}$, and taking the expectations, the following decomposition of cross sectional variance is then obtained:

$$\begin{aligned} var\{\Delta \log GDP_{it}\} = & cov\{\Delta \log GDP_{it}, \Delta \log GDP_{it} - \Delta \log GNP_{it} \} \\ & + cov\{\Delta \log GDP_{it}, \Delta \log GNP_{it} - \Delta \log NI_{it} \} \\ & + cov\{\Delta \log GDP_{it}, \Delta \log NI_{it} - \Delta \log DNI_{it} \} \\ & + cov\{\Delta \log GDP_{it}, \Delta \log DNI_{it} - \Delta \log (C + G)_{it} \} \\ & + cov\{\Delta \log GDP_{it}, \Delta \log (C + G)_{it} \} \quad (3) \end{aligned}$$

Finally let us divide both sides of the last equation by $var\{\Delta log GDP_{it}\}$. It therefore leads to:

$$1 = \beta_f + \beta_d + \beta_\tau + \beta_s + \beta_\mu \quad (4)$$

Where the covariance/variance = β terms in the previous equation correspond exactly to OLS estimates in the following regressions:

$$\begin{aligned} \Delta log GDP_{it} - \Delta log GNP_{it} &= v_{f,t} + \beta_f \Delta log GDP_{it} + \varepsilon_{it} \\ \Delta log GNP_{it} - \Delta log NI_{it} &= v_{d,t} + \beta_d \Delta log GDP_{it} + \varepsilon_{it} \\ \Delta log NI_{it} - \Delta log DNI_{it} &= v_{\tau,t} + \beta_\tau \Delta log GDP_{it} + \varepsilon_{it} \\ \Delta log DNI_{it} - \Delta log(C + G)_{it} &= v_{s,t} + \beta_s \Delta log GDP_{it} + \varepsilon_{it} \\ \Delta log(C + G)_{it} &= v_{\mu,t} + \beta_\mu \Delta log GDP_{it} + \varepsilon_{it} \end{aligned}$$

Where v are time fixed effects which measure the impact of shocks that affect countries uniformly. The beta terms are interpreted as the relative weight of cross border risk sharing due to net factor income (β_f), capital depreciation (β_d) international transfers (β_τ) and saving and borrowing (β_s) on credit markets. The last beta coefficient shows the amount of asymmetric shocks that remain unsmoothed. There are no constraints on the coefficients; they can be greater than 1 or negative. A negative coefficient is interpreted as an exacerbation of the shock concerned or the risk-sharing channel is itself the cause of a shock. The only constraint is on the sum of the coefficients that should be equal to 1. Intuitively, let assume that a country is affected by -5% shock on its GDP and assuming that GNP fell by only 3%, therefore the net factor income contributes to offset 40% (i.e 2% over 5%) of the initial shocks. The coefficient β_f estimated in this case is equal to 0.4. Full risk sharing through net income factor alone corresponds to $\beta_f = 1$. This means that the GNP is not affected by changes in GDP; i.e there is no co-movement of GNP and GDP. In contrast $\beta_f = 0$ means perfect co-movement of GDP and GNP. We conclude therefore that Net factor income doesn't contribute to smoothing or there is no risk sharing through this channel.

Using the above equations, we measure the degree to which change in GDP affect country's consumption. As suggested by Asdrubali et al (1996), it is not claimed that changes in GDP are fully unpredictable and the lag of GDP doesn't affect current consumption.

Several econometric issues are pointed and should be addressed before estimating above equations. First and foremost, there is evidence for panel-specific heteroskedasticity and contemporaneous correlation across panels in the error matrix. Moreover, serial correlation in error terms is detected. To address these issues, Asdrubali et al (1996) used a feasible generalized least square (FGLS) in their equation-by-equation estimation. However, through Monte Carlo simulations, standard errors are underestimated using FGLS (Beck and Katz, 1995, 1996). To correct contemporaneous correlation across panels the number of years T in a sample should be at least as large as the number of cross-sectional units N . This requirement is not fulfilled. Therefore, Beck and Katz (1995, 1996) suggest an OLS approach with panel corrected standard errors. This method leads to an accurate error terms in their Monte Carlo simulations and is better suited for panel with larger cross sections. Sorensen and Yosha (1998) estimate the above equations using 2-step generalized least squares (GLS) procedure, correcting for heteroscedasticity. According to Von Hagen (2013), this latter method is better suited for small cross sections.

However, the methodology developed by Asdrubali et al (1996) has suffered from numerous methodological issues. These criticisms have been summarized by Clévenot and Duwicquet (2011) in four points:

- If accounting identities are correct, it doesn't consider the behavior of companies in terms of profit / savings and investment. The investment behavior of firms is the main source of GDP variance; Moreover, not controlling this effect can lead to an overestimation of risk-sharing role. Part of the decorrelation between GDP and consumption is due to factors which are internal. As the authors themselves acknowledge, factors related to interregional mobility (capital and credit) may be overvalued. (Melitz and Zumer, 2002; Kalemli-Ozcan, Sorensen, Yosha, 2003).
- If we seek to measure the interregional credit, the above specification hardly makes it possible to estimate the stabilizing effect that credit could play between the American regions.
- The method adopted by ASY neglects regional cycles and does not clearly identify the nature of the shock. The empirical study of the cross-correlations of consumption and production contradicts the theoretical expectations.
- The measurement of interregional capital income is inaccurate due to the lack of adequate data on US regions.

Despite the methodological inadequacies, this approach constitutes the reference framework through which the issue of risk sharing/consumption/ income smoothing is studied.

3.2 Consumption smoothing via foreign aid

In order to measure the degree of consumption smoothing via foreign aid, we closely follow the empirical specification of Sorensen et al (2005), Hadzi-Vaskov (2006) and Kose et al (2015). Firstly, degree of consumption smoothing is measured for the panel of countries and then for each country of the sample over the period 1975-2016. We then consider an estimation country by country rather than a panel because the homogeneity-assumptions on which panel framework is based, are unlikely to hold. Indeed, in a panel framework, all countries are assumed to be characterized by a symmetric preference and there is uniform transmission of global shocks.

The empirical specification starts with the following model:

$$(\Delta \log C_{it} - \Delta \log C_t) = \alpha + \beta_i (\Delta \log GDP_{it} - \Delta \log GDP_t) + \varepsilon_{it}^{19} \quad (6)$$

Where C_{it} represents the real consumption per capita for country i in year t while C_t stands for world real consumption per capita. Similarly, GDP_{it} represents the real gross domestic product per capita for country i in year t while GDP_t stands for World real gross domestic product per capita. In the above equation, β represents the co-movement of a country idiosyncratic consumption growth with their idiosyncratic output and $1 - \beta$ has the same meaning as defined in previous section. It also measures the deviation from the perfect risk sharing in consumption²⁰. ε_{it} simply represents the error terms. We run this model country by country to get the level of international risk sharing for each country. The above specification indicates how all the channels share the consumption risk.

Since this thesis seeks to shed light on foreign aid that target consumption smoothing, we specify the second model by adding interaction variable. The specification can be set as follows:

¹⁹ Moreover, as it is not possible to insure against global shocks, the global fluctuations in consumption and GDP are subtracted from the country specific growth rates.

²⁰ The perfect risk sharing hypothesis assumes that countries share completely the idiosyncratic risk that they face. $100(1 - \beta)\%$ measures the degree of international risk-sharing in percentage terms.

$$(\Delta \log C_{it} - \Delta \log C_t) = \alpha + \varphi_1 A_{it} + \varphi_2 (\Delta \log GDP_{it} - \Delta \log GDP_t) + \varphi_3 A_{it} (\Delta \log GDP_{it} - \Delta \log GDP_t) + \Delta \varepsilon_{it} \quad (7)$$

Where $\Delta \log C_{it}$ and $\Delta \log C_t$ are the same variable defined earlier; However, A_{it} represents foreign aid inflow per capita for country i at time t . $A_{it}(\Delta \log GDP_{it} - \Delta \log GDP_t)$ stands for the interaction between control variable (foreign aid per capita) and the difference in GDP per capita between each country and the world. This interaction term between foreign aid and GDP is added to the regression in order to measure the extent to which foreign aid delinks consumption from output. Similar to Kose et al (2015) the degree of consumption smoothing via foreign aid attained by a country is measured by φ_3 . A negative φ_3 indicate that foreign aid helps to smooth out country consumption while a positive φ_3 denotes a desmoothing role of foreign aid. The panel framework will be used in this study for the whole sample. We also estimate the country per country equation to give a better understanding and variability of results among the group of LDCs.

3.3 Determinants of risk sharing via foreign aid

The previous section was about quantifying the amount of consumption smoothing via foreign aid by individual countries; In this section, we investigate why the impact on consumption smoothing via foreign aid is so different across least developed countries. In other words, we check the factors which determines the variability of risk insured within LDCs by using the value of risk insured in individual country (each φ_3 per country) as an explained variable. It gives further insight into how the level of consumption smoothing via foreign aid is explained between countries. Despite the broad literature on international risk sharing on advanced economies (Obstfeld, 1994; Stockman and Tesar, 1995; Sorensen and Yosha, 1998 etc...) and exceptions on developing countries such as Kose et al. (2009), Flood et al. (2012), Bai and Zhang (2012) and Fukely et al (2015), determinants of international risk sharing in these countries have so far not been identified (Gardberg, 2016).

In this thesis, we identify the determinants of consumption smoothing via foreign aid with a focus on LDCs. In doing so, we employ a cross-sectional specification that will enable us to examine variable that have missing information and for some years and those

that exhibits little time variations. In order to identify the determinants of consumption smoothing via foreign aid, we parametrize the previous φ_3 (obtained from the estimation country by country of the previous model) as a linear function of several potential determinants. We consider three types of determinants:

First, the country specific characteristics such as financial development (domestic credit to private sector as percentage of GDP, Chinn-Ito index of financial liberalization and financial sector score) and inequality index could influence the strength of smoothing via foreign aid. The more the country is financially developed the more there is risk sharing; similarly, the less inequality there is, the more there is consumption risk sharing (Gardberg,2016).

Second, the country's management indicators such as corruption-transparency indicator and economic management indicator can play a significant role in smoothing household consumption.

Third, we consider the rating of different policies (social protection policies rating and structural policies) as a possible determinant in smoothing household consumption.

Following the work of Balli and Rani (2015), we specify our model as follows:

$$\beta_i = \gamma_0 + \gamma_i \sum X_i + \varepsilon_i \quad (8)$$

Where X represents the vector of factors. X includes Chinn-Ito financial liberalization (FL), the domestic credits to private sector as a percentage of GDP (CR), the financial sector score (FS) the Gini index (GI) which captures the level of inequality in each country. The vector X also includes EM, PS and CT which represent respectively the economy management index, public sector management score and the corruption and transparency perception index. Finally, X includes the SP and StP stand respectively for, social protection policies and the structural policies score. Furthermore, $\gamma_{i=1,...,9}$ represents the coefficients associated with each variable. These coefficients capture the effect of each variable on the consumption risk sharing via foreign aid.

3.4 Evaluation of Welfare gains

In previous sections, we presented the methodology to quantify consumption smoothing via foreign aid and the determinants of variability of consumption smoothing between least developed countries. LDCs are characterized by the presence of large

unexploited welfare gains. Solving large output and consumption volatility have important implication for public policy. Over the decade, a growing literature has investigated the welfare implication of international risk sharing. The seminal paper on this field can be traced back to Lucas (1987) where welfare gains is defined as percentage increase in consumption and are derived from the complete elimination of consumption volatility. As mentioned in the section 3.3, the methodology used by Lucas is subject to criticisms as it depends on many parameters (stationarity, horizon, discount rate, preferences, stochastic processes etc...). Following Lucas (1987), several authors adapted their methodology in order to capture welfare gains.

Some studies focus their welfare analysis on consumption series while others focus on stock returns data. In these literatures, welfare gains are taking place though pooling country specific risk associated with consumption/wealth' fluctuations (Prasad et al,2003). The standard approach in the welfare gains literature is to employ dynamic representative agent models and a variety of stochastic processes for consumption series. However, there are other approaches such as general equilibrium models with utility depending on the level of consumption (literature based upon consumption/output), and partial equilibrium models with utility directly depending on wealth (literature based upon equity returns).

In this thesis, we quantify the welfare gains derived policies that aim at perfect consumption smoothing. As mentioned in the literature, several methodologies with different parameters have been used. Van Wincoop (1998) developed a methodology which compares of two scenarios. Under the first scenario, he assumes that there is no additional risk sharing and domestic consumption is equal to domestic output. While in the second scenario there is perfect risk-sharing as countries perfectly smooth out fluctuations in domestic consumption. In fact, it is believed that in the second environment, countries adopt perfect diversification of all risk associated with fluctuations. Since total world consumption is less volatile than the domestic consumptions, moving from the first scenario to the second one reduces the consumption volatility and the welfare gains associated and cross-country correlations of consumption series increase. The welfare gain is therefore interpreted as a percentage of permanent increase in the expected level of consumption under international risk sharing (Prasad et al, 2003).

In this study, we closely follow the methodology developed by Van Wincoop(1994,1999) and adapted by Prasad et al (2003). Let us consider the benchmark set up developed by Van Wincoop (1999). In this benchmark, we assume N countries²¹ where residents have the same preferences and the expected utility is as follow:

$$U_i = E \int_0^H e^{-\beta t} \frac{(C_{it})^{1-\gamma}}{1-\gamma} \quad (9)$$

In the above utility function, H stands for horizon²² which is the number of years, γ represents the rate of relative risk aversion; C_{it} denotes the consumption per capita²³ of each country at time t. Let y_{it} be the consumption endowment with random walk with drift:

$$dy_{it} = \mu y_{it} dt + \sigma y_{it} dz_i \quad (10)$$

Where z_i is standard Brownian motion and $\rho = dz_i dz_j$ ($i \neq j$) is the correlation of the innovations of endowment growth across two different countries.²⁴ In the absence of risk sharing, the domestic output is equal to domestic consumption $C_{it} = y_{it}$. The resulting expected utility is therefore:

$$U_i = \frac{(C_{i0})^{1-\gamma}}{1-\gamma} \frac{1-e^{-v}}{v} \quad (11)$$

Where $v = \beta + (\gamma - 1)(\mu - 0,5\gamma\sigma^2)$

In presence of risk sharing, each country consumes a portion of per capita world endowment y^w presented as follows:

$$y^w = C_{it} = \sum_{j=1}^J y_{jt} / J.$$

In this environment it is assumed that each country perfectly diversifies away their country domestic consumption risk. The above expression has the following random walk process with variance:

$$\sigma_w^2 = \sigma^2((1/N) + (1 - 1/N)\rho)$$

²¹In our study, we consider 48 countries from Least Developed Countries

²²In our case the H=41 (1975-2015)

²³In the original specification, Van Wincoop (1999) made a distinguish between tradable and non-tradable goods. However, sharing of risk associated with the fluctuations in non-tradables consumption is not possible. Non-tradable goods are not considered in (1). In this thesis, our dataset don't allow such distinguish; we therefore consider consumptions goods are tradables

²⁴ Since the aim is to measure the potential gains from additional risk sharing, the appropriate proxy of endowment is consumption rather than output data.

The measure of welfare gains is therefore:

$$WG = - \left[1 - H(r - \bar{\mu}) \frac{e^{-H(r - \bar{\mu})}}{1 - e^{-H(r - \bar{\mu})}} \right] \frac{0.5\gamma d\sigma^2}{r - \bar{\mu}} \quad (12)$$

WG represents the welfare gains and is considered as the permanent increased in expected consumption. $d\sigma^2 = \sigma_w^2 - \sigma^2$ stands for the discrepancy between world consumption variance and domestic consumption variance. It simply compares the difference in consumption fluctuation. If $d\sigma^2 > 0$ the country consumption is less volatile than world consumption.

$r = \beta + \gamma\bar{\mu}$ is the risk free interest rate. Similarly, to Van Wincoop (1999), we consider r as the real interest rate on money market. It is defined as the lending interest rate adjusted for inflation (derived from International Financial Statistics); $\bar{\mu} = \mu - 0.5\gamma\sigma^2$ indicates the risk adjusted growth rate. Consequently, $r - \bar{\mu}$ denotes the time discount rate.

From the welfare gains formula, 4 straightforward results can be derived:

- The longer the time horizon H , the larger the welfare gains
- If $r < \bar{\mu}$ and $H \rightarrow \infty$, the welfare gains tends to be infinite
- If H is infinitesimal (extremely small), the welfare gains drop to zero
- If $H = \infty$, the welfare gains drop: $WG = \frac{0.5\gamma d\sigma^2}{r - \bar{\mu}}$

To compute the formula of welfare gains, certain parameters should be estimated. We estimate for each country the risk-free interest rate r , the consumption variance σ^2 , the adjusted growth rate $\bar{\mu}$ and the rate of risk relative aversion γ . For purpose of comparison with other results in the literature we set $\gamma = 3$ and the discount rate is set at 0.02

3.5 Data and Variables

The full data sample consists of an unbalanced panel of 48 Least Developed Countries over the time period 1975-2016. We use different sources to construct our database. The official development aid (ODA) is used as a proxy of foreign aid²⁵ variable. We obtained it from OECD database. The OECD database provides ODA data in current US dollar for a long period of time and data are available for all countries; GDP (constant 2005) household consumption (constant) are from the recent update of UN database. We

²⁵Our definition of foreign aid includes grants and concessional loans that conform to official development assistance (ODA)

obtained population data from 2016 World Development Indicators (WDI) database. Since data has different measures²⁶, we convert foreign aid into its real value with a base 2005 by multiplying the current value by its deflator base 2005²⁷; Then we get the per capita value by dividing foreign aid, GDP and Household consumption by population for each country.

For the purpose of analyzing the determinants of consumption smoothing via foreign aid, as mentioned in the beginning, we use three types of determinant. The first type is financial variable where we retrieve Chinn-Ito financial liberalization, the domestic credits to private sector as a percentage of GDP, and the financial sector score. The Chinn-Ito financial index²⁸ measures the degree of capital account openness of a country and take into account the restriction on cross-border financial transaction. The domestic credits to private sector mainly refer to “credits to the private sector provided by financial corporations”²⁹. The financial sector score measures the structure of the financial sector and the policies and regulations associated. The second type of determinants is country specific indicators. We use corruption-transparency score “which assess the extent to which executive and public employees can be held accountable for its use of resources, administrative decisions and the results obtained”³⁰; The economic management score “which assesses macroeconomic management, fiscal policy, and debt policy”. Furthermore, we use the public-sector management score which assess the quality of governance, budgetary and financial management and inequality index (Gini index). The third type of determinants are policies. We consider two types of policies: social protection policies score which “focuses on policies and regulations that assist those who are poor to better manage further risks, and ensure a minimal level of welfare to all people”; and structural policies which includes “trade, financial sector, and business regulatory environment and contribute to the stabilization”. All the three types of determinants are collected from 2016 WDI and since our model on the determinants of

²⁶Some data are in current measure while others are in constant 2005

²⁷In 2016 WDI, ODA values are in constant 2010; we therefore divided the current value by the 2010 constant value to get the deflator in 2010. In order to convert the deflator in 2005 we divided the 2010 deflator by its value in 2005.

²⁸The data is collected from http://web.pdx.edu/~ito/Chinn-Ito_website.htm

²⁹ Definition from World Development Indicators.

³⁰Definition from Country Policy and Institutional Assessment

risk sharing is a cross section specification, variables in this model are taken on average based over the period of the sample due to the characteristics of some variables.³¹

To quantify welfare gains from foreign aid in each country, per capita consumption and foreign aid per capita are used. Following Van Wincoop (1998), we assume that the risk-free interest (r) is 0,85 percent and the relative risk aversion is set at $\beta = 3$. A decrease in r means that welfare gains gets larger while a decrease in risk aversion coefficient means smaller gains. The risk adjusted growth is obtained based on the mean and the variance of per capita consumption growth rate. The period of analysis is from 1975-2016. The gains derived covers 31 years

The descriptive statistics of variables used in this thesis are presented in the table. The first three variables are used to estimates the consumption risk sharing via foreign aid and as it is expected, there is a great variability between countries. The remaining variables enter in the estimation of determinants of consumption risk sharing via foreign aid³². The next table presents the summary of the descriptive statistics.

Table 3: Statistics Summary

Variable	Obs	Mean	Std. Dev.	Min	Max
HCPC	1934	12867.73	96799.2	0.2630587	1333183
GDPPC	1934	17718.6	135808	2.300684	1894053
APC	1,934	87.05541	245.9791	-1.183549	6045.352
EM	48	3.327633	0.621342	1.651515	4.333334
FS	48	2.812451	0.4688119	1.272727	3.818182
CR	45	14.8955	8.493729	2.85849	42.31513
CT	48	2.714855	0.5562287	1.409091	4.318182
STP	46	3.134168	0.4430297	1.545454	3.90606
SP	48	2.849264	0.4655941	1.65	3.681818
GINI	48	41.20634	5.818624	30.1125	56.25
FL	46	-0.6216797	1.088394	-1.645821	2.325968

³¹Some data are not annual and are obtained after each 3,4,6 years.

³²In our sample, there is a lack of 2 countries: Timor Leste and Vanuatu. This explain the number 46 in observations.

From the table, it appears that among LDCs, Somalia has the lowest financial liberalization index while Vanuatu is the most financially opened country. Analysing Gini index where the high number over 0 reveals a high level of inequality in the economy, the table also indicates that Angola is the least unequal country while Haiti has the highest level of inequality index. In terms of financial statistics, the statistics from WDI reveal that financial sector score in Democratic Republic of Congo is the lowest comparing to the highest score (Benin). In the same

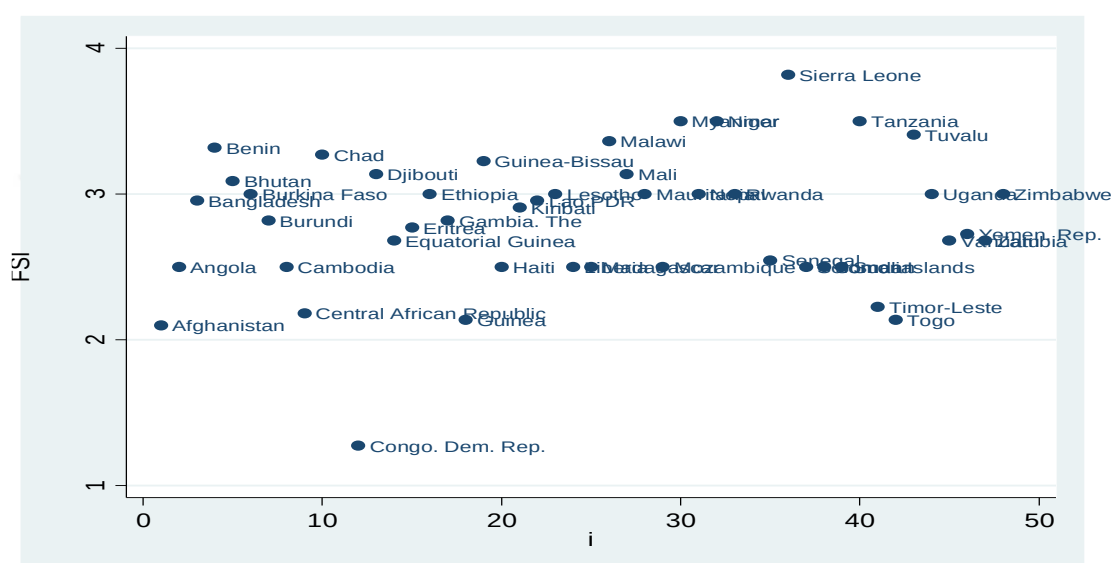


Figure 11: Financial Sector Score

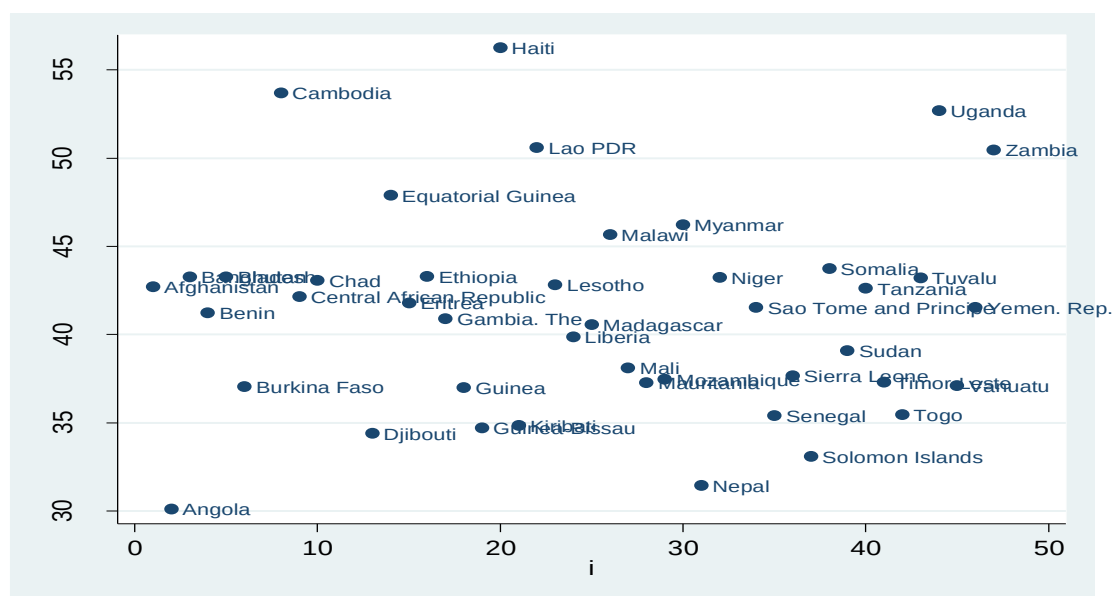


Figure 12: Gini Index on inequality

way, Uganda' private sectors are the most dependent on domestic credits while private sectors in Central Africa Republic receive the lowest level of domestic credit ratio (%GDP) among the group of LDCs. For the factors “policies”, statistics show that Democratic Republic of Congo has the weakest structural policies score while Tanzania is the country which has developed the strongest structural policies over the period of analysis.

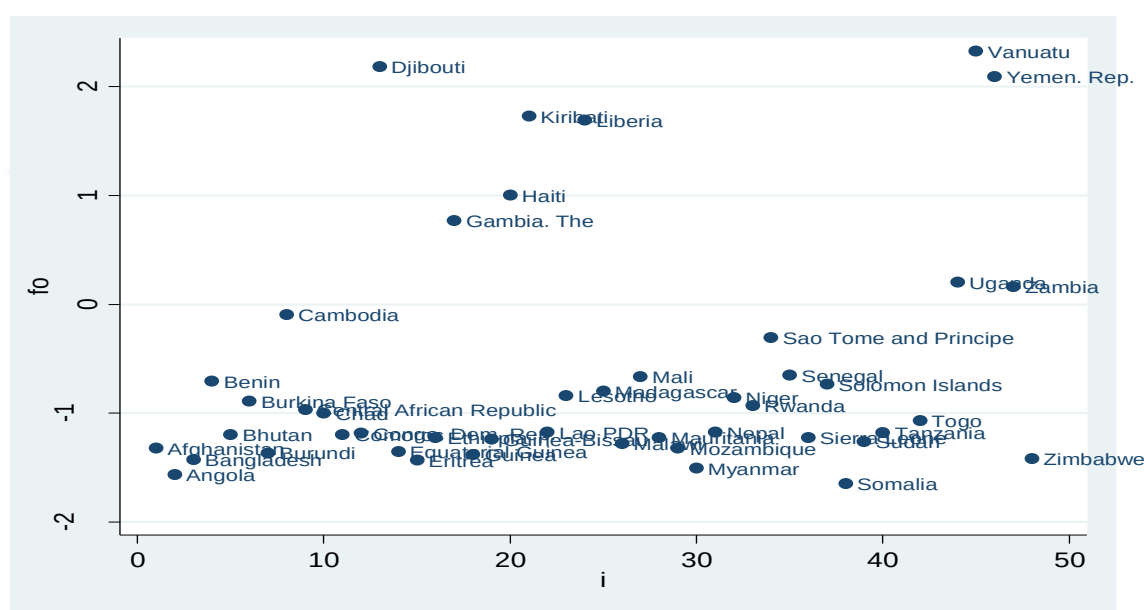


Figure 13: Chinn-Ito index

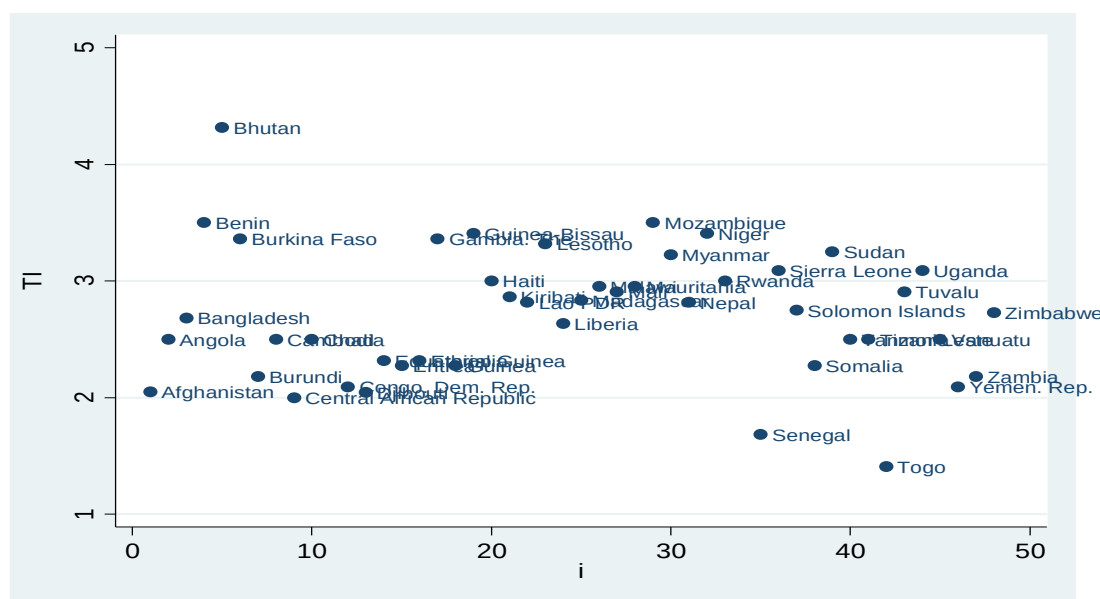


Figure 14: Corruption and Transparency score

4. RESULTS AND DISCUSSIONS

In this section, we evaluate the empirical results of consumption smoothing via foreign aid by quantifying the share of output shocks absorbed through foreign aid channel. We provide in this section a motivating basis for the theoretical analysis undertaken in the literature section and determine the factors explaining the difference in the level of consumption smoothing. Finally, we assess the welfare gains from eliminating consumption volatility.

4.1 The baseline risk sharing regression

We evaluate the extent of consumption smoothing through foreign aid using the specification (7). The estimation is made on the full set of LDCs over the time period 1975-2016. By doing so, we capture the consumption risk sharing through foreign aid on average for all the sample of LDCs. The estimation results for the whole sample in the panel specification are given in the following table. Moreover, we estimate the equation with both fixed effects and Random effects panel data estimation techniques. We carry Hausmann test to check the differences between coefficients of these techniques. The test reveals that the random effects are robust and valid to our data; however, the difference between coefficients isn't significant thereby suggesting that both estimation techniques could be valid.

Table 4 : Panel estimation results

Variables	Random effects	Fixed effects
<i>d_GDP</i>	0,655*** (0,037)	0.647*** (0.038)
<i>d_A * d_GDP</i>	-0,0028** (0,0031)	-0.003** (0.003)
<i>Time Trend</i>	-0,017*** (0,002)	-0.017*** (0.002)
Constant	-0,0005748* (0,003)	-0.001* (0.003)
Number of Obs	1913	1913
Prob> <i>Chi2</i>	0,00001	
Prob> <i>F</i>		0,0001

Note: ***, ** and * indicate respectively the statistical significance at 1%,5% and 10%. The values in parenthesis stand for standard deviations

Two findings are worth mentioning. First, results of estimation reveal that over the period 1975-2016, the coefficient of consumption risk sharing via foreign aid was -0,28 % in LDCs. It means that, over the period of analysis, foreign aid has contributed to smooth out household consumption by absorbing 0,28% of output shocks³³. However, this result reveals the quasi ineffectiveness of foreign aid on this target of smoothing household consumption³⁴; The negative sign associated with the coefficient also indicates the countercyclicality of foreign aid. However, the low level of the coefficient makes it difficult to claim that foreign aid has had a significant benefit on the level of consumption smoothing risk sharing over the period 1975-2016. One of the possible reasons of this low level of consumption smoothing is that the foreign aid inflows is oriented to recipient countries are generally procyclical. This procyclicality doesn't contribute in household consumption smoothing as foreign aid is reaching recipient country in time when it might not needed the most; thereby aggravating the consumption changes on output fluctuations and suppress international risk sharing. Furthermore, only 17,4% of foreign aid is oriented to sector that have direct effect on consumption³⁵(see figure 15).

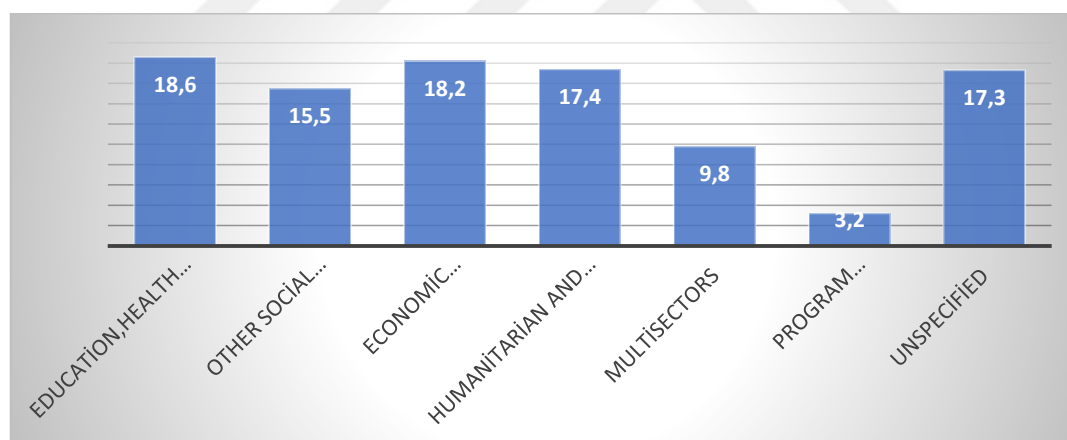


Figure 15: Distribution of foreign aid per sector (Author's computation using OECD database)

Second, in line with previous studies perfect risk sharing in consumption is rejected for the whole sample of countries. This is mainly due to the characteristics of the group of countries. Indeed, LDCs are characterised by the lack of credits and financial markets which may help households to smooth out consumption. However, since estimations are

³³ The negative sign indicates the smoothing role of foreign aid while a positive sign indicates a dis-smoothing role.

³⁴ These results are conforming with Kose et al (2009)

³⁵ Based on the 2015-2016 statistics from OECD, Humanitarian and production sector receive respectively 11,8% and 5,6% of total foreign aid.

done on a panel framework, it reveals the average consumption smoothing on the sample of LDCs. There are possible sources of heterogeneity which can lead to difference among LDCs. Although, countries have similarities in their economy, there are some differences in their productive and financial structure, regulations, economic management, participation in international trade. These differences may affect the degree of absorption of aggregate shocks, the quality of smoothing channels and cause the variability across countries.

Taking these sources of heterogeneity into account, we estimate the specification 7 country-by-country. This will lead to a more accurate estimate of consumption risk sharing via foreign aid. We report in figure 16 the estimation of consumption risk sharing via foreign aid for each country

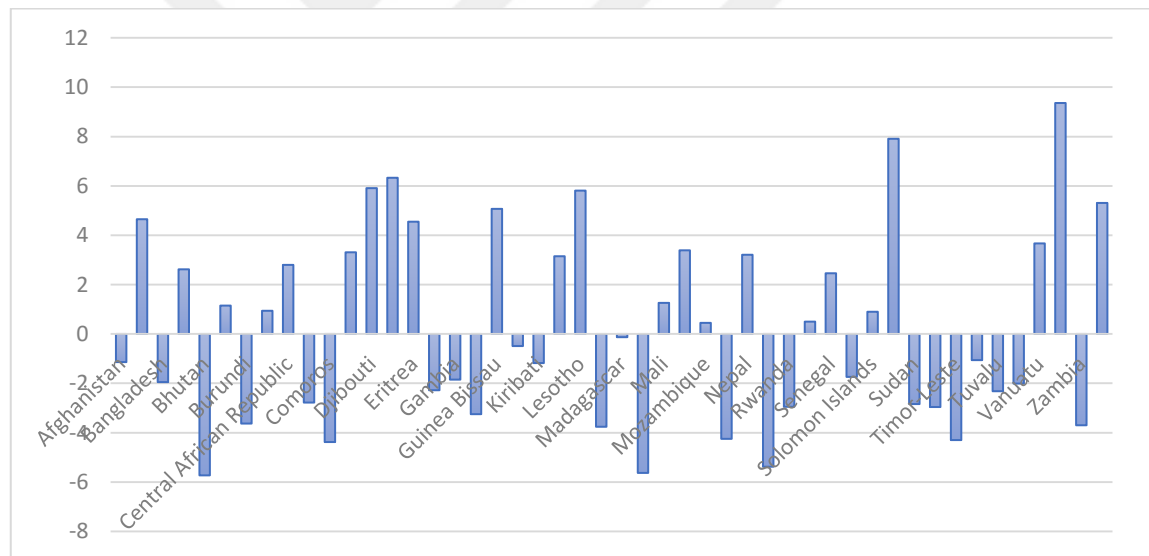


Figure 16: Estimates of Risk sharing via foreign aid for each country

Note: Following the related literature the coefficients are multiplied by 100 to get the value in percentage.

The above figure displays several important findings. First, we find that partial consumption risk sharing for each country is not rejected. Furthermore, it appears that consumption risk sharing via foreign aid among least developed countries ranged from -5,73% in Bhutan to 9,36% in Yemen which indicates large difference across countries. Apart from other factors, we explain these findings by conjecturing based on statistics.

Bhutan is among country where economy is well managed³⁶ in LDCs which therefore led to our findings. Indeed, the score of economy management index is among the highest (4,5). Moreover, the level of quality of public administration and the financial management rating are very high (4.0). Buthan is followed by Malawi as this country has recorded a consumption smoothing via foreign aid of -5,63%. Malawi is also among the well managed in term of economy, financial resources. Conversely, Yemen is recorded a coefficient of consumption smoothing via foreign aid of 9,36%. The foreign aid has had a destabilizing role as it has contributed to desmooth external shocks. This is mainly due to the current war situation and the aid that is not reaching population in needs. For 25 countries out 48, foreign aid has a smoothing role (negative sign) on consumption while the remaining has a de-smoothing role (positive sign) on household consumption. Over the period of analysis, foreign aid seems to have not contributed in consumption smoothing in Haiti, Madagascar, Mozambique, Sao Tome as the level of their consumption risk sharing is approximately equal to zero. The negative coefficient associated with foreign aid suggest that it contributes to consumption smoothing. Furthermore, the sign of the risk sharing can be also interpreted as the cyclical properties of foreign aid. Indeed, a negative sign can be seen as countercyclical foreign aid while a positive sign is procyclical. More than 50% countries in Africa show a positive risk sharing. This is consistent with previous studies which find the procyclicality of foreign aid (Pallage and Robe,2000; Erra-Dablis et al,2016 etc...). The variability of consumption smoothing via foreign aid can be seen by scatter plotting the previous results.

³⁶ This is based on the Country Policy and Institutional Assessment score.

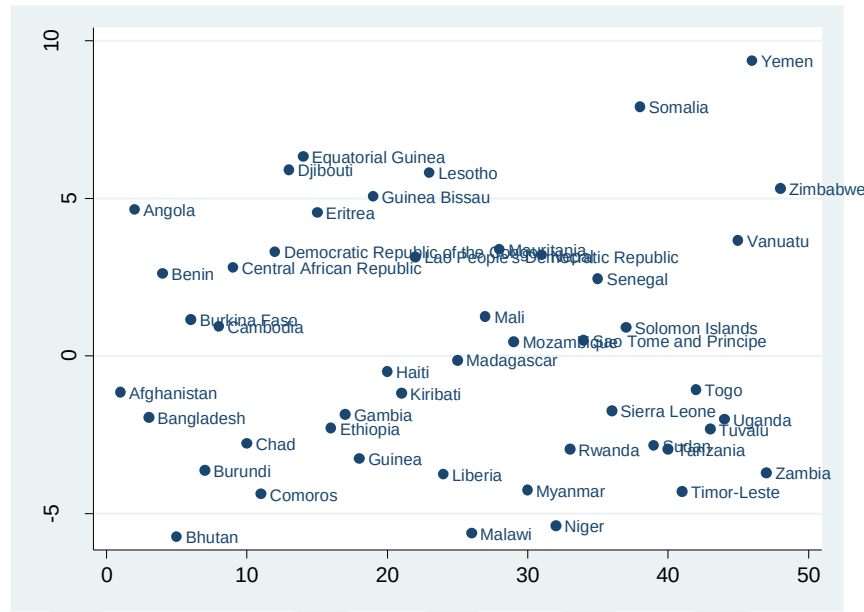


Figure 17: Scatter Plot of risk sharing estimate (author's computation)

There is a disparity in consumption smoothing via foreign aid. Some countries present higher level of consumption risk sharing (smoothing or dis-smoothing) and this is can be due to some specific factors related to countries. Why is there low and various level of consumption risk sharing via foreign aid? In the next section, we present the determinants of consumption risk sharing via foreign aid and we focus on management, financial and policies factors.

4.2 Determinants of consumption risk sharing via foreign aid

In the previous section, we find that the degree of consumption risk sharing via foreign varies largely between LDCs. Furthermore, it seems that results of estimation are related to some specifics factors. In order to address this issue, we identify three types of determinant. First, the country specific characteristics such as financial development (domestic credit to private sector as percentage of GDP (CR), Chinn-Ito index of financial liberalization and financial sector score (FL) and inequality (GINI). Second, the country's management indicators such as corruption-transparency indicator (CT) and economic management indicator (EM). Third, we consider the rating of different policies (social protection policies rating (SP) and structural policies (StP). Unlike Balli et al (2015), we focus on country specific factors which can impact the level of consumption risk sharing

through foreign aid. We assume that the ability of country to smooth out household consumption is related to its specific factors; thereby the extent of consumption risk sharing between countries may be different as a result.

As mentioned in the methodology, estimations are done on a cross section framework. The results are presented in the following table:

Table 5: *Determinants of consumption risk sharing via foreign aid*

Dependent Variable: Consumption Risk Sharing	Coefficient
EM	-0.029* (0.016)
FS	-0.062** (0.027)
CR	-0.0018** (0.001)
CT	0.040*** (0.014)
StP	0.085** (0.036)
SP	-0.013 (0.021)
GINI	-0.003** (0.001)
FL	-0.005 (0.005)
Const	0.0646849 (0.0576729)

Note: ***, ** and * indicate respectively the statistical significance at 1%, 5% and 10%. The values in parenthesis represents the standard errors

The above table reports the results of cross-section regression with the three types of determinant defined earlier. The results contribute to our previous findings by stating the reasons why LDCs have not benefited much from consumption risk sharing through foreign aid.

As can be seen from the table, most of results are significant and have expected sign. There is an evidence that financial liberalization (measured by Chinn-Ito index of capital account openness) is not a significant determinant of consumption risk channel via foreign aid. Indeed, the coefficient associated with the variable FL is not statistically significant at any level of significance. This makes sense as LDCs are not well financially liberalized and the proportion of financially literate individuals are quite low. However, we found that economy management score contributes in reducing, at 10%, the

effectiveness of consumption risk sharing via foreign aid. Financial sector score, “which assesses the structure of the financial sector and the policies and regulations that affect it”, seems to be highly determinant in explaining the low effect of foreign aid in smoothing household consumption. Indeed, the results indicates that an increase of financial sector negatively affect the level of consumption risk sharing through foreign aid. It means that the actual financial system in LDCs contribute to reduce the effectiveness of foreign aid in targeting household consumption smoothing. In the same way, Gini index (income inequality) is an important determinant of consumption risk sharing via foreign aid since the coefficient associated is statistically highly significant. The higher the level of inequality index, the lower level of consumption smoothing. It implies therefore that the economic impact of inequality on risk sharing in LDCs is considerable. One important determinant derived from estimation is the corruption and transparency score. Our findings suggest that the higher the corruption and transparency index, the higher the ability of foreign aid to smooth out household consumption. Corruption drives away crucial resources from needy households, thereby preventing them from using it in times of need and reducing the level of risk sharing. However, if the country is less corrupted and transparent in managing resources, it will contribute in allocating it in efficient way. Similarly, countries’ structural policies are highly significant in consumption smoothing effectiveness. Findings indicates that the more structural policies are well defined, the higher the effect on household consumption smoothing.

4.3 Welfare gains and foreign aid

This section analyses the welfare gains derived from a foreign aid policy that target consumption smoothing in recipient countries. As mentioned in the previous sections, we follow the same spirit of Lucas (1987) to calculate the gains from removing the cycle. Furthermore, we have assumed similarly to standard papers that $\gamma = 3$ and the discount rate is set at 0.02.

The figure 18 reports the welfare gains (country by country) calculated from consumption smoothing via foreign aid. it indicates that the average welfare gains from consumption smoothing via foreign aid is 0,89% for all the sample of 48 LDC. On the

one hand, Tanzania have recorded the highest welfare gains from consumption smoothing via foreign aid (6,63%). Tanzania is among the highest aid recipient countries (Rotarou and Ueta,2009).Tripp (2012) indicates that foreign aid has strengthened institutions that advanced accountability. It also has reinforced democracy via civil society, media as well as legislature and judiciary system. During the period 1990-2010, Tanzania received around \$26.85 billion in assistance. Apart from being a potential cause of Dutch disease, foreign aid has helpt government of Tanzania keep high and undiminishing proportion of recurrent expenditures and an increasing investment and growth (Eaton, 1989; and Likwelile et al., 1994b). The welfare gains derived from this large aid inflows in Tanzania are made possible due to the presence of other factors such as sound macroeconomic policies, FDI and stable economic and political environment.

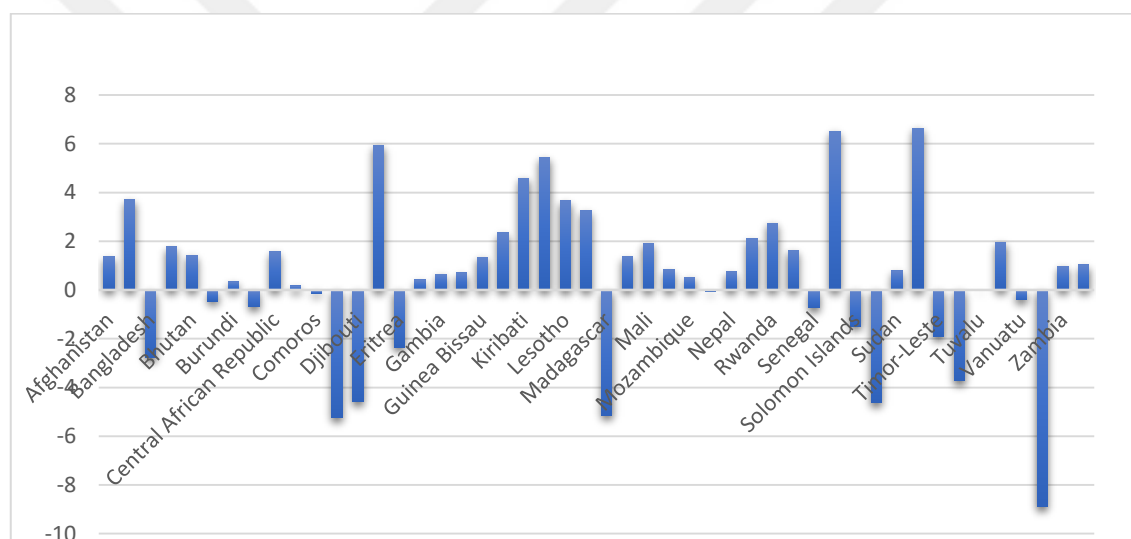


Figure 18: *Welfare Gains (Author's computation)*

On the other hand, Yemen has recorded the lowest welfare gains from consumption smoothing via foreign aid. This mainly due to the past and current situation of Yemen. Indeed, three quarters of population in Yemen are in need of humanitarian support. Despite increasing aid inflows, images of malnourished children, outbreaks of cholera and starvation have raised lot of concerns. The distribution of aids has been so far from reaching Yemeni population in need. Delivering aid in an active conflict is challenging and the longer the conflict continues, the worse the situation is getting.

The calculated welfare gains in other countries ranges from -8,89% to 6,63%³⁷. It can also be seen that foreign aid improves welfare gains in countries where financial development sector and control over corruption is very high. It appears that the welfare gains in more financial developed and less corrupt countries has been two times greater than the less financial developed countries. Furthermore, the results indicate welfare loss derived from consumption smoothing via foreign aid in 17 countries. Regionally, the results also indicate that Africa and Asia registered, on average, respectively 0,78 % and 0,51% of welfare gains. The inability of countries to insure against strong negative shocks by implementing efficient policies also contribute in the welfare loss. Despite non negligible level of welfare gains from consumption smoothing via aid, foreign aid could be of more importance when countries are on solid foundations. First the aid inflows are highly volatile and procyclical (Dhasmana,2008). It means that shortfalls in aid are highly correlated with shortfalls in domestic output. A procyclical aid flows generally lead the aid dependent countries to raise more taxes or reduce government expenditures in the face of strong recession, thereby worsening household's welfare. According to Pallage and Robe (2003), this aid procyclicality could be an optimal outcome regarding asymmetric information and divergent preference amongst donors and recipients. Similarly, to Dhasmana (2008), Arrelano et al (2009) have also considered that the cyclicity of aid is a big obstacle to its efficiency and welfare gains in recipient countries³⁸. Although the authors found that the obstacle is not big enough to hinder the effect of aid, they consider that aid variability and cyclicity should be taken into account in the future aid architecture. There is a steady increase of social protection programs since the 1950s (figure 19) Yet social safety nets remain crucial tools in absorbing negative shocks

³⁷A negative value of welfare gains can be interpreted as Welfare Loss

³⁸The methodology used in their paper is the intertemporal two sector general equilibrium model.

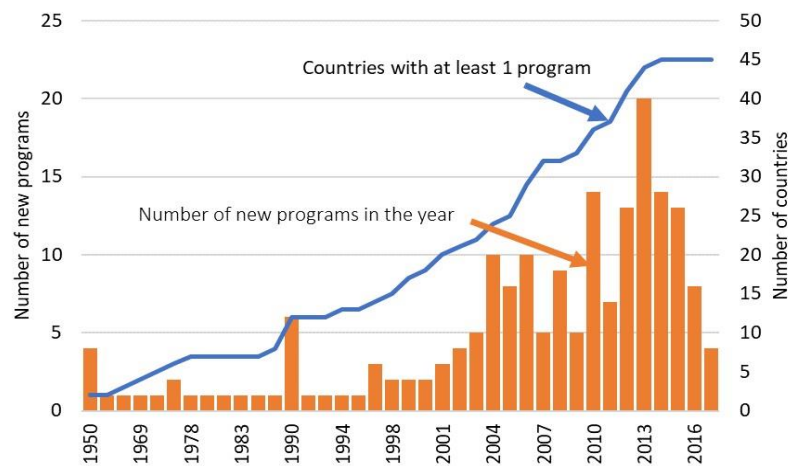


Figure 19: Establishment of Social Safety Nets in Sub-Saharan Africa(Beegle et al(2018)

In order to solve the substantial welfare losses caused aid procyclicality. Dhasmana (2008) proposes an aid indexation in LDCs. Given that Least Developed Countries have low access to international capital markets, Dhasmana (2008) suggested that aid flows should be indexed to temporary terms of trade shocks and capital adjustment cost, thereby lowering the volatility of disposable income and consumption. Ignoring these important characteristics of LDCs could underestimate the welfare losses from aid volatility. Indeed, the author consider that taking into account both terms of trade and capital adjustment costs contribute 20 time higher in welfare loss from aid volatility than results found in Arrelano et al (2009). An aid indexation to terms of trade is found to significantly lower the volatility of consumption about 10%. Correspondingly, the welfare gains associated is 4% higher than the non-aid indexation to terms of trade. Compared to a situation where there is no terms of trade and capital adjustment cost, indexed aid produced 4% of permanent consumption. Alternatively, the author also found that 3% less aid indexed to terms of trade provides the same level of welfare gains

5. CHALLENGES AND OPPORTUNITIES WITH FOREIGN AID

International aid represents an important source of resources for LDCs. It amounts to about 15% of GDP on average for the recipient countries. Some countries have received more. For instance, Mozambique received up to 30% of its GDP on average over the period 1975-2004. Previous Chapters have discussed about the effectiveness of foreign aid in general and in particular on the specific target of consumption smoothing. Some authors consider its importance in improving economic development (Sachs,2005) while others remain sceptical (Easterly, 2006). Its effectiveness is still controversial and subject to several conditions (such as quality of institutions, quality of policies in recipient countries, aid architecture etc...).

Over the past two decades, major changes have happened in institutional practice in international aid. One of main change is the promotion of national ownership and development partnership that give to aid recipient countries more leadership and aligning aid interventions with recipient countries' structure. Moreover, an increasing voice in public opinion in donor countries for better results of aid is rumbling. It is therefore necessary to take it into account to legitimise the spending of tax revenue on overseas development assistance in time of economic difficulties. Starting from the economic literature, several reasons have been cited to explain difficulties and aid failure in recipient countries. These reasons can be summed up into 3 main factors:

- i) Structural factors which hinder recipient countries
- ii) Incentive effects which impact the governance of recipient countries
- iii) Donor and recipient practices which often lead to inefficiencies.

Following structural and political changes in international aid policies, the “partnership era” have led to:

- ✓ more harmonisation and coordination in activities
- ✓ conditioning the disbursement of aid on ‘development results (Whitfield,2009).

However, concerns still arise from the possibility of aid to be captured by political and economic elites. It represents a determining factor in aid disbursement and the failure of many development projects (Klitgaard, 1990; Alesina and Weder, 2002).

In this section, we discussed about foreign challenges and opportunities. In particular, we will examine how the current practices of major donors/recipient impact

the effectiveness of international aid. Moreover, we also discuss about disincentive effect of foreign aid and its impact on the effectiveness of aid. An interesting question is also to understand how should aid be given.

The remainder of the chapter is presented as follows: the first section 5.1 presents the main challenges in foreign aid. In this section, we recall some of the mains critics of foreign aid. The critics can be from the donor countries, the recipient countries, or both. We indicate that in this condition international aid is doomed to failure. In section 5.2, we analyse how foreign aid could be beneficial when proper aid policies are adopted

5.1 Challenges

5.1.1 Donors practices

In many developing countries, foreign aid has had no or minimum impact on the main target (growth, poverty). Indeed, 36 percent of aid recipient countries have not regained their per capita income levels first archived before 1960 (Freeman and Lindauer, 1999). One the main reasons is the low commitment to pledge on the part of donor countries, aid conditionalities and politicking in aid allocation (Amza,2009).

In the 1970's, the UN have taken resolution to be committed in eradicating poverty in LDCs. Based on this resolution, 22 developed countries (members of DAC) have pledged to allocate 0,7% of GNP in official development assistance (UN,1970). However, evidence have shown that many countries have failed to meet their pledge. During the period 1996, total aid of combined DAC has been 0,25% of GNP, below the promise of 0,7% (Kankwenda et al,2000). From 2000 to 2004, the total foreign aid from USA represented 0,16% of GNP. The table 7 indicates fluctuations in foreign aid over the years. The fluctuations are sometimes due to crisis, recession etc... In 2005, the G8 members have also pledged for an annual increased of foreign aid by 50billions USD (Katel,2005). Similarly, in 2006 US administration has agreed for a 50% of increase in aid above 10 billion USD (Vasquez,2008). However, these pledges were not fulfilled by G8 members as only 20 billion USD was disbursed (which is quite bellow the target of 50 billion USD (Taiwo,2009). Crutsinger (2005)³⁹ considers that if the promise was fulfilled, it would

³⁹<https://www.globalpolicy.org/component/content/article/209/42840.html>

have saved the lives of 5 million children by 2010 and caused the loss of 50 million children's lives, if they didn't go as far as they have done.

Often considered fundamental for better effectiveness of international aid, conditionality or selectivity is the subject of an abundant literature. The debate over its need to make aid effective is controversial. Even if it seems obvious that aid will be less effective in a highly corrupt country, there is no guarantee that by depriving "badly governed" countries of international aid, we will achieve better overall results. In fact, conditionality sought to impose a democratic regime with a full capitalist economy and be an obstacle to socialism in the 90's (Niyonkuru, 2016). The objective was to prevent the occurrence of dictatorial regimes which would impede economic development and western interests. Following economic crises which entailed a high number of poorest countries, the London Club decided to impose conditionality as a tool to ensure reimbursement of foreign aid given and be a safeguard to moral hazards (Ebbington, 2005).

However, conditionality is still seen as an imperialist tool that interferes in management of domestic affairs in aid receiving countries for their own interest. Indeed, the lack to adhere to conditionality can lead to removal or cancel of aid. The effect of conditionality on the main target of aid (such as poverty alleviation, consumption smoothing etc...) is minimal on policies (Niyonkuru, 2016). Indeed, it is found ineffective when directed toward wrong and poor programs characterised by the lack of monitoring mechanisms from donors to avoid principal agent dilemma. Moreover, conditionality can lead to a mismatching between imposed programs by donors and realities and needs on the ground; Thereby resulting in an inevitable failure. A coherence between donors' actions could be of great importance as donors may have divergent conditionalities. Tangible examples are in rural development projects. Designing of development projects is not inclusive of rural population and doesn't practically taking into account their needs.

Table 6: *Official Development Assistance (2008-2018) in millions*

Countries	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Australia	679,9	643,5	779,4	867,5	971,0	820,3	779,2	721,8	568,1	662,7	571,4
Canada	1 145,7	1 179,5	1 548,3	1 162,0	1 054,6	1 007,9	922,5	1 034,6	884,9	975,4	1 069,5
France	1 149,0	1 005,9	1 387,8	1 930,9	1 214,0	1 564,2	1 146,5	1 176,6	955,6	1 191,8	1 244,0
Germany	1 659,1	1 575,3	1 770,0	1 830,0	2 358,6	1 704,1	2 120,3	1 769,8	2 291,8	2 574,9	2 711,2
Italy	424,3	349,3	279,0	712,8	144,7	146,4	158,9	306,2	321,3	344,8	367,4
Japan	1 296,1	1 560,5	2 124,8	1 900,1	2 249,9	5 013,8	2 253,9	2 716,5	2 522,2	3 407,9	3 278,7
Korea	174,1	216,4	395,4	389,0	469,9	559,0	560,7	624,8	625,7	606,7	641,9
Russia				15,8	7,9	42,1	35,5	36,4	41,9	26,6	33,6
Saudi Arabia								454,3	529,9	583,3	3 675,7
Turkey	118,4	93,3	98,4	178,7	217,4	183,2	144,3	358,5	123,7	156,1	137,2
United Kingdom	2 247,3	2 552,2	2 573,9	3 130,5	2 832,8	3 286,9	3 287,6	3 532,3	3 259,1	3 503,0	3 203,3
United States	8 228,9	9 335,1	10 266,5	11 328,1	10 075,9	9 593,8	9 201,3	9 618,5	9 734,3	10 252,0	9 633,5
DAC Countries	23 283,7	25 031,7	28 438,7	29 436,0	26 455,3	28 802,1	25 387,9	26 171,5	25 782,8	28 384,0	27 792,1

Source : OECD (2019)

Other factors such as security and environment may interfere in the effectiveness of conditionality. Furthermore, aid arrives in unprepared countries with serious concerns about management, and donors take more account of situation after donation than before the donation.

Another criticism of selectivity finds its source in the fact that this practice seems unfair from the point of view of redistribution, when we consider in particular, equal opportunities. Should we refuse aid to a country which is very poor with enormous handicaps and which is badly governed? Conversely, should we devote the bulk of aid to countries that have already started taking off?. Critics of a selective aid policy argue that the practice of selectivity will deprive many poor countries of foreign aid when they do not have access to international capital markets. This practice would then increase the risk of poverty and create strong inequalities between Nations. It can even reinforce the inequalities between the inhabitants of developing countries, by penalizing countries which have great structural handicaps while at the same time providing more resources to countries where the prospects for poverty reduction are higher. By adopting such practices (conditionality or selectivity), aid loses one of its main functions: Being an instrument of justice between Nations.

To sum up, even if the practice of conditionality or selectivity in the granting of international aid is considered necessary for a better effectiveness of development aid, it is very little applied. This mainly due to two main causes:

- i) The fact that cross-compliance rests on a weak foundation,
- ii) The role of international justice as an instrument of foreign aid.

Even if it is admitted that “good governance” increases the productivity of international aid, the repercussions that the practice of selectivity (or conditionality) can have on the primary objective of poverty reduction remain to be elucidated.

Hyden (2008) and Tandon (2009) considered that donor countries have mainly responsible in the failure of international aid due to high level of politicization. Donors have been subjected to the criticism of double standards. As mentioned in chapter 2, international aid motivated by different interests. In practice, politics are found to be the most important factor of global aid than economics needs. A palpable example is Jordan during the Gulf War. Jordan have stood by Iraq and consequently their foreign aid inflows

drastically plummeted. Following the Jordan government decision to realign to western decisions, aid inflows and a write off debt valued at 900 Million USD. In the following decades, Jordan topped the fourth place in aid recipient countries. Hirvonen (2005) identified 2 types of politicization in the process of international aid:

- i) Foreign aid's design according to donors' self-interests which makes it ineffective
- ii) Foreign aid's design according to domestic elites' interests increasing unemployment and inequality

All these conditions make it difficult for recipient countries to self-determine and realize themselves as countries. Sachs (2005) consider that to get the needy ones out of vicious cycle of poverty is to enable them to determine and achieve their development themselves. In doing so, he mapped the “trapp of poverty” in low income countries in

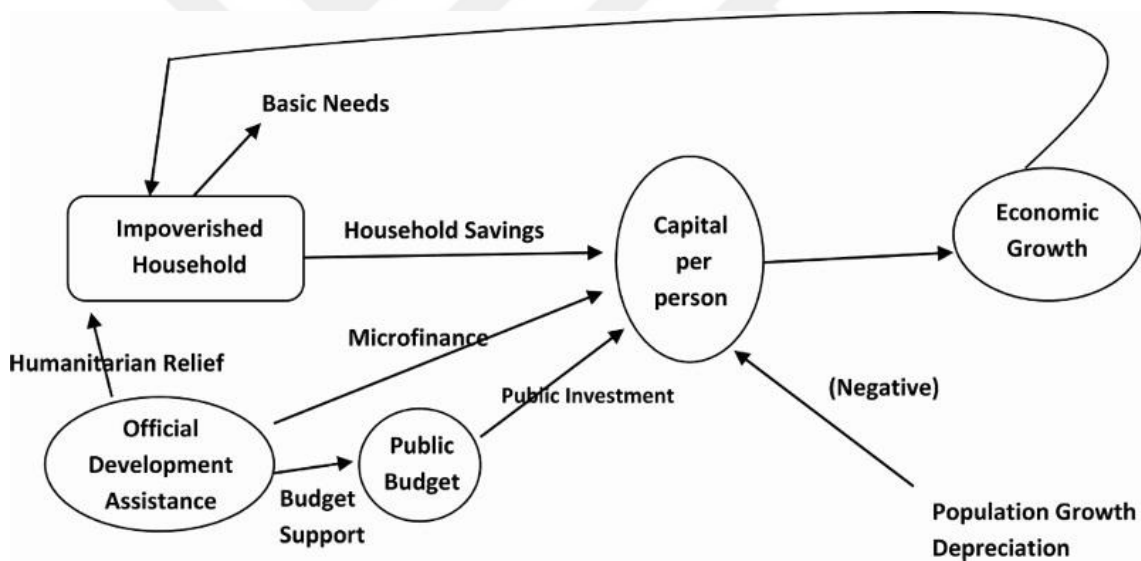


Figure 20 : Role of foreign aid in breaking poverty trap in developing countries (Sachs (2005))

order to help donor countries deal with it. The perception that only donor actions matters is not only wrong but is also detrimental. It therefore needs to take into account recipient countries' needs.

5.1.2 Foreign aid and recipients Practices

An internal factor that contributes to foreign aid inefficiency is the high level of corruption in recipient countries. Andersen et al (2020) indicate that foreign aid inflows are always associated with sharp increase of deposits in offshore accounts. The authors confirm that the money in these deposit accounts belong to economic elites in aid recipient countries. A micro analysis of the data and tax documents suggests, on the one hand, that the distribution of wealth is characterized by the concentration of offshores accounts at the top. On the other hand, the absence or quasi absence of domestic bank accounts for low income households in developing countries make it impossible for them to own money in havens (World,2017; Andersen et al 2020). The figure 21 below indicates the dynamic change in haven and non-haven deposits ratio. It shows the specification developed by Andersen et al (2020) augmented with 4 leads and 4 lags of aid disbursement. It clearly shows that there are large capital outflows, precisely in the same quarter following aid inflows. The authors find a leakage rate of 7,5% for highly aid dependant countries.

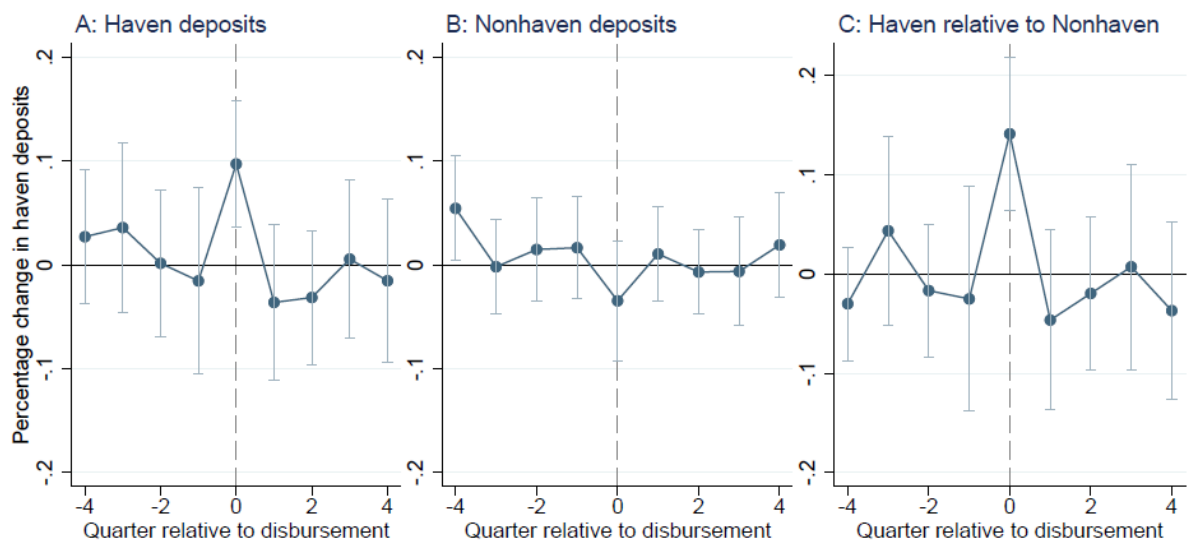


Figure 21: Haven deposits relative to non-haven deposits (Andersen et al (2020))

The leaders, through whom aid flows, are for the most part corrupt; so that the money allocated to the country as aid ends up in private accounts. In a highly corrupt country like ex Zaire, current DRC where President Mobutu Sésé Séko would have amassed during his lifetime one of the most colossal personal fortunes in the world invested abroad, the massive contributions of foreign aid injected into the country for several decades have

left no trace of progress. It was alleged that Mobutu had accumulated a fortune of 4 billion dollars in foreign accounts with foreign debt of 5 billion dollars (Shikwati,2002). In 2003, Cameroon benefited from aid of 304.90 million euros under the HIPC (Heavily Indebted Poor Countries) initiative. The main objective of this aid was to invest in pro-poor public spending and economic infrastructure. During its 2004 appraisal mission, the IMF discovers a 109 million euros “hole” from the Ministry of Finance. It is clear that aid has not only impeded economic growth in LDCs but also left them with debt burden that still continues today.

If the effectiveness of development aid is linked to its use by leaders, we can then assume that for countries where the government is much more reformist or in relatively well-managed countries, the effect of foreign aid will be different from that of a "predatory" government. Therefore, the management in the recipient country would then depend on the effectiveness of external aid. Mismanagement is an important internal factor to recipient countries that determines the effectiveness of aid. According to Feyzioglu et al (1998), aid is used to shift resources to other uses. Programme aid has been fungible. Aid to finance projects (health or education, for example) frees up local resources that the government can use for other sectors. In particular, it can devote the resources released to consumption. Empirical analyses developed by Griffin (1970) and Easterly and Dollar (1999) have shown that international aid encourages consumption more than investment. This is commonly referred to as the "fungibility" of international aid. The figure 22 below presents the principle of fungibility.

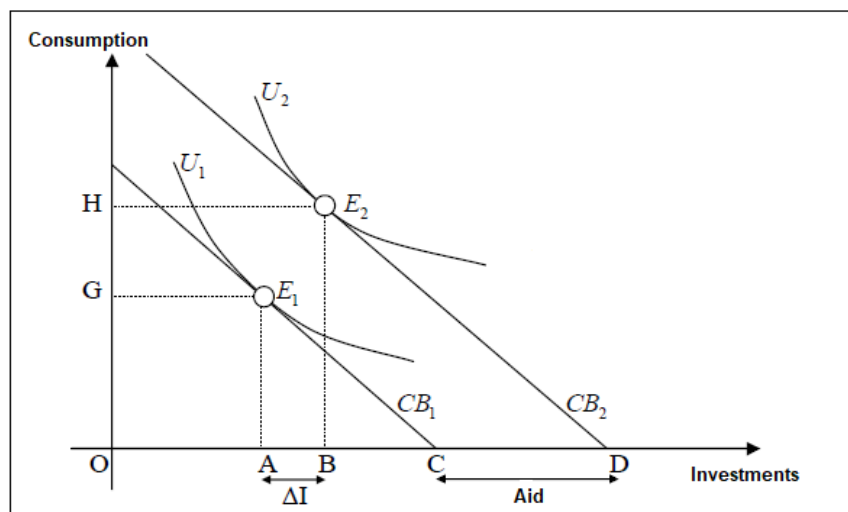


Figure 22: Foreign aid Fungibility (Amewoa,2008)

However, aid inflows in recipients has led government to practically cut its spending on the same sector. This has been the case in Uganda where foreign aid devoted to hospitals has led governments cut its own spending on hospitals. For instance, for a dollar received in aid, the Ugandan government cut out 57 cents (IHME,2010). It is believed that the government have reallocated this saving towards military sector. This mainly the reasons that Sub-Saharan Africa has scarcely changed even after receiving \$714 billion in development aid from 1960 to 2006 (Easterly 2008). A worrying fact is that Least Developed Countries, the increase in consumption linked to aid would not be for the benefit of the underprivileged, but for a class of "privileged". Even worse is that aid can create an incentive at the level of recipient governments to make no effort (good economic policies, good management, healthy institutional environment, etc). Aid would encourage the adoption of inappropriate policies, poor quality governance. Andersen et al (2017) explain that 15% of rents from petroleum in poorly governed countries are associated with money flows to bank accounts in havens due to no external constraints in the use of rents from petroleum. This rate is two or three times larger than in Andersen et al (2020)' findings in the context of aid disbursements. This is principally due to aid being subject to control and monitoring. This would explain why aid has a negative impact on economic activity when governance/management is taken into account. This situation mainly explains why conditionalities have been introduced. However, these conditionalities have had minimal effects on policies in LDCs.

Beyond the criticisms and the serious problems in foreign aid architecture and framework, it is still part of the solution if proper policies are taken to solve it. A paradigm shift needs to be drawn for the scope of foreign aid in LDCs to be efficient. It is now quite clear and perfectly documented that development aid is only part of the much broader question of financing for development. Foreign aid itself is just a means. It comes with good intentions behind it. As mentioned earlier, the failure of foreign aid in LDCs is mostly due to inherent issues and negative elements coming into play both in donors and recipient countries. As international community consider a future increase in foreign aid in developing countries along with freer global trade, we analyse in the next section the different recommendation to take advantage of this opportunity.

5.2 Foreign aid opportunities

5.2.1 Optimal Allocation of Foreign aid

Discussions on the best way to allocate aid starts by trying to identify, among its explanatory factors, those which represented the needs of recipient countries, rather than the interest of donor countries. The "right allocation" of aid is the one that meets the needs of recipient countries (Berthélémy and Tichit, 2004; Alesina and Dollar, 2000). An attempt was made to establish indicators by examining the extent to which aid is allocated to countries where it is most likely to be effective. The importance of the institutional environment and the choice of the recipient countries' economic policy is therefore favoured. This approach (Burnside and Dollar, 2004, 1997) formed the basis of the World Bank's recommendations. Aid effectiveness in terms of growth depends on the quality of economic policies. Aid should target countries that have adopted "good" economic policies. Foreign aid should be allocated to countries showing a real commitment to reform, evaluated in the light of their past performance. That is where the concept of selectivity is relevant by targeting aid towards the countries with the best ability to use aid effectively. Countries with "bad policies" and an uncertain drive to reform should receive little or no financial assistance. Moreover, this selectivity is not enough and should take into account the quality of institutions, participation and ownership of these policies. We also proposed a new criterion of disbursements as suggested by Clist (2016): The Payment by Results (PbR).

The Payment by Results ensures that the disbursement of aid subjected to a progress against pre agreed measure. It could be an important donors' instrument to help focus on the ultimate target and improve greatly the effectiveness of aid. The principle is quite similar to traditional conditionality as at the beginning of the agreement specific goals are defined. It is also similar to selectivity due specific conditions needed to meet by recipient countries. The only difference lies on the facts that results already achieved will be the main determinant of the amount of aid. Although there is little empirical evidence on PbR, we strongly believed that it provides more relevant insights and could be more effective than other alternatives. However, PbR is valid in the right circumstances. Some prerequisites should be:

- a) Verifiability of measures
- b) Ability to design and enforceability of contract by donors
- c) Chance of improvement's undervaluation without worrying about proposed payment structure.

These prerequisites may help guarantee PbR success. Donor countries should take a careful look at the quality and quantity of foreign aid provided to the underdeveloped country in order to achieve the predefined objectives and especially in a context of corruption which characterizes the recipient countries (Easterly, 2008)

5.2.2 Foreign aid, Institutions and Governance

The previously discussed conditionality which is a form of contract established between donors and recipients, in the logic of an ex-ante conditionality is based on the quality of governance. The acceptance of such aid by a given country is therefore synonymous with a commitment on the part of the recipient to put in place the policies necessary to improve the quality of its governance. In case, the assisted country doesn't honored its political commitments in term of reforms, the aid could be stopped and the country concerned should be deprived of future aid until new conditions for cooperation are established. An international allocation of aid that does not take into account the quality of governance in recipient countries can be "perverse" for poor countries which have "predatory" or "inefficient" regimes at their head. When "criteria of effectiveness" in recipient countries is not part of aid, it can create a disincentive to improve the business climate, especially since the governments receiving aid know that if their results are poor and that their economy is in poor condition, they will not be imposed strict conditions for repayment of loans made. Consequently, they will be able to benefit from increased aid. Furthermore, aid which is normally intended to improve the living conditions of the poor may be diverted, to ultimately serve personal ambitions of a few rare "privileged".

Poverty reduction has gradually become the overarching goal of aid and policy reform. As the concept of poverty includes dimensions other than income, donors have turned to governance. The theme of "good governance" focuses attention on the issues of participation, decentralization, transparency and the fight against corruption. When

corruption and government policies are at the heart of the problem, fundamental institutional reforms are necessary and must hold governments accountable to their citizens. These questions respond to the imperatives of transparency necessary for improving market information. It is believed that international aid deteriorated economic, institutional governance (Ghosh, 2013; Krause, 2013) and had weak effect on political governance (Moyo, 2009 and Collier, 2007) which therefore results in poor performance. It is important to start a cohesive framework to address government issues by providing these principles: fairness, decency, accountability, transparency and efficiency. The table 8 below provides some key governance fundamentals.

Table 7: Governance Fundamentals

Principle / Arena	Participation	Fairness	Decency	Accountability	Transparency	Efficiency
Civil society	Freedom of association	Society free from discrimination	Freedom of expression	Respect for governing rules	Freedom of the media	Input in policy making
Political society	Legislature representative of society	Policy reflects public preferences	Peaceful competition for political power	Legislators accountable to public	Transparency of political parties	Legislative function affecting policy
Government	Intra-governmental consultation	Adequate standard of living	Personal security of citizens	Security forces subordinated to civilian government	Government provides accurate information	Best use of available resources
Bureaucracy	Higher civil servants' part of policy-making	Equal access to public services	Civil servants respectful towards citizens	Civil servants accountable for their actions	Clear decision-making process	Merit-based system for recruitment
Economic society	Consultation with the private sector	Regulations equally applied	Government's respect property rights	Regulating private sector in the public interest	Transparency in economic policy	Interventions free from corruption
Judiciary	Consultative processes of conflict resolution	Equal access to justice for all citizens	Human rights incorporated in national practice	Judicial officers held accountable	Clarity in administering justice	Efficiency of the judicial system

Source: Overseas Development Institute (ODI) (2006)

The above table presents a cohesive and comprehensive set of governance issues. These issues are crucial for state legitimacy and effectiveness. It describes a long-term program for progressive governments.

Improving governance by allowing greater participation of civil society and decentralized authorities should help bring more endogenization of policies in recipient countries. As mentioned by UN Secretary General, Kofi Annan in 1998: “Good governance is perhaps the single most important factor in eradicating poverty and promoting development”. Countries differ from each other; it is therefore necessary to work on crucial points. ODI (2006) believes that in practice:

- ✓ Identifying obstacles and barriers is the first step towards good governance agenda
- ✓ Focusing, first and foremost, on political reforms then technical reforms
- ✓ Local contexts will drive the approach as countries are quite different with practically similar issues.

Situations in some countries may be worse in terms of freedom. They should look at other area of governance such as administrative governance that could foster the performance of the country. However, political and civil freedom will become a foundation of the state legitimacy in the long term.

The importance of the role of countries' institutional capacities is not only linked to the absorption capacity of ODA in order to ensure its greatest effectiveness. In Senegal, the rate of execution of projects on external resources is around 65 to 70% for the period 2000 to 2004 (between 34 and 40% for the European Union). This weakness is due to the multiplicity and complexity of donor disbursement procedures (60 technical and financial partners finance more than 500 projects / programs), the lack of harmonization of donor procedures, the complexity of budgetary procedures and administration of public expenditure and the weak capacity of technical ministries due to the lack of qualified human resources. Admittedly, improving institutions is a prerequisite for increasing ODA, but above all for mastering the design and implementation of policies. In a large number of sub-Saharan countries, the weakness of states in their policy-making capacities is reflected in the existence of a multitude of policy documents, sectoral or global, without any real overall operational coherence. These policy documents are the results of strong foreign demand, developed on the basis of external funding. They are sometimes designed within national administrations, but sometimes outside them by national consultants (who have generally held administrative positions in the past) or foreign consultants. A disconnection is created between different sectoral programs, without global programming to reduce it.

Reform processes have been initiated in certain countries with regard to budget preparation and control, simplification of expenditure procedures and cash and debt management, introduction of sectoral medium-term expenditure frameworks in certain ministries, integrated public finance management system. Beyond this, the partnership with donors requires common procedures initiated and directed by the government (joint diagnosis of the approaches).

5.2.3 Foreign aid and Sectors

As mentioned, foreign aid is not always ineffective in targeting growth. Foreign aid can also positively impact other objectives without having a discernible impact on growth. Lipton (1986) show that foreign aid would have more impact when it is directed towards projects aimed at reducing poverty (in particular projects of the objectives of sustainable development or providing aid to the national budget). This is also confirmed by Sachs (2006). With the aim of breaking the vicious circle of poverty, increasing the income level of households and smoothing consumption, Sachs (2006) proposed a strategy for aid disbursement by donors that will allow recipient countries to accumulate capital. The author identifies 3 development channels offered by foreign aid.

- In the first channel, Sachs (2006) suggests that aid should be dedicated to covering the living costs of poor families, especially in emergencies, such as food aid in times of drought.
- The second channel is dedicated to financing the deficit of the general budget of the beneficiary countries. A large part of the aid allocated to this administrative sector will encourage public investment in these countries.
- The third channel should focus on the private sector. It will be through aid programs (small fund programs) for example to farmers and young people, to improve the productivity and performance of small businesses.

The importance and duration of foreign aid for an appropriate period will guarantee poor families a certain form of self-sufficiency (and above all a smoothing of consumption) and an increase in public capital (Sachs, 2006). In this case, the author considers that the vicious circle of poverty will be broken, and the country will initiate growth based on the savings of households and public investments. In this perspective, foreign aid will be perceived, not as a social aid tool but rather as an investment intended to break the poverty chain (Sachs, 2005)

The figure below indicates how much each sector has received on average over the period 1967-2016. It clearly shows that sector of social infrastructure and services and the sector of economic infrastructure have taken the biggest share of foreign aid. The figure includes all type of foreign aid from different sources.

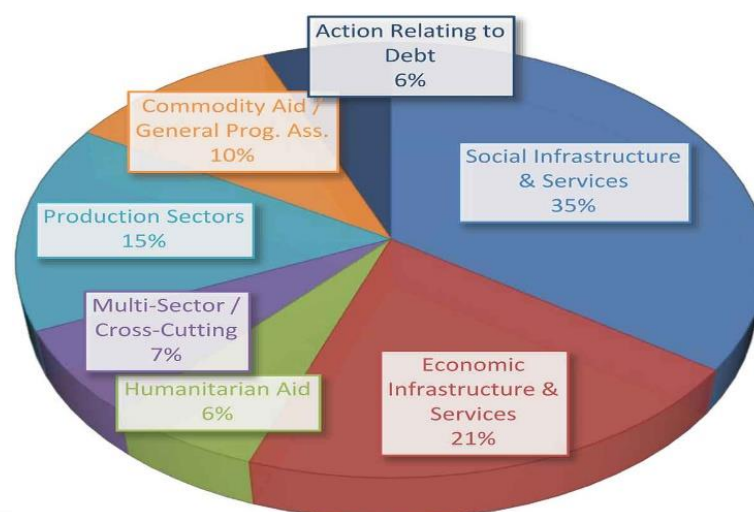


Figure 23: Sectoral composition of foreign aid, net disbursement total (1967–2016), constant 2016 prices (OECD (2017), DAC statistics)

Hassan (2000) considers that foreign aid should only support existing projects, increase imports, transfer of technology and encourage greater inclusiveness of aid policies. Indeed, many rural areas are generally the poorest areas and aid should intervene to raise starting standards. The improvement of social services will therefore have an advantage in the LDCs because it promotes equality of opportunity between individuals than investment in areas benefiting only elites (Hassan, 2000). In this perspective, Aid improves poor rural areas' standards to the level out of poverty. Large part of them are living based on rudimentary agriculture. In this context, aid must take into account the problems of agriculture through various empowerment programs These projects should promote the empowerment of marginalized citizens' lives such as unemployed and vulnerable youth and women. Foreign aid should therefore be used for the creation, facilitation of small businesses, credit unions, microfinance, savings and credit institutions, agricultural cooperatives in rural areas and many other services. In the long term, foreign aid should encourage job creation, raise living standards and consumption levels. The contribution will be more important in case of technology transfer and investment in research and higher education.

5.2.4 Foreign aid and Human capital

In the context of aid effectiveness, capacity building is seen as crucial for both donors and partner countries. The efforts of aid recipient countries should be encouraged through capacity building with the aim of improving governance and economic performance. This aspect is supported by the Paris Declaration and is included as a goal in national development strategies. The formulation of aid policies is usually based on a very small number of experts from ministries who design, disseminate and finalize, without having a strong external responsiveness (other national and decentralized administrations). The lack of expertise of many managers in strategic formulation is notable, even more in decentralized communities which are supposed to be important place of formulating strategies. Attention to capacity development issues is important in developing country as the conditions in these countries are particular and require a more selective and limited approach⁴⁰. The lack of capacity building is part of the several reasons for the low number of competent national experts working in the public sector. Fiscal austerity policies have, for a long time, reduced the size of the public service. The level of salaries outside the civil service has become higher, causing many executives to flee from central and local administrations, drawn by more rewarding social positions, either within international organizations (within this multitude of non-governmental organizations which offer easy access to external funding).

The importance of developing human resources appears crucial from the point of view of restoring the authority and legitimacy of the State. In this context, technical assistance and cooperation from donors appear to be the solution to build these capacities. Technical assistance and cooperation help initiate sustainability of reforms in fragile states (Chauvet and Collier, 2006). It provides positive influence in defining policies and help ease the capacity constraints in the first years. As policies are implemented, the need for technical assistance becomes lower. Financial aid, on the other hand, has no significant influence either on the start of a reform or on its sustainability. Aid inflows tend to decrease the likelihood of autonomous policy reform, as would a natural resource rent or positive export price shocks. Human capital development cannot rely exclusively on donor contributions to “capacity building” through technical assistance. The

⁴⁰ Most of LDCs are characterized by post conflict and political weakness situations.

effectiveness of this mechanism and of resident technical assistance as a factor for local capacity building is far from being clearly demonstrated, as experience over the past 50 years has shown. It itself depends on many factors, including the "quality" of this technical assistance.

A more efficient alternative is based on a national training policy (initial and continuous) for national managers, or a capacity development plan. This policy presupposes anticipation of needs and programming of staff and needs. This policy can be based on cooperation agreements with universities and national and foreign research centers. In particular, the mechanism for the permanent training of executives in office (for example, by one or more years of training or further training abroad) can only be imagined if accompanied by measures to return to reinforced statutory positions involving real career progression within administrations, in order to limit the leakage of these qualified executives.

The importance of capacity building reflects can be summarized by two key points:

- ✓ Country capacity is the key to development performance: it lays the groundwork for endogenous development. the essential pawns will be the ability to manage and plan organizational changes taking into account the situation on the ground and the ability to manage public finances. This appears crucial to the extent that it makes the environment possible to development of private sector capacity.
- ✓ The country develops its policies and programs' ownership: the development of local capacities reinforces the process of ownership of development policies and programs. Without capacities, it seems impossible for developing countries to appropriate and implement policies. The ability to allow compromise between a plurality of interests in order to reach a consensus.

The determining factors in implementing capacity development are often of a systemic nature and must be analyzed in terms of interrelationships. The table 8 shows a systematic approach to flexible program planning and design suited to capacity development. It indicates the tasks to be undertaken at each level of capacity development. the levels are structured in three: Environmental level, Organizational level and Individual level. The table is a continuous, iterative process

Table 8: Approaches to capacity development and national contexts

Understanding the international and country contexts	Identifying and supporting sources of country-owned change	Delivering support	Learning from experience and sharing lessons	
What are the historical and contemporary factors underlying the observed “weakness of political will” behind capacity development? How are power structures and formal and informal institutions changing, and with what effects on politicians’ incentives?	Does the interaction between donors and country actors form a “virtuous circle” or a “vicious circle”, from the point of view of the ownership of capacity development initiatives? Are there ways donors can encourage effective demand within the country for greater capacity development?	Are donors doing all they can to promote changes in the institutional environment for capacity development, e.g. by supporting domestic stakeholder demands? Is support being delivered in ways that enhance, or undermine, the possibility of organisations’ learning by doing?	Is there monitoring of whether institutional rules are changing in important ways and how this has come about? Is there independent, objective monitoring of the mode of delivery of the support?	Enabling environment
How are capacities currently shaped by the informal and “political” aspects of organisations? Are these features generalised or variable across organisations or organisational spheres? Are there private sector pressures and resources that could be mobilised in support of enhanced public sector capacity?	Is capacity development an explicit objective of a plan or policy benefiting from real country ownership? Is there effective ownership of initiatives within particular organisations or organisational spheres, especially in any organisations where there would be substantial spill-over benefits?	Have the objectives of the supported initiative been clearly defined in terms of the desired capacity development outcomes? Have the inputs and their providers been selected with a view to cost and effectiveness, or have these decisions been supply-driven?	Is achievement of the agreed capacity development outcomes being effectively monitored and lessons fed back into the process? Do the monitoring arrangements include reasonable proxy measures, with appropriate involvement of clients or service users?	Organisational level
How is the availability of skilled and committed individuals shaped by global and local push and pull factors? Under what conditions could the diasporas contribute more strongly to capacity development at home?	Are individual professionals able to be mobilised in support of measures to combat the erosion of public sector capacity? Are donors being sufficiently responsive to government initiatives aimed at restoring salary levels in key posts	Do the training components take full advantage of the potentialities created by modern information technology? Are the training components linked to enhancing organisational effectiveness and putting new skills to use?	Does the follow-up of individual capacity enhancement go beyond knowledge and livelihood benefits? Is it tracking the effects on organisational capacity and performance?	Individual level

Source: OECD (2006)

Approaches to capacity development always differ from country to country and are linked to the country context and situation. Particular attention is paid to "fragile" countries. Capacity development approaches are generally used for the reconstruction and establishment of a development framework in an unstable environment. the approach is selective, focusing on key areas such as basic services and sectors that reduce fragility. General principles are:

- ✓ In the event of weakness of the capacity of the State, efforts must be directed first towards the establishment of capacity allowing the State the minimum of the needs of its population.
- ✓ The implementation of planning tools such as the transitional results matrix. This will aim to integrate capacity development support.
- ✓ Foster country leadership to enable endogenous development.
- ✓ Capacity development strategies must be in support of existing capacities.

Capacity development practices are often decisive in aid effectiveness. They constitute the knot between the donors and the real recipient of aid (households, etc.). In this context special attention must be paid to it.

5.2.5 Foreign aid and Alternatives

In recent years, the flow of international aid has been more than unstable, characterized by the resurgence of economic and financial crises. This has led donor countries to restrict foreign aid and redirected it towards finding solutions to internal problems. In this context, developing countries need alternatives to guarantee internal stability. In doing so, a powerful tool called TADAT (Tax Administration Diagnostic Assessment Tool could make the difference) can be of great importance.

IMF (2011) shows that an increase in tax collection from 2% to 4% of GDP would overshadow the amount of foreign aid inflows in recipient countries. This small relative increase would exceed three times the foreign aid distributed in the world. Consequently, having more registered taxpayers would generate more tax revenue and therefore a more effective country. Increasing additional revenue will not

compromise the country's fairness and will help fill the financial gap caused by the volatility of aid. As mentioned by Lagarde in 2015 “A strong revenue base is imperative if developing countries are to be able to finance the spending they need on public services, social support and infrastructure. But experience shows that with well-targeted external technical support and sufficient political will, it can be done.”

TADAT systematically assesses the country's tax administration. It identifies the best performing areas, through a set of factors such as transparency, the proportion of taxpayers who pay on time and the existence of an independent and accessible system of dispute settlement. This framework allows to achieve concrete reforms and assess progress. This framework promotes a shift from promises to action and provides transparency, uniformity, clarity and a way to deliver a better technical assistance. Assistance has been largely bilateral and uncoordinated as many countries with different interests provide divergent assistances. The figure below shows the 9 keys performances outcome areas (POAs) of TADAT⁴¹.



Figure 24: 9 keys of POAs(www.tadat.org)

⁴¹The major national taxes included are: Corporate Income Tax (CIT), Personal Income Tax (PIT), Value Added Tax (VAT), and Pay As You Earn (PAYE) amounts withheld by employers (which, strictly speaking, are remittances of PIT). Social Security Contributions (SSCs)

Developing countries are generally characterized by the need for additional revenue. Significant revenues can be raised if proper methods are adopted. Some important strategies remain:

- ✓ Building administrations that ensure good collection through the segmentation of taxpayers, promotes the extension of the tax base by voluntary compliance while limiting inappropriate behavior.
- ✓ Develop and implements clear laws and regulations on taxations
- ✓ Eliminating exemptions leads to unnecessary loss of revenues
- ✓ Setting up a broad VAT with a specific threshold. it is known that VAT in developing countries is low. This therefore deprives the countries concerned of additional income of around 2% of GDP.
- ✓ Create consistent regimes to collect taxes from small businesses.
- ✓ Developing capacity for tax expenditure

These strategies, although not exhaustive, make it possible to raise income in order to counter fluctuations in foreign aid. This allows the country to rationalize resources for effective use.

Over the last decades, aid was an important financial source for low income countries. However, more recently remittance flows are becoming more important and are even surpassing aid flows. Indeed, in the early 1970s, aid represented 5 times the amount of remittances while remittances are currently 2,5 times the amount of aid. In 2009, according to World Bank remittances were around US\$316 billion in 2009, the double of aid. Given this tendency, remittances are nowadays considered as an alternative solution to foreign aid. Aid is subjected to several constraints (conditionality, accountability, coordination between government agencies etc) and face different obstacles such as corruption, incompetence. These reasons are making remittances more appealing. Furthermore, Remittances move directly to the one in need.

There are good reasons for remittance to lead to less dependency on foreign aid. Indeed, when remittances lead to improvement of human capital and private investments, it could reduce the dependency to aid. However, there is possibility of donors to divert away aid due to increasing remittances. Therefore, there is need to soften donors' incentives. The figure below presents the different channels from remittance to aid.

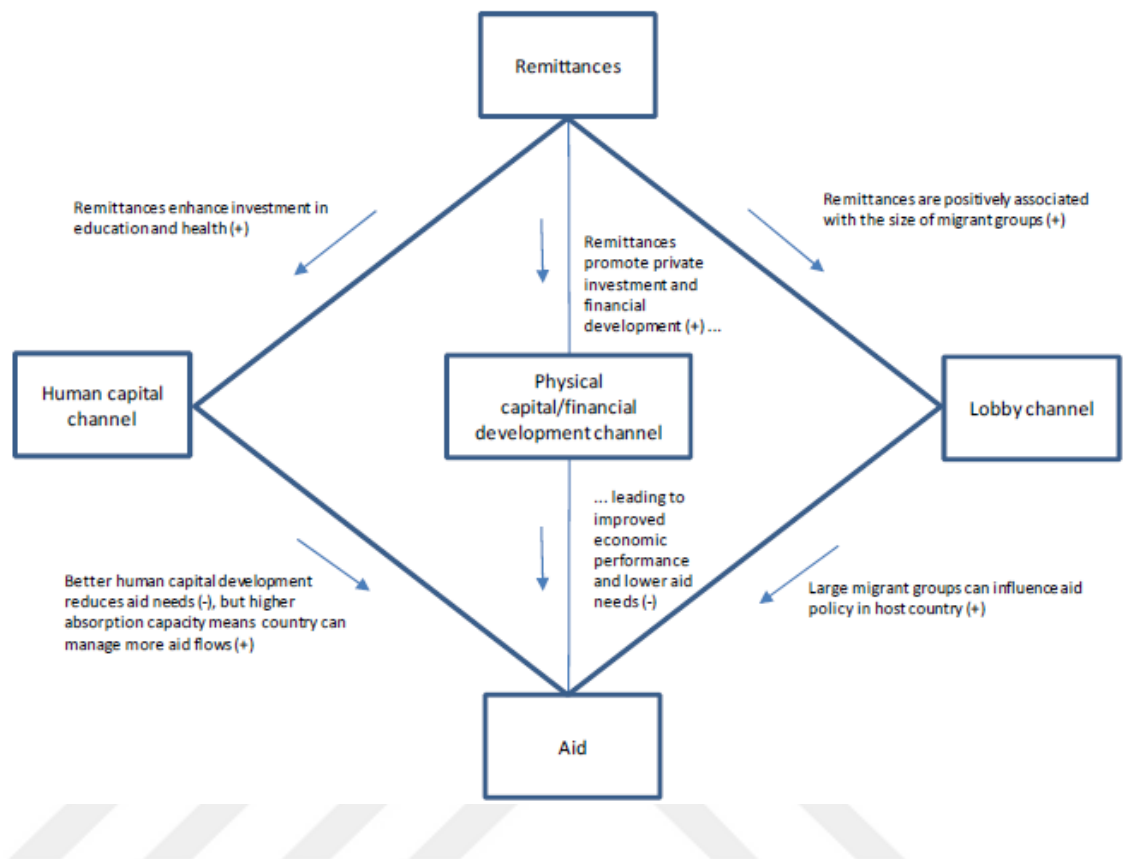


Figure 25: Channels of Transmission from Remittances to Aid Flows (Kpodar and Le Goff (2012))

Improving human capital is critical for poverty alleviation, welfare gains, consumption smoothing and sustainable growth. This is confirmed by micro evidence analysis (see yang,2008; Calero, et al,2009). Besides stimulating human and physical capital, remittances also improve the absorption capacity of aid. The positive effect of remittances on households' savings may help promote financial development and projects to be performant (see Gupta et al, 2009; Giuliano and Ruiz-Arranz,2009). An increase in remittances loosens credits constraints and helps start productive activities

Developing countries should promotes remittances by implementing investor friendly policies, reducing transaction costs cleaning business environment, and develop appropriate education and health services

6. GENERAL CONCLUSION

This thesis looks into the extent to which foreign aid could help smooth out household consumption, reduce the impact of output fluctuations on consumption and also estimate the welfare gains derived from it. In doing so, data have been collected and consists of an unbalanced panel of 48 LDCs over the time period 1975-2016. In order to measure the degree of consumption smoothing via foreign aid, the empirical specification from Sorensen et al (2005), Hadzi-Vaskov (2006) and Kose et al (2015) is adopted and modified to take into account the main variable foreign aid. The determinants of variability of the consumption smoothing via foreign aid is then estimated by considering the value of risk insured in individual country (φ_3) as an explained variable depending on three set of specific factors: financial development, country's management indicators and rating of different policies. Finally, the welfare gains are derived from 2 scenarios: The first scenario assumes no additional risk sharing and domestic consumption is equal to domestic output. The second scenario assumes perfect risk-sharing as countries perfectly smooth out fluctuations in domestic consumption. The welfare gains are obtained from the difference between the two scenarios

Two mains findings are worth mentioning. Over the period 1975-2016, the results first tindicate coefficient of consumption smoothing via foreign aid was quite low (-0,28 %) for the whole sample of LDCs. It demonstrates low effectiveness of foreign aid in smoothing household consumption. The results also indicate negative sign associated with the coefficient consumption smoothing via foreign aid characterizing the countercyclicality of foreign aid over the hole sample of analysis. The low level of consumption smoothing could therefore be explained by the fact that foreign aid reaches the recipient in period it might not need the most and aggravate the consumption changes on output due poor sectorial distribution. 17,4% of aid in our sample is oriented towards sectors that doesn't affect consumption smoothing. Second, the hypothesis of perfect risk sharing is rejected for the whole sample of countries. This mainly due to the lack of credits and financial markets which may help households to smooth out consumption.

Due to the existence of heterogeneity, the results from estimation country by country that partial consumption smoothing via foreign aid for each country is not rejected. The estimated coefficient for each country ranged from -5,73% in Bhutan to

9,36% in Yemen characterizing large variability between countries. Bhutan is among country where economy is well managed which therefore led to our findings. However, Yemen is recorded the worst result in term of consumption smoothing via foreign aid due to the current war situation and the aid not reaching population in needs. For 25 countries out 48, foreign aid has a smoothing role (negative sign) on consumption while the remaining has a de-smoothing role (positive sign) on household consumption. Over the period of analysis, foreign aid seems to have not contributed in consumption smoothing in Haiti, Madagascar, Mozambique, Sao Tome as the level of their consumption risk sharing is approximately equal to zero.

The factors explaining the difference in consumption smoothing are mainly: economy management score which contributes in reducing, at 10%, the effectiveness of consumption smoothing via foreign aid. Financial sector score, “which assesses the structure of the financial sector and the policies and regulations that affect it”, seems to be highly determinant in explaining the low effect of foreign aid in smoothing household consumption. Similarly, Gini index (income inequality) and transparency and corruption score are also important determinants of consumption smoothing via foreign aid since the coefficient associated is statistically highly significant.

The average welfare gains from consumption smoothing via foreign aid is 0,89% for all the sample of 48 LDCs. On the one hand, Tanzania have recorded the highest welfare gains from consumption smoothing via foreign aid (6,63%). Tanzania is among the highest aid recipient countries and foreign aid has strengthened institutions that advanced accountability. On the other hand, Yemen has recorded the lowest welfare gains from consumption smoothing via foreign aid. This mainly due to the past and current of war in Yemen. The calculated welfare gains in other countries ranges from -5,24% to 6,50%. The results indicate welfare loss derived from consumption smoothing via foreign aid in 17 countries.

In order for aid to be beneficial, we have identified ways to provide optimal allocation is important. These ways are dependent on factors such as institutional environment, capacity building, the choice of the recipient countries' economic policy and commitment to reform. Aid effectiveness in terms of growth depends on the quality of economic policies. Moreover, The Payment by Results ensures that the disbursement of aid subjected to a progress against pre agreed measure. It could therefore help to focus on

the ultimate target and improve greatly the effectiveness of aid. More importantly, the role of countries' institutional capacities in a cohesive and comprehensive set of governance is crucial for the implementation of aid related policies. Attention to capacity development issues is therefore necessary for developing country as the conditions in these countries are particular characterized by post conflict and political weakness situations. Furthermore, foreign aid should be oriented towards existing projects to be effective. Some alternatives of foreign aid need to be found as aid remains highly volatile and driven by economic and financial situations of donor countries. In this thesis, we have identified two alternatives for internal revenue mobilization such as remittances and tax reforms through the TADAT framework. For a future prospective, it could be interesting to analyze the taxation dynamics through computable general equilibrium and see the different options to plan for a country.

REFERENCES

- Afonso, A., & Furceri, D. (2008). A. Government Size, Composition, Volatility and Economic Growth. . *Working Papers Department of Economics from ISEG - School of Economics and Management, Department of Economics, University of Lisbon*.
- Agénor, P. R., & Aizenman, J. (2010). Aid volatility and poverty traps. *Journal of Development Economics*, 91(1), 1-7.
- Agénor, P.-R., McDermott, C. J., & Prasad, E. S. (2000). Macroeconomic Fluctuations in Developing Countries: Some Stylized Facts. *The World Bank Economic Review*, Volume 14, Issue 2, 251–285.
- Aizenman, J., & Marion, N. (1999). Volatility and Investment: Interpreting Evidence from Developing Countries. *Econometrica*, Volume 66, Issue 262, 157-1179.
- Alesina, A., & Weder, B. (2002). Do corrupt governments receive less foreign aid?. *American Economic Review*, 92(4), , 1126-1137.
- Alimi, B. A. (2016). Risk factors in street food practices in developing countries: A review. . *Food Science and Human Wellness*, 5(3), ., 141-148.
- Alvi, E., & Senbeta, A. (2012). Does foreign aid reduce poverty?. . *Journal of International Development*, 24(8), , 955-976.
- Andersen, J. J., Johannesen, N., & Rijkers, B. (2020). Elite Capture of Foreign Aid: Evidence from Offshore Bank Accounts.
- Andersen, J. J., Niels, J., David D, L., & Elena, P. (2017). Petro Rents, Political Institutions, and Hidden Wealth: Evidence from Offshore Bank Accounts. *Journal of the European Economic Association* 15(4),, 818-860.
- Arellano, C., Bulíř, A., Lane, T., & Lipschitz, L. (2009). The dynamic implications of foreign aid and its variability. . *Journal of Development Economics*, 88(1), 87-102.
- Arellano, C., Bulíř, A., Lane, T., & Lipschitz, L. (2009). The dynamic implications of foreign aid and its variability. . *Journal of Development Economics*, 88(1),, 87-102.
- Arndt, C., Jones, S., & Tarp, F. (2010). Aid, Growth and Development: Have we come full circle? . *Journal of Globalisation and Development* 1(2), , 1-27.
- Arvin, M., & Barillas, F. (2002). Foreign aid, poverty reduction, and democracy. *Applied Economics*, 2002, vol. 34, issue 17, 2151-2156.
- Asdrubali, P., & Kim, S. (2004). Dynamic risksharing in the United States and Europe. . *Journal of Monetary Economics* vol. 51, issue 4, , 809-836 .
- Asdrubali, P., Sørensen, B. E., & Yosha, O. (1996). . Channels of interstate risk sharing: United States 1963–90. . *Quarterly Journal of Economics* 111 (4), 1081–1110.

- Asiedu, E., & Nandwa, B. (2007). On the Impact of Foreign Aid in Education on Growth: How Relevant is the Heterogeneity of Aid Flows and the Heterogeneity of Aid Recipients? *WORKING PAPERS SERIES IN THEORETICAL AND APPLIED ECONOMICS 200701*, University of Kansas, Department of Economics.
- Asra, A., Estrada, G., Kim, Y., & Quibria, M. G. (2005). Poverty and foreign aid evidence from recent cross-country data). *ERD Working Paper Series*. No. 65.
- Athanasoulis, S. G., & Shiller, R. J. (2000). The significance of the market portfolio. . *The Review of Financial Studies*, 13(2), 301-329.
- Athanasoulis, S., & Wincoop, V. (2000). Growth uncertainty and Risk Sharing. *Journal of Monetary Economics*, 45, 477-505.
- Atkeson, A., & Bayoumi, T. (1993). Do private capital markets insure regional risk? Evidence from the United States and Europe, . *Open Economies Review*, 4, issue 3 , 303-324.
- Auffret, P. (2001). An alternative unifying measure of welfare gains from risk-sharing. . *The World Bank*.
- Azam, J.-P., & Gubert, F. (2005). Migrant Remittances and Economic Development in Africa: A Review of Evidence. *IDEI Working Papers 354*, Institut d'Économie Industrielle (IDEI), Toulouse.
- Azzimonti, M., & Talbert, M. (2011). Partisan Cycles and the Consumption Volatility Puzzle. . *SSRN Electronic Journal*. 10.2139/ssrn.1866431. .
- Bahmani- Oskooee, M., & Oyolola, M. (2009). Poverty reduction and aid: cross-country evidence. . *International Journal of Sociology and Social Policy*.
- Bai, Y., & Zhang, J. (2012). Financial integration and international risk sharing. *Journal of International Economics*, Elsevier, vol. 86(1), 17-32.
- Balli, F., Fu, P., & Pierucci, E. (2015). The Risk Sharing Role of Foreign Aid in Developing Countries. . *Italian Economic Association*.
- Barrett, C. B. (2002). "Food security and food assistance programs," . *Handbook of Agricultural Economics*, in: B. L. Gardner & G. C. Rausser (ed.), *Handbook of Agricultural Economics*, edition 1, volume 2, chapter 40, Elsevier. , 2103-2190.
- Beck, T., Lundberg, M., & Majnoni, G. (2006). Financial intermediary development and growth volatility: Do intermediaries dampen or magnify shocks? . *Journal of International Money and Finance*, 25, issue 7, 1146-1167.
- Bekaert, G., Harvey, C. R., & Lundblad, C. (2006). Growth volatility and financial liberalization. . *Journal of international money and finance*, 25(3), 370-403.
- Berthélemy, J.-C., & Tichit, A. (2004). Bilateral donors' aid allocation decisions--a three-dimensional panel analysis, . *International Review of Economics & Finance*, 13, issue 3, 253-274.

- Bird, G. (2001). IMF programs: do they work? Can they be made to work better?. , . *World Development*, 29(11), 1849-1865.
- Blanchard, O., & Simon, J. (2001). The long and large decline in US output volatility. *Brookings papers on economic activity*, 2001(1), 135-174.
- Blanchard, O., & Wolfers, J. (2000). The Role of Shocks and Institutions in the Rise of European Unemployment: The Aggregate Evidence. *Economic Journal*, 110, issue 462, 1-33.
- Bleaney, M. F. (1996). Macroeconomic stability, investment and growth in developing countries. . *Journal of development economics*, 48(2), 461-477.
- Boone, P. (1994). The impact of foreign aid on savings and growth. . *Mimeo, London School of Economics*. .
- Brautigam, D. A., & Knack, S. (2004). Foreign Aid, Institutions, and Governance in Sub-Saharan Africa . *Economic Development and Cultural Change*, 52, issue 2, , 255-285.
- Brennan, M., & Solnik, B. (1989). International risk sharing and capital mobility. *Journal of International Money and Finance*, 8, issue 3, 359-373.
- Broda, C. (2004). Terms of trade and exchange rate regimes in developing countries, . *Journal of International Economics*, 63, issue 1, 31-58.
- Bruno, M., & Easterly, W. (1995). Inflation and long-run growth. . *NBER Working Paper Series*, 5209.
- Buliř, A., & Hamann, A. J. (2003). Aid volatility: an empirical assessment. . *IMF Staff papers*, 50(1), 64-89.
- Buliř, A., & Hamann, A. J. (2003). Aid volatility: an empirical assessment. . *IMF Staff papers*, 50(1), 64-89.
- Burnside, C., & Dollar, D. (2000). Aid, Policies, and Growth . , . *The American Economic Review* Vol. 90, No. 4, 847-868 .
- Caballero, R., Eduardo, E., & Alejandro, M. (2005). "Microeconomic Flexibility in Latin America." . *In Labor Markets and Institutions*, ed. J. E. Restrepo and A. Tokman. Santiago: Central Bank of Chile.
- Calderón, M. C., Chong, A., & Gradstein, M. (2006). Foreign aid, income inequality, and poverty. . *Working paper no. 547, Inter-American Development Bank*.
- Calderón, M., & Chong, A. (2006). Does Foreign Aid Help Reduce Income Inequality? . (No. 547). *Working Paper*.
- Calero, C., Bedi, A. S., & Sparrow, R. (2009). Remittances, liquidity constraints and human capital investments in Ecuador. *World Development*, 37(6), 1143-1154.
- Callen, M., Imbs, J., & Mauro, P. (2015). Pooling risk among countries. . *Journal of International Economics*, 96(1), 88-99.

- Canova, F., & Ravn, M. (1996). International Consumption Risk Sharing. *International Economic Review*, vol. 37, issue 3,, 573-601.
- Caporale, T., & McKiernan, B. (1996). The relationship between output variability and growth: evidence from post war UK data. *Scottish Journal of Political Economy*, 43(2),, 229-236.
- Case, A. (1995). Symposium on Consumption Smoothing in Developing Countries.” . *The Journal of Economic Perspectives* 9 (3), 81-82.
- Chauvet, L., & Collier, P. (2006). Helping hand? Aid to failing states.
- Chenery, H. B., & Strout, A. M. (1966). Foreign Assistance and Economic Development. *The American Economic Review* Vol. 56, No. 4, 679-733 .
- Chetty, R., & Looney, A. (2005). Income Risk and the Benefits of Social Insurance: Evidence from Indonesia and the United States. *NBER Working Paper No. 11708 National Bureau of Economic Research, Inc.*
- Clévenot, M., & Duwicquet, V. (2011). Partage du risque interrégional. Une étude des canaux budgétaires et financiers aux États-Unis et en Europe. *Revue de l'OFCE, Presses de Sciences-Po*, vol. 0(4), 5-33.
- Clist, P. (2016). Foreign aid and domestic taxation: multiple sources, one conclusion. . *Development Policy Review*, 34(3),, 365-383.
- Collier, P., & Dehn, J. (2001). Aid, Shocks, and Growth. . *Policy Research Working Paper*.
- Collier, P., & Dollar, D. (2002). Aid allocation and poverty reduction. . *European Economic Review*, 2002, vol. 46, issue 8, , 1475-1500.
- Combes, J.-L., Ebeke, C. H., Etoundi, M. N., & Yogo, T. (2012). Are Foreign Aid and Remittances a Hedge against Food Price Shocks in Developing Countries? *Working Papers halshs-00608128, HAL*.
- Dabla-Norris, E., Minoiu, C., & Zanna, L.-F. (2015). Business Cycle Fluctuations, Large Macroeconomic Shocks, and Development Aid. *World Development* Vol. 69,, 44–61.
- Dalia S. Hakura. (2009). Output Volatility in Emerging Market and Developing Countries: What Explains the “Great Moderation” of 1970-2003?,” . *Czech Journal of Economics and Finance (Finance a uver)*, Charles University Prague, Faculty of Social Sciences, vol 59(3), 229-254.
- Dedehouanou, S. (2009). Asymmetric Shocks and Adjustment in West African Monetary Union. *African Journal of Economic Policy*, Vol.16, n°1.
- Dercon, S. (2004). Growth and shocks: evidence from rural Ethiopia. *Journal of Development Economics*, vol. 74, issue 2,, 309-329 .
- Dhasmana, A. (2008). External capital flows and welfare in developing countries. . *The Johns Hopkins University*.

- Dollar, D., & Easterly, W. (1999). The search for the key: aid, investment and policies in Africa. *Journal of African Economies*, 8(4), 546-577.
- Easterly, W. (1999). How did highly indebted poor countries become highly indebted? Reviewing two decades of debt relief. . *The World Bank*, 1999.
- Easterly, W. (2006). Planners vs. searchers in foreign aid. . *Asian Development Review*, 23(2), 1-35.
- Easterly, W. (2008). *Reinventing foreign aid (Vol. 1)*. . The MIT Press.
- Easterly, W., Kremer, M., Pritchett, L., & Summers, L. H. (1993). Good policy or good luck?: Country growth performance and temporary shocks. *Journal of Monetary Economics, Elsevier*, vol. 32(3),, 459-483.
- Ebbington, A. (2005). Donor NGO relations and representations of Livelihood in non-governmental aid Chains. *WorldDevelopment*(6), 937-950.
- Eichengreen, B., & Casella, A. (1994). Can Foreign Aid Accelerate Stabilization?.
- Epstein, L. G., & Stanley, E. Z. (1989). Substitution, Risk Aversion, and the Temporal Behavior of Consumption and Asset Returns: A Theoretical Framework. *Econometrica* Vol. 57, No. 4 , 937-969 .
- Fatás, A., & Mihov, I. (2004). The Macroeconomic Effects of Fiscal Rules in the US States. *CEPR Discussion Papers 4372, C.E.P.R. Discussion Papers*.
- Ferreira da Silva, G. (2002). "The impact of financial system development on business cycles volatility: cross-country evidence," . *Journal of Macroeconomics, Elsevier*, vol. 24(2), 233-253.
- Feyzioglu, T., Swaroop, V., & Zhu, M. (1998). A panel data analysis of the fungibility of foreign aid. . *The World Bank Economic Review*, 12(1), 29-58.
- Fountas, S., & Karanasos, M. (2006).). The relationship between economic growth and real uncertainty in the G3. . *Economic Modelling*, 23(4), 638-647.
- Frankenberg, E., Smith, J. P., & Thomas, D. (2003). Economic Shocks, Wealth, and Welfare. *The Journal of Human Resources* Vol. 38, No. 2, *Special Issue on Cross-National Comparative Research Using Panel Surveys* , 280-321.
- Freeman, R. B., & Lindauer, D. L. (1999). Why Not Africa? (No. w6942)*National Bureau of Economic Research*.
- Gardberg, M. (2016). Determinants of International Consumption Risk Sharing in Emerging Markets and Developing Countries. No 9452, *EcoMod2016*.
- Gavin, M., & Hausmann, R. (1996). The Roots of Banking Crises: The Macroeconomic Context, . No 4026, *Research Department Publications, Inter-American Development Bank, Research Department*.

- Ghosh, A. R., Kim, J. I., Mendoza, E. G., Ostry, J. D., & Qureshi, M. S. (2013). Fiscal fatigue, fiscal space and debt sustainability in advanced economies. *The Economic Journal*, 123(566), F4-F30.
- Giuliano, P., & Ruiz-Arranz, M. (2009). Remittances, financial development, and growth. *Journal of Development Economics*, 90(1), 144-152.
- Gomane, K., Morrissey, O., Mosley, P., & Verschoor, A. (2003). Aid, pro-poor government spending and welfare. *Working Paper No. 03/01, CREDIT, Liverpool*.
- Griffin, K. B., & Enos, J. L. (1970). Foreign assistance: objectives and consequences. *Economic development and cultural change*, 18(3), 313-327.
- Gupta, S. C. (2003). Foreign aid and consumption smoothing: Evidence from global food aid. *IMF working paper WP/03/40*.
- Guillaumont, P., & Le Goff, M. (2010). Aid and remittances: their stabilizing impact compared. *Working Papers P12, FERDI*.
- Guillaumont, P., & Le Goff, M. (2010). Aid and remittances: their stabilizing impact compared. *Working Papers P12, FERDI*.
- Gupta, S., Pattillo, C. A., & Wagh, S. (2009). Effect of remittances on poverty and financial development in Sub-Saharan Africa. *World development*, 37(1), 104-115.
- Hadzi-Vaskov, M. (2006). Workers' Remittances and International Risk-Sharing. *Working Papers 06-19, Utrecht School of Economics*.
- Hamann, M. A., & Bulir, M. A. (2001). How volatile and unpredictable are aid flows, and what are the policy implications? *International Monetary Fund*, 1-167.
- Hamann, M. A., & Bulir, M. A. (2001). How volatile and unpredictable are aid flows, and what are the policy implications? (No. 1-167). *International Monetary Fund*.
- Hassan, U. (2000). Role of Foreign Aid: A Critical Analysis. *ThaNetional. Kardar, S. (1995) Political Economy of Pakistan. Ferozensons. Lahore*.
- Herzer, D., & Nunnenkamp, P. (2012). The effect of foreign aid on income inequality: Evidence from panel cointegration. *Structural Change and Economic Dynamics*, 2012, vol. 23, issue 3, 245-255.
- Hirvonen, P. (2005). *Stingy Samaritans, Why Recent Increases in Development Aid Fail to Help the Poor*.
- Hnatkovska, V., & Loayza, N. (2005). Volatility and Growth. *in J. Aizenman, Pinto, B., eds. Managing Economic Volatility and Crises: A Practitioner's Guide*.
- Houndonougbo, N. (2017). Aid Volatility and Real Business Cycles in a Developing Open Economy. *Southern Economic Journal*, 756-773.

- Hudson, J., & Mosley, P. (2008). Aid Volatility, Policy and Development. *World Development*, 36, issue 10, 2082-2102.
- Hyden, G. (2008). After the Paris Declaration: Taking on the issue of power . *Development Policy Review* 26, 259-274.
- Imbs, J., & Mauro, P. (2007). Pooling Risk Among Countries. . *IMF Working Papers* 07/132, *International Monetary Fund*.
- Kankwenda, M., Gregoire, L.-J., Legro, H., & Ouedraogo, H. (2000). Poverty Eradication, Where Stands Africa? *London: Economica Ltd*.
- Katel, P. (2005). Ending poverty. . *CQ Researcher*, .
- Kim, S., Kim, S., & Wang, Y. (2006). financial integration and consumption risk sharing in East Asia. *Japan and the World economy* 18(2), 143-157.
- Klitgaard, R. (1990). *Tropical Gangsters*, B. Basic Books.
- Knack, S. (2004). Does Foreign Aid Promote Democracy? . *International Studies Quarterly* 48 (1), 251-266.
- Kodama, M. (2013). External Shocks and High Volatility in Consumption in Low-Income Countries. *The Developing Economies*., 278-302.
- Kormendi, R., & Meguire, P. (1985). Macroeconomic determinants of growth: Cross-country evidence. *Journal of Monetary Economics*, 16, issue 2, 141-163.
- Kose, M. A. (2002). Explaining business cycles in small open economies: 'How much do world prices matter?'. . *Journal of International Economics, Elsevier*, vol. 56(2), 299-327.
- Kose, M. A., Prasad, E. S., & Terrones, M. E. (2007). How Does Financial Globalization Affect Risk Sharing? Patterns and Channels. *IMF. Working Paper* No:07/238.
- Kose, M., Prasad, E., Rogoff, K., & Wei, S.-J. .. (2009). Financial Globalization: A Reappraisal. . *International MonetaryFund, IMF Staff Papers*, vol 56, N° 1.
- Krause, U. (2013). Innovation:The new Big Push or the Post-Development alternative? . *Development*, 56(2), 223-226.
- Krebs, T. (2007). Job Displacement Risk and the Cost of Business Cycles. *American Economic Review*, 97 (3): , 664-686. .
- Lensink, R., & White, H. (2001). Are There Negative Returns to Aid? *Journal of Development Studies*, 37, issue 6, 42-65.
- Lewis, K. (1996). Consumption, Stock Returns and the Gains From International Risksharing. . *NBER Working paper* No. 5410.
- Lewis, K. (1999). Trying to Explain Home Bias in Equities and Consumption. . *Journal of Economic Literature*. Vol. XXXVII: 571-608.

- Lipton, M. (1986). Seasonality and ultrapoverty. . *Ids Bulletin*, 17(3), 4-8.
- Loayza, N., Rancière, R., Servén, L., & Ventura, J. (2007). Macroeconomic Volatility and Welfare in Developing Countries: An Introduction. *World Bank Economic Review*, 21(3), 343-357.
- Lucas, R. E. (1987). Models of Business Cycles. . *Oxford: Blackwell*. ISBN 978-0631147893.
- Malik, A., & Temple, J. (2009). (2009), The geography of output volatility,. *Journal of Development Economics*, 90, issue 2, , 163-178.
- Marinheiro, C. F. (2005). Has the Stability and Growth Pact Stabilised? Evidence from a Panel of 12 European Countries and Some Implications for the Reform of the Pact. . *CESifo Working Paper Series 1411, CESifo Group Munich*. .
- Melitz, J., & Zumer, F. (1999). Interregional and International Risk Sharing and Lessons for EMU. . *Carnegie-Rochester Conference Series on Public Policy, Elsevier*, vol. 51(1), , 149-188.
- Minoiu, C., & Reddy, S. G. (2010). Development aid and economic growth: A positive long-run relation. *The Quarterly Review of Economics and Finance, Elsevier*, vol. 50(1), 27-39.
- Morduch, J. (Journal of Economic Perspectives 9 (3)). Income smoothing and consumption smoothing. 1995, 103–114.
- Moyo, D. (2009). Why foreign aid is hurting Africa. . *The Wall Street Journal*, 21, 1-2.
- Mühleisen, M., Ucer, E. M., Hadjimichael, M. T., Ghura, D., Mühleisen, M., & Nord, R. (1995). Sub-Saharan Africa: growth, savings, and investment, 1986-93 . (No. 118). *International Monetary Fund*.
- Niyonkuru, F. (2016). Failure of Foreign Aid in Developing Countries: A Quest for Alternatives. . *Business and Economics Journal*, 7, 1-9.
- Obstfeld, M. (1994). The Logic of Currency Crises. *NBER Working Paper No. 4640*. .
- Pallage, S., & Robe, M. (2003). On the Welfare Cost of Economic Fluctuations in Developing Countries. *International Economic Review*.
- Pallage, S., Robe, M., & Berube, C. (2007). The Potential of Foreign Aid as Insurance. . *IMF staff papers Vol 53, No.3*, 453-475.
- Pisani-Ferry, J., Italianer, A., & Lescure, R. (1993). . "Stabilization properties of budgetary systems: A simulation analysis . *European Economy* 5.1993 , 511-538.
- Prasad, E., Rogoff, K., Wei, S.-J., & Kose, M. A. (2003). . Effects of Financial Globalization on Developing Countries: Some Empirical Evidence. . *IMF Occasional Papers* 220, *International Monetary Fund*.

- Raddatz, C. (2005). Are external shocks responsible for the instability of output in low income countries? *The World Bank*.
- Rajan, R. G., & Subramanian, A. (2008). "Aid and Growth: What Does the Cross-Country Evidence Really Show? *The Review of Economics and Statistics, MIT Press*, vol. 90(4), 643-665.
- Ramey, V., & Ramey, G. (1995). Cross country evidence on the link between volatility and growth. *American Economic Review* 85 (5), 1138–1159.
- Ravallion, M., & Chaudhuri, S. (1997). Risk and Insurance in Village India: Comment. *Econometrica* Vol. 65, No. 1 , 171-184.
- Sachs, J. (2005). The end of poverty: How we can make it happen in our lifetime. . *Penguin UK*.
- Sachs, J. D. (2005). The End of Poverty: Economic Possibilities for Our Time. *New York: The Penguin Press*.
- Sachs, J. D. (2006). The end of poverty: Economic possibilities for our time. . *Penguin*.
- Sachs, J., & Sala-i-Martin, X. (1992). Fiscal Federalism and Optimum Currency Areas: Evidence for Europe from the United States, . No 632, *CEPR Discussion Papers, C.E.P.R. Discussion Papers*.
- Sandmo, A. (1971). On the Theory of the Competitive Firm Under Price Uncertainty. *The American Economic Review* Vol. 61, No. 1 , 65-73.
- Sawada, Y. (2009). The immiserizing growth: an empirical evaluation. . *Applied Economics, Taylor & Francis Journals*, vol. 41(13), , 1613-1620.
- Schiller, R., & Athanasoulis, S. (1995). World Income Components: Measuring and Exploiting International Risk Sharing Opportunities. *NBER Working paper No. 5095*. .
- Shapouri, S., & Rosen, S. L. (2001). Food Security and Food Aid Distribution. *Agricultural Information Bulletins 33651, United States Department of Agriculture, Economic Research Service*. .
- Shikwati, J. (2002). Peter Bauer: The third world hero. *Review-Institute of Public Affairs*, 54(2),13.
- Sorensen, B. E., & Yosha, O. (1998). International risk sharing and European monetary unification. *Journal of International Economics, Elsevier*, vol. 45(2), 211-238.
- Sorensen, B. E., Wu, T.-U., Yosha, O., & Zhu, Y. (2005). Home Bias and International Risk-Sharing: Twin Puzzles Separated at Birth. . *CEPR Discussion Paper No. 5113*.
- Svensson, & Jakob. (2000). Foreign aid and rent-seeking, . *Journal of International Economics*, 51, issue 2, 437-461.

- Tandon, Y. (2008). *End of Aid dependence*. Cape Tow: Fahamu Books.
- Tapsoba, S.-A. (2010). West African monetary integration and interstates risk-sharing. . *Journal of Economic and Monetary Integration* 9.
- Tesar, L. L. (1995). Evaluating the gains from international risksharing. *Carnegie-Rochester Conference Series on Public Policy, Elsevier*, vol. 42(1),, 95-143.
- Townsend, R. M., & Ueda, K. (2010). Welfare gains from financial liberalization. . *International Economic Review*, 51(3), 553-597.
- Van Wincoop, E. (1994). Welfare gains from international risksharing. . *Journal of Monetary Economics*, 1994, vol. 34, issue 2.
- Vasquez, I. (2008). Foreign aid and economic development. *Cato handbook for policymakers. 7th Edn., Washington, DC: Cato Institute* .
- Von Hagen, J. (1992). Budgeting procedures and fiscal performance in the European Communities (No. 96). . *Directorate-General for Economic and Financial Affairs, Commission of the European Communities*.
- Whitfield, L. (2009). Reframing the aid debate: Why aid isn't working and how it should be changed . No. 2009: 34,*DIIS working paper*.
- Whitfield, L. (2009). Reframing the aid debate: Why aid isn't working and how it should be changed . (No. 2009: 34). *DIIS working paper*.
- Wolf, H. (2004). Accounting for Consumption Volatility Differences. *IMF Staff Papers, Palgrave Macmillan*, vol. 51(s1),, 109-125.
- World Bank. (2001). *World Development Report 2000/2001. Attacking Poverty*. New York: Oxford University Press. .
- Yang, D. (2008). International migration, remittances and household investment: Evidence from Philippine migrants' exchange rate shocks. *The Economic Journal*, 118(528), 591-630.
- Yehoue, E. (2005). International risk sharing and currency unions: The CFA zones . *International Monetary Fund*, 5-95.
- Yehoue, E. (2011). International risk-sharing and currency unions: The CFA zones. . *Journal of international development*.

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