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Impact of foreign aid on economic growth of sub-Saharan African countries

By

Aschalew Shiferaw[1]

Abstract

This paper was aimed at presenting a synthesized empirical literature on the effectiveness of foreign aid on bringing economic growth to recipient sub-Saharan African countries. This is done by extensively reviewing both theoretical and empirical literatures on the impact and effectiveness of official development assistance (ODA) or foreign aid on economic growth of LDCs. Dozens of studies produced over the past few decades have assessed the relationship between foreign aid and growth through econometric analysis of cross-country (or "macro") data relating the two variables. These studies have consistently turned up inconclusive or contradictory results. In our current empirical review focusing on recent studies, we came to know the conflict in on the effectiveness of foreign aid is still there. While majority of the current literatures works find positive effect of foreign aid on growth, others studies recognize an inhibiting role of foreign aid in economic growth. Still others support neither positive nor negative impact of foreign aid on growth. On the other hand, studies conducted exclusively in Ethiopia found the foreign aid has positive and significant effect o economic growth of the country while found negative relationship between foreign aid and economic growth of the country. Non-econometrics indicators of aid effectiveness used by the World Bank such as maternal mortality rate, infant mortality rate, incidence of tuberculosis, prevalence of HIV aids show declining trend and thereby indicates aid effectiveness in Ethiopia. Evidence backed by the empirical results, established that good economic policies and quality of institutional factors are found essential for aid effectiveness in bringing economic growth in most of the study that found positive relationship between aid and growth implying that governments and aid agencies should consider these essential factors when it comes to improve aid effectiveness.

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1 PhD Fellow at School of Economics, University of Gondar, Ethiopia.

1. INTRODUCTION

Foreign aid is an international payment that comprises of either a loan or a grant, from one country to another; these payments can either be bilateral, multilateral or private assistance from a nongovernmental organization (Todaro and Smith, 2012). The distinction between bilateral- and multilateral aid is that bilateral is a two-way stream meaning that it is sent from one government to the other whereas multilateral aid is given by a coalition of countries and/or organizations to a specific country. Economist requires that foreign aid has to be met by two criterions; (1) the purpose of aid has to be non-commercial and concessional, (2) both the repayment stage and the interest rate should be softer than commercial terms i.e. concessional terms (Todaro and Smith, 2012).

One of the most comprehensive definitions of foreign assistance or Overseas Development Assistance (ODA) is that of the Development Assistance Committee (DAC) of the Organization for Economic Cooperation and Development according to which, aid includes grants or loans to developing countries and territories which are: (i) undertaken by the official sector of the donor country, (ii) with promotion of economic development and welfare in the recipient country as the main objective, and (iii) at concessional financial terms that it must have a grant element of at least 25 percent (OECD, 1985). In addition to these financial flows, technical co-operation is included in ODA, while grants, loans and credits for military purposes are excluded, regardless of their concessionality. It is clear from most of these definitions that one of the fundamental objectives of aid is progress and development in recipient countries.

The history of foreign aid can be drawn as far back as the late 1870s and early 1920s, when the United Kingdom (UK) initiated the discussion on how to finance the development of poor countries which were then British colonies (Mahembe and Mbaya, 2019). Nevertheless, the provision of development aid from one nation to the other nation in the form of bilateral- and multilateral aid, as it is known today, originated after World War II (Ranaweera, 2003). In 1947, the USA established and financed the Marshall Plan which was meant at reconstruction Europe after the war (McGillivray et al., 2006). In the 1960s, ODA constituted around 55% of all net disbursements by DAC countries but has decreased to around 30% in recent years. The proportion of private flows, which include foreign direct investment (FDI) and commercial bank loans, has grown from 29% to 57% over the same period. Despite these shifts, Mahembe & Mbaya (2019) still believe that "foreign aid today is one of the most important factors in international relations and in the national economy of many countries." Foreign aid has been believed to play an important role in stimulating economic development in a vast majority of recipient developing economies for decades. Since the 1970s, foreign aid has dramatically increased in the developing world. It grew from only 6.836 billion US dollars in 1970 to 49.673 billion US dollars in 2000 and up to161.075 billion US dollars in 2014 (World Bank, 2017), representing a multiple of 23.563 in 44 years.

The effectiveness of foreign aid to speed up economic growth varies from country to country. While this topic has been studied extensively in the development economics literature, there has been neither a theoretical consensus nor consistent empirical evidence that concludes whether the relationship between foreign aid and economic growth in less developed countries is positive, negative or non-existent. The effectiveness of foreign aid remains controversial and excites polarized opinions. In light of the evidence, some scholars assert that aid plays a pivotal role in promoting economic development in the poorest

countries (Sachs, 2005) while others are highly doubting (Easterly, 2006). Many studies emphasize that aid effectiveness depends crucially on the quality of institutions and policies in the receiving countries (Burnside and Dollar 2000). A large literature studies how aid is spent (e.g., Werker et al., 2009); how it is absorbed in the domestic economy (e.g., Temple and Van de Sijpe, 2017); and how much it ultimately stimulates growth (e.g., Dalgaard et al., 2004), improves human development outcomes (e.g., Boone, 1996), and reduces poverty (e.g., Collier and Dollar, 2002).

Early research on foreign aid, dating back to the 1940s and 1950s, was consistent with the belief of foreign aid effectiveness after the war. It also provided a conceptual foundation for this optimism where foreign aid has been analyzed in the context of the two-gap model of aid, largely based within the tradition of Harrod-Domar growth models. Recognizing the importance of the saving gap, Chenery and Shout (1966) identified that a foreign exchange gap is also problematic because developing countries were unlikely to have the export earnings required to import capital goods for investment. Chenery and Shout (1966) suggested that foreign aid could help fill this gap, which motivated them to develop a "dual gap" model and they generally concluded that foreign aid contributed positively to economic growth in less developed countries. However, White (1992) pointed out that, while high levels of aid were achieved, the anticipated growth was not. Later researchers came to the same conclusion for example the studies of Kosack (2003), and Werlin (2005). The lack of economic growth following the provision of foreign aid motivated a substantial amount of empirical research aiming to analyze the reason for this by investigating the relationship between foreign aid and domestic savings. This body of research found that the connection between foreign aid and domestic savings in less developed countries is not as clear-cut as had been previously believed.

During different time period's recipient countries have had significant outcomes from aid i.e. aid has been successful. In the 1960s Botswana and the Republic of Korea, 1970 Indonesia, late 1980s Bolivia and Ghana and in 1990 Uganda and Vietnam were all recipient countries where foreign aid was successful for the country; the economies went from underdevelopment to rapid development (World Bank 1999). In these countries foreign aid contributed to development policy concepts and financed public services. However, unfortunately foreign aid has also been a complete failure, one example is Zaire, the current Democratic Republic of Congo, aid resulted to ineffectiveness, misguided policies and corruption. Another example is Tanzania, were $2 billion in aid was invested into building roads however the roads deteriorated fast due to lack of maintenance (World Bank, 1999).

However, the practical impacts of aid flows in achieving growth and development of sub-Saharan African countries have not been materialized and this has questioned the place of aid flow in those countries. Besides, the sub-Saharan African countries continue to suffer from economic hardships even though capital inflow in the form of aid has its due importance in some aspects. This raises a question whether foreign aid is a worthwhile in boosting economic growth in the recipient countries in general. Thus, while it is paramount important to draw an empirical relationship between foreign aid and economic growth there is no solid consensus among previous researchers on the actual impacts of foreign aid inflows. Thus, in the paper efforts have been exerted to figure out the effects of foreign aid to economic growth.

1.1. Objectives

The purpose of this paper is to establish and draw empirical evidence on the relationship between foreign aid and economic growth in developing countries.

2. Body (literature Review)

2.1. Definition and Concepts

Rosenstein-Rodan (1961) views that international economic assistance or aid as part of capital inflow which normal market incentives do not provide. In the words of Morgenthau, aid is "the transfer of money, goods and services from one nation to another" (Morgenthau, 1962). However, Morgenthau's definition seems vague because transfer of resources such as export credits, foreign direct investments (FDIs) or commercial bank loans from developed to developing countries are normally referred to as 'flows' (Raffer et al., 1996). White defines aid as: any transfer of resources from rich countries to poor countries which the former choose to call "aid", i.e. any transfer the effectiveness of which is publicly assessed, though perhaps hypocritically assessed, in terms of the benefit to the recipient (White, 1974)".

Little (1978) define aid as concessional finance designated explicitly for development purposes. They add that by making the provision of concessional capital and resources to countries in need to increment their foreign exchange holdings and domestic savings, these consequently accelerate investment and thereby speed up the pace of the development process (Little 1978). According to Mosley, "aid is money transferred on concessional terms by the governments of rich countries to the governments of poor countries"(Paul 1987). Cassen and Associates are of the view that aid is a "transfer of resources on concessional terms- that is, more generous or 'softer' than loans obtainable in the world's capital markets" (R.Cassen and Associates 1994).

Engberg-Pederson et al., define aid, especially technical assistance, as the transfer of knowledge and skills which can influence the development process by enhancing the skills and qualifications of the labor force and manpower (Engberg-Pedersen et al., 2003). Technical cooperation or technical assistance also includes education or training at home or abroad for developing or recipient country individuals and for teachers, administrators, technical experts, doctors, engineers and other staff working in different departments and ministries (OECD 1985).

2.2. Aid and Growth: Theoretical Developments

2.2.1. The Three Gap Model

The traditional approach to analyzing the macroeconomic effects of aid, and specifically the impact of aid on growth, has been based on the 'two-gap' model of Chenery and Stout (1966). The engine of growth is investment and, at early stages of development at least, this requires imported capital goods. However, domestic savings rates tend to be low in low-income countries, such that domestic resources are insufficient to meet desired levels of investment – the savings–investment gap. Similarly, export earnings are not adequate to pay for all the desired capital goods imports – the foreign exchange gap. In filling these gaps, aid can contribute to increased growth rates. Later on the two gap model is extended to the three gap model to account for financing gap. The detail of the three gap model is discussed as in

below.

The three gap model was started at the WB in 1963. It asks what are the main constraints in LDCs; particularly African Economy? Initially, the model identified the main constraint LDCs economies are facing is saving constraint; mainly private saving. Latter on it was argued that in addition to the saving gap, LDCs also face acute shortage of foreign exchange/currency and led to what is known as the exchange rate constraint. These two together give what is known as the Two Gap Model. Recently, a third constraint was identified- the financing gap. All the three together form the Three Gap Model.

i. Saving Gap: The structure of the model is

$$GDP = C + I + X - M$$

Note that G is included in C and I.

$$Y = C + I + X - M \ldots\ldots\ldots\ldots 1$$

Where, GDP or Y is Gross Domestic Product; C is aggregate consumption; I is aggregate investment or gross capital formation (GCF); X is exports; and M is imports.

Furthermore, aggregate consumption (C) is the sum of private consumption (CP) and government consumption (Cg). Moreover, aggregate investment (I) is the sum of private investment (IP) and government investment (Ig). Thus, equation (1) can be rearranged for investment as follows.

$$I = Y - C + (M - X) \ldots\ldots\ldots 2$$

In equation (2), the excess of M, over X is assumed to be equal to foreign transfers (F - J).

That is,

$$M - X = F - J \ldots\ldots\ldots\ldots 3$$

Where, F is net inflow of capital and J is net factor service abroad (i.e., the difference between the interest a country pays for debt servicing abroad and interest in receives from its borrowing). Therefore,

$$I = Y - C + F - J \ldots\ldots\ldots\ldots 4$$

Equation (4) says that aggregate investment is aggregate/national savings (Y- C = S) less foreign transfer (F - J). Thus, equation (4) can be written as

$$I = S + F - J \ldots\ldots\ldots\ldots 5$$

We know that aggregate/national savings (S) is the sum of private saving (S_P) and public saving (Sg). That is,

$$S = Sp + Sg$$

Moreover, Sg = T - G (which is the excess of government revenue over recurrent or consumption expenditure). Substituting these into equation (5) we get

5

$I = Sp + (T - G) + F - J$…….………6

If private saving is exogenous, then we get

$I \leq Sp + (T - G) + F - J$……..……7

Equation (7) says that aggregate investment or gross capital formation (GCF) is limited or constrained by the availability of private saving (Sp). This indicates the limitation saving imposes on investment; since SP* is low investment is also low in Africa. Assuming there are no public saving (Sg = T - G) and foreign transfers (F-J) or foreign borrowing, it is clear that constrained by the availability of private savings (SP). On the other hand, if $I \geq Sp + (T - G) + F - J$, then the money for investment should come from public savings. Sg = T - G and/or foreign transfers (F - J).

In reality, however, LDCs, particularly in African countries relay more on foreign transfers (F- J) /foreign borrowing to finance their investments because private saving is low and public saving is negative or there is budget deficit. In order to understand, the impact of variables in the right hand side of equation (6) on output (Y) via their effect on investment (I) we assume there exist stable relationship between investment and output. The relationship is expressed as

$I = \sigma \Delta Y$……………………..……..8

Where $\sigma = I/\Delta Y$ = ICOR (incremental output ratio or the efficiency of the investment)

Substituting equation (8) into (6) for investment we get

$\sigma \Delta Y = Sp + (T - G) + F - J$……..……9a

$\Delta Y = 1/\sigma\ [Sp + (T - G) + F - J]$………..9b

Equation 9b is called the Saving Gap Model. Therefore, the model is used by the World Bank to predict how output will respond to the change in private saving given σ,Sp,(T-G) and (F-J)

for the next period. The model indicates that there is positive relationship between private saving and economic growth (shown by change in output). The positive relationship between private saving and economic growth is the basis for many growth theories to conclude saving is an engine of growth.

Rearranging equation (9a), we can get an equation, which shows the relationship between private saving and other variables, particularly with foreign transfer, mainly Aid, and economic growth.

$Sp = \sigma \Delta Y - (T - G) - (F - J)$……..……10

Equation (10) shows an inverse relationship between private saving and aid and proved again positive relationship between private saving and economic growth (shown by change in output). The standard value for sigma (σ) is assumed to be between 3 and 4. It is based on the Harrod-Domar Mode (HDM), which believes that aid flows would augment private saving in developing countries and hence increase output/economic growth. Saving is also an engine of growth in the HDM.

In simple Harrod–Domar growth model in which, at the economy level, labour and capital are imperfect

substitutes. It is unlikely that low-income economies are labour constrained, so attainable levels of income are determined by the availability and productivity of capital. The domestic savings rate determines the level of investment (or availability of capital) that in turn determines the attainable growth rate (given the productivity of capital). More generally, the level of investment depends on private savings, public savings (the primary budget surplus) and net foreign savings (net investment including aid). If a government desires to increase the growth, then it has to increase savings. If private and public savings are too low (constrained), then aid permits increased investment and growth.

ii. Foreign Exchange Gap

In low-income countries it is likely that investment goods need to be imported, implying a need for foreign exchange. Export earnings may be low relative to the need for imported capital goods, giving rise to a foreign exchange gap. Typically, low-income countries are dependent on exports of primary commodities, earnings from which are often relatively low, unstable and often subject to declining terms of trade. Furthermore, they may need to import fuel and food in addition to capital goods. Aid can fill a foreign exchange gap and so permit increased imports of investment goods. In fact, if imported investment goods are combined with domestic investment resources, aid has a greater impact on investment in relaxing a foreign exchange constraint than in relaxing a savings constraint (Bacha 1990). Aid given as 'cash' can be effective if it is given (and then used) to relax the greater (binding) constraint.

Recall from the saving gap model that the excess of M over X is assumed to be equal to foreign transfers (F - J). That is,

M - X = F - J……………1

However, unlike the saving gap model assume that

M = mI + mO……………2

Where, mI is for investment purpose (such as import of capital goods, raw materials, intermediate goods, etc.) mO is other non-investment imports such as food, cloth, etc. m is marginal propensity to import (MPM); and 0<m<1.

Substituting equation (2) into the left hand side of the equation (1) we get

mI + mO - X = F - J……………3

Rearranging equation (3) and solving for investment

I = 1/m[X - mO + F - J]……………4

In equation (4), X–m0 is summarized as e* or exchange rate (which is also part of foreign reserve, FR, and is capital inflow to the banking sector), because the factor that determines the value of e* or exchange rate is net export (X – m0) or foreign reserve (FR). So substituting e* or exchange rate for net export (X - mO) in equation (4) we get

I=1/m[e*+F-J]……………5

Note that e* or exchange rate is exogenous, which is determined by the external demand for our exports and domestic demand for non-investment imported goods. Equation (5) is called the Foreign Exchange Gap Model. That is, given e*, developing countries need to increase the net flow of capital or foreign transfers (F – J) if they want to expand their investment because they have acute shortage of foreign reserve in the banking system.

Assuming and substituting I =σΔY into equation (5) above and rearranging for change in output we have

$$\sigma\Delta Y = 1/m[e^* + F - J]……………6a$$

$$\Delta Y = 1/\sigma m[e^* + F - J]……………6b$$

Rearranging equation (6a), we can get an equation, which shows the relationship between foreign exchange rate (or foreign reserves) and other variables, particularly with foreign transfer, mainly Aid, and economic growth.

$$e^* = m\sigma\Delta Y - (F - J)……………7$$

Ones again, more often than not, equation (7) shows an inverse relationship between foreign reserve and foreign aid and positive relationship between foreign reserve and economic growth (shown by change in output). More importantly, the inverse relationship between foreign reserve and foreign aid tells you that if a country has excess foreign reserve than the amount of foreign aid flow to that country will decrease and vice versa. Both Sp* and e* indicate that LDCs have limited capacity in increasing their private saving and increase foreign exchange reserve. These are the justifications for the flow of aid to LDCs from developed countries.

iii. The Financing Gap

Bacha (1990) introduces a third gap, the fiscally constrained level of investment. If government resources are limited, public investment may be lower than desired (especially if public and private investment is complementary, as is likely at low levels of development). As most aid goes to government, the fiscal constraint should be relaxed, assuming the aid is used for productive investments.

The essence of the gap approach is that low-income countries may face a number of financing constraints. If sufficient aid is provided to fill the gaps (relax the constraints) and is used to do so (i.e., for investment), the growth rate can be increased. A major issue of concern is whether the aid is actually and fully used for investment. Griffin (1970) raised the specters of fungibility; aid intended for investment is given to governments who may be inclined to 'divert' the aid to finance consumption or 'non-developmental' expenditure.

The financing gap considered as fiscal policy constraint assume the following

i. The base money is the only source of finance available for the private sector to hold in an economy

ii. Private sector saving constraint is given by

$$Sp^* = \Delta H/P + Ip$$

Rearranging the equation above, we get

$Sp*-Ip=\Delta H/P$………………..1

Where, H = is the stock of base money(high powered money) and is defined as $H = C + R$, Ip= is private investment The change in high powered money is thus given by

$\Delta H=f(\pi,\theta)$;where $0<\theta<1$…………………2

Where, π is inflation rate, and θ is the marginal propensity to save (MPS) or accumulation of cash balance.

All capital flows are channeled to the government not to the private sector.

Therefore, the consolidated budget constraint to the public sector is given by

$Ig \le f(\pi,\theta) + (T - G) + (F - J)$………………..3

Where, Ig = is government investment, which adds to private investment yields. Note that the national investment or GCF is

$I=Ig+Ip$…………………………..4a

$Ip=k* Ig$…………...…………..4b

Where, Ip is private investment. Equation (4) states that private investment is a certain proportion (k) of government investment.

It also implies that not only private and public investments have relationship but also private investment depends on government investment. In other words, private and public investments are complementary. That is to say public investment in infrastructure encourages private investment. Substituting equation (4b) into (4a) we get

$I=Ig+k* Ig$

$I=(1+k*)Ig$………………………..5a

$Ig=I/((1+k*))$…………………….…..5b

Substituting equation (5b) into (3), we have total investment

$I/((1+k*))\le f(\pi,\theta)+(T-G)+(F-J)$………………..6a

$I\le(1+k*)[f(\pi,\theta)+(T-G)+(F-J)]$……….......………..6b

Equation (6b) is called the financing gap model. In equation (6b), the term $f(\pi,\theta))$ in the right hand side is money creation. In Africa government revenue is low because the domestic economy to be taxed is low. The only source is foreign inflow to increase investment. That is why, the IMF and WB help African economy. They say that we will help you by giving borrowing but you help yourself by increasing tax or

introducing new taxes or reducing government expenditure, and/or maintaining money creation growth constraint because it will be inflationary.

2.2.2. Neo-classical growth models

The standard or 'old', neo-classical growth models are based on Solow (1956). A major difference from the Harrod–Domar model is that perfect substitutability between factors (and constant returns to scale) is assumed. In essence, per capita income growth is determined by increases in the capital–labor ratio, which in turn depend on savings and population growth. As with the previous model, aid can only have temporary effects: an increase in savings or in the capital–labor ratio will increase the level of per capita income but does not alter the long-run per capita growth rate. The impact of aid arises as it increases investment, hence increases the capital–labor ratio, and also depends on effects on the savings rate.

The augmented Solow model introduces human capital, specifically technology that increases the productivity of labor. Hudson, J. and Mosley (1994) show that if aid increases labor productivity it can increase the long-run growth rate of per capita income. Take away the many formal elements of Solow's growth model and the only difference with the gap models, in terms of the impact of aid, is that an additional mechanism is introduced (human capital) through which aid can increase long-run per capita growth rates.

New growth theory incorporates the concept of endogenous technical change, for instant, (Romer 1986, 1990); a textbook treatment can be found in Barro, R. and Sala-I-Martin (1995). Human capital plays an important role, but emphasis is also placed on technological change, especially spillovers, research and development, learning by doing and externalities associated with an increase in knowledge. New growth models also allow for increasing returns to scale. The important consequence is that the theory generates the potential for increasing long-run per capita income growth rates. If imported capital goods (financed by aid) are of a higher level of technology than domestic capital goods, then aid can increase the long-run growth rate.

2.2.3. An aid-financed "big push"

The "big push" argument holds that a large inflow of aggregate aid in social and productive sectors will result in growth across all sectors of society. This is originated from the Jeffrey Sachs school of thought and is based on the theory of a "poverty trap" and consistent low productivity, which prevent poor countries from growing. The big push argument has caught the interest of policy groups and governments and has taken shape through initiatives such as the United Nations (UN) Millennium Project, which advocates high concentrations of aid to specific geographical areas, and the International Finance Facility (IFF), which proposes the frontloading of aid from rich countries to meet the Millennium Development Goals (MDGs) and the G8 pledge to double aid to Africa by 2015. The rationale is quite simple, specifically that the poorest sections of society are too poor to save for the future and are, therefore, prone to becoming trapped into low or negative growth rates. Large increases in aid through multiple organizations (NGOs, government, the private sector) would finance a big push in public investment and increase Africa's underlying productivity through human, agricultural and industrial development to lift people out of this trap (Sachs 2005). The big push approach is characterized by a holistic approach to improving the lives of the poor, utilizing various forms of foreign aid and delivering a plethora of projects and programs to

enable the attainment of intended goals.

The big push argument is compelling, especially in countries where governments have failed to invest in needed public investment and private alternatives have not been ready to invest sufficiently.

3. The proponent and critics of effectiveness of foreign aid

1.2. The Proponents of Foreign Aid

Sachs is perhaps the most well-known and publically outspoken economist in support of aid. His arguments for aid's effectiveness are well described in his book 'The End of Poverty' (2005). The arguments presented are multifaceted, but three core components of his case can be identified. First, Sachs establishes the moral case for aid by detailing the reach and severity of extreme global poverty. He does so with both macro level statistics and stories from real people he has met who are living within the constraints of extreme poverty. He does this so well that even his main opponent applauds him for it (Easterly, 2005). The second part of his case is the theory behind aid effectiveness, which includes arguments for the "poverty trap" and the "financing gap". Sachs claims that the extreme poor are in a poverty trap whereby they are "too poor to save... and thereby accumulate the capital per person" needed to lift themselves out of poverty (Sachs, 2005). The argument goes that growth requires investment (i.e. in capital) and investment requires saving. Saving, in turn, can only happen when an economic unit (whether an individual or country) has an income beyond that required for survival. As many individuals or countries have to dedicate all their income to survival, such growth often never occurs. Therefore, aid is effective because it helps ensure capital accumulation and subsequent growth (Sachs 2005).

The need for investment in infrastructure and human capital to propel growth is, therefore, central to Sachs' theory behind the effectiveness of aid. At the country level, he argues that growth will not happen without government investments in schools, clinics, roads and so on. In theory, every country should be able to assess their development needs and determine the total costs required for these investments. If poor country governments are often unable to meet those investments, a so called "financing gap" between the capital investment a country needs and what they are actually able to provide opens (Sachs 2005). Aid, in theory, can fill that financing gap.

To supplement the theoretical basis for aid, the third part of the argument for aid effectiveness is subjective. Sachs gives many examples of aid successes, including the follow: the Rockefeller Foundation's financial support of the Green Revolution in Asia; the spread of family planning since the 1950s as supported by the United Nations Population Fund; and the eradication of Polio as supported by organizations such as UNICEF, the World Health Organization and U.S. Centres for Disease Control and Innovation (Sachs, 2005). Sachs uses these examples to support his case for aid by arguing that they are all examples of bringing development successes to scale. The logic goes that if a development project can be found to work at the level of a single village, there is no reason that it cannot be replicated (or scaled) across an entire district, country or continent.

Although Sachs writes for an audience uninitiated in technical economic writing, all of his arguments are supported in the literature. Radelet et al., (2006) summarize this literature by identifying three economic arguments for aid. The first is the classical view (dominant before the '90s and very similar to Sachs' theoretical foundation): "aid will increase growth by augmenting

11

saving, financing investment and adding to the capital stock". Second, it has been argued that aid that supports health and education may increase growth by increasing worker productivity. Thirdly, aid could "provide a conduit for transfer of technology or knowledge from rich countries to poor countries (by paying for capital goods imports or through technical assistance)" Radelet et al., (2006). Further, arguments can be made that aid influences policy and improved policy leads to better growth (Kenny, 2008). Such a mechanism would work through donor "influence of local policymakers by providing financial resources, influencing policy debate and formulation, and technical assistance" (Bourguignon and Sundberg, 2007).

1.3. The critics of effectiveness of foreign aid

One of the loudest and most critical opponents of Sachs' stance on aid effectiveness is William Easterly. His book 'White Man's Burden: Why the West's Efforts to Aid the Rest Have Done So Much Ill and So Little Good' was released a year after 'The End of Poverty' and in many ways was an assault on Sachs' core logic and arguments. Central to Easterly's thesis is the idea that top down planning for development (the sort that is required to implement massive aid programs) simply does not work. This is well summarized by Duncan Greene who identifies two core components of Easterly's arguments: (1) aid fails because its implementation is not accountable or responsive to the people served, and (2) aid creates perverse incentives for bureaucrats (e.g. promotion based on how much money you manage to disburse) that have little to do with development (Greene, 2008). These two arguments form most of the constructive part of Easterly's case. The rest is predominantly on attack on Sachs and other big aid supporters. As such, understanding Easterly's is best done through an understanding of his main criticisms of Sachs.

Easterly levels three major arguments against Sachs and other supporters of "the big push" (i.e. those who advocate a major increase in aid in order to propel impoverished nations out of the poverty trap). The first is a rejection of the poverty trap itself. According to Easterly, there is simply no empirical evidence that the poverty trap exists. The poverty trap is based on the premise that extremely poor countries will have little to no growth by virtue of their being poor. Easterly shows that from 1950-2001, the poorest fifth of countries increased their per capita income growth by a factor 2.25, while the richest four-fifths increased by a factor of 2.4 (Easterly, 2006). He also argues that when the same analysis is done by breaking all countries into halves based on how much aid they received "countries with below-average aid had the same growth rate as countries with above average foreign aid" (Easterly, 2006). He cites a number of other statistical tests that he claims shows that economic growth is not "trapped" by poverty (Easterly, 2006).

Easterly's second argument is related to his first: he rejects the premise of Sachs and others that poor countries "have lousy growth... because of a poverty trap rather than bad government" (Easterly, 2006). Using index ratings of democracy and corruption 1, Easterly tests the causes of slow growth among 24 countries that had the worst democracy and corruption ratings in 1984. His tests reveal that from 1985-2006, "when we control both for initial poverty and for bad government, it is bad government that explains the slower growth" (Easterly, 2006). In general, Easterly rejects the poverty trap because there is "no evidence that initially poor countries are at a growth disadvantage once you control for good government" (Easterly, 2006). Aid, therefore, is to be judged ineffective because it is bound to be confounded by corruption and poor governance.

The third and final attack that Easterly levels at Sachs' insistence on the effectiveness of aid is simply a reference to the academic research that shows that aid does not lead to growth. He begins by citing a 1996 paper by Peter Boone of the London School of Economics that found that aid finances consumption and not investment (Easterly, 2006). Next he attacks a seminal paper (Burnside and Dollar, 2000) that found that aid contributes to growth in good policy environments. Easterly further supports his case by citing other studies that demonstrate there is a lack of evidence that aid leads to growth (Rajan and Subramanian, 2005).

Three major constraints on the possibility of aid being effective are: the fungibility of aid, the so-called Dutch Disease, and limited absorptive capacity (Riddell, 2007). The fungibility of aid refers to the fact that recipient governments are not beholden to spend aid in certain ways: "An aid-recipient country could render ear-marked aid fungible by reducing its own resources in the sector that receives aid and transferring them to other sectors of the budget" (Feyzioglu et. al, 1998). Dutch disease is a possible negative unintended effect of aid that causes upward pressures on the exchange rate of aid recipient currency and therefore a decline in relative economic competitiveness (Riddell, 2007). This happens because of "a shift of production from tradable goods and services (such as food or textiles), towards non-tradable goods and services (such as teaching or health care)" (Barder, 2006). A third reason to expect aid's impact to be negative is limited absorptive capacity of recipient countries. This refers to the fact that recipient governments can find it difficult to use aid efficiently and effectively. Countries may not be able to properly "absorb" aid because of the macro-economic management challenges it presents, its undermining of institutions (e.g. by drawing talented staff away from institutions into the aid industry or by transferring political accountability from governments to donors) or their lack of resources (such as personnel or infrastructure) to implement the desired/demanded aid projects (Clemens and Radelet, 2003).

In Dead Aid, Dambisa Moyo argues that it is high time to stop giving foreign aid to African nations. The provocative thesis is based on what she considers obvious evidence: over $1 trillion dollars' worth of 'development assistance' has been given to African nations, and they don't seem to be any better off for it. So she thinks: The notion that aid can alleviate systemic poverty, and has done so, is a myth. Millions in Africa are poorer today because of aid; misery and poverty have not ended but increased (Moyo, 2009). Aid has been, and continues to be, an unmitigated political, economic, and humanitarian disaster for most parts of the developing world.

Moyo comes out with guns blazing against the aid industry—calling it not just ineffective, but "malignant." Despite more than $1 trillion in development aid given to Africa in the past 50 years, she argues that aid has failed to deliver sustainable economic growth and poverty reduction—and has actually made the continent worse off. Moyo opens her case by writing, "Between 1970 and 1998, when aid flows to Africa were at their peak, poverty in Africa rose from 11 percent to a staggering 66 percent." Today Africa is the only continent where life expectancy is less than age 60. Sub-Saharan Africa remains the poorest region in the world, where literacy, health, and other social indicators have plummeted since the 1970s (Wales, 2009).

Moyo (2009) believes it's high time for African countries to follow the international lead and fend

for themselves -- on international capital markets, for example. Moyo sets a five-year window to give African countries time to wean themselves off aid and get used to doing without it, and by that time the global economic situation may have changed, but at this time (early 2009) her recommendations would fall in the face of the new world order (i.e. global credit crisis). Credit markets have largely dried up, lending institutions and credit-rating agencies have been discredited, and even the outlook for cash-flow via remittances looks far less rosy than it did just a few months ago. Neither international finance nor global trade is dead, but African nations surely face an even more difficult time than usual in dealing with either.

1.4. Recent empirical evidence on aid and growth

Azam & Feng (2022) started this study with the puzzle whether foreign aid actually increases economic growth or not. As the moral argument is that poor countries should be provided with foreign aid so that they can economically develop, it is important to empirically identify the impact of foreign aid on economic growth. The literature on this subject witnesses conflicting evidence. While some works find positive effects of foreign aid on growth, others discern an inhibiting role of foreign aid in economic growth. Still others support neither positive nor negative impact of foreign aid on growth. In their study, Azam & Feng (2022) take a different look at the puzzle, using the most recent sample for developing countries where data are available for our variables. This effort is conducted with two characteristics: First, they use a fixed five-year average for economic growth as a leading dependent variable, followed by the five-year averages of the independent variables as the lagging variables, which include foreign aid. This approach has two advantages: solving the endogeneity problem between foreign aid and economic growth and avoiding the short-term shocks and noise in the annual data about the economy. Second, they look at both the aggregate sample and disaggregate samples. While the results from the aggregate sample do support the view that foreign aid promotes economic growth, the findings from the disaggregate samples show conflicting results regarding the relationship between foreign aid and economic growth. In particular, we find that foreign aid stimulates growth only among the low middle-income group. The impact of foreign aid on growth in low income and upper middle-income countries does not produce positive results and may well worsen economic growth. The results support the argument of Easterly (2006); and Moyo (2009).

The study conducted by Duramany-Lakkoh (2021) considered the impact of foreign aid on the economic growth in Sierra Leone covering the period 1970 to 2018. Foreign aid is expected to stimulate economic growth by supplementing domestic sources of finance such as savings; thereby increasing the amount of investment and capital stock in the country. Despite its importance, foreign aid has been observed in Sierra Leone as rather than impacting positively on infrastructure and economic development, it only resulted in waste and unproductive public consumption because of perceived corruption, policy implementation and weak institutions (Ugwuegbe et. al. (2016); Easterly (2006); Chang (2007); Moyo (2009) and Stiglitz (2002) further maintained that rather than assisting poor African nations to develop, foreign aid further impoverishes them.

Asongu & Nwachukwu (2016) has investigated the effect of foreign aid on governance in order to extend the debate on this subject and to verify common positions, from Moyo's 'Dead Aid, Collier's 'Bottom Billion' and Eubank's 'Somaliland' in particular. The empirical evidence is based on updated

data from 52 African countries for the period 1996–2010. An endogeneity robust instrumental variable two-stage-least squares empirical strategy has been employed. The findings reveal that development assistance deteriorates economic (regulation quality and government effectiveness) and institutional (corruption-control and rule of law) governance, but has an insignificant effect on political (political stability and voice and accountability) governance. While, these findings are broadly in accordance with (Moyo 2009) and Collier (2007) on weak governance, they neither confirm the (Eubank 2012) position on political governance nor the Asongu (2012) stance on the aid-corruption nexus in his debate with Okada and Samreth (2012).

Tang & Bundhoo (2017) examine the relationship between foreign aid, determined by the official development assistance (ODA), and the economic growth rate of the Sub Saharan Africa's ten largest recipients of foreign aid, for a 23-year period from 1990 to 2012. These ten countries include Ethiopia, the Democratic Republic of Congo, Tanzania, Kenya, Cote d'Ivoire, Mozambique, Nigeria, Ghana, Uganda and Malawi. Tang & Bundhoo (2017) find that aid by itself does not have significant impact on economic growth. However, the variable aid interacted with the policy index was found to be statistically significant and positive, which means that aid tends to increase growth rate in a good policy environment. They also included the institutional quality index and its interaction term in the model and found that institutional quality has a positive and significant impact on growth; however, none of the aid variables was significant. In addition, they also test the two-gap growth model which states that foreign aid enhances economic growth through investment and imports. The results show that foreign aid is a good ingredient for supplementing investment and imports requirements in these ten countries. Tang & Bundhoo (2017) believe that given foreign aid is conditional on the economic, political and institutional environment of the recipient country; this can explain why aid effectiveness is insignificant in the Sub Saharan Africa region where bad governance is a core issue on the region.

Tawiah & Karungi (2020) have examined the impact of recipient governments' political orientation on the use of foreign aid using 16 African countries over 21 years. Their analyses reveal the following findings. First foreign aid has a significant impact on economic growth regardless of the government being leftist or rightist because GDP is an overall measure of economic growth affected by negative and positive of different segments. However, foreign aid is used differently under each political orientation. Second, political party uses foreign aid on a specific area of the county's development in accordance with its political orientation. Leftists' political parties are more likely to use aid on pro-poor growth projects such as poverty reduction, basic education, and health services. On the other hand, rightist political parties, are likely to use aid effectively in promoting their free-market and private sector growth agenda. Precisely, rightists are more likely to use aid in promoting private sector growth and investing in long term infrastructure projects. Thus, the political orientation of the recipient country matters in the debate of aid-usage effectiveness.

Masha et al. (2017) highlights a further issue: the heterogeneous effects of foreign aid on growth across less developed countries. Most studies have pooled all of the developing countries together, treating them as homogenous, despite that developing countries are vastly different across both observable and unobservable dimensions. Developing countries differ in their stages of development, per capita income, socio-economic, financial, and political characteristics. For this reason, the World Bank (2012) broadly classifies the developing countries into two categories: low income developing countries (LIDCs)

and high income developing countries (HIDCs) based on per capita income. Masha et al. (2017) hypothesized that the relationship between foreign aid and economic growth should be different among LIDCs and HIDCs. For this reason, they analyze the relationship between foreign aid and economic growth separately for LIDCs and HIDCs, producing estimates using samples which are more likely to be homogenous. Accordingly, they found that foreign aid has positive effects on growth in high-income developing countries and negative effects on growth in low-income developing countries. Future research should be directed towards capturing this heterogeneous effect of regional foreign aids based on project-based case studies in each sector (Maruta et al., 2020).

According to Maruta et al. (2020), policy-makers also need to be mindful of the sensitivity of foreign aid to the quality of institutions in developing countries. Countries with better institutions may find it more desirable to promote higher growth by directing aid flows to education (South America) and health sectors (Asia). Since the relative importance of foreign aid changes for regions, the focus on aid effectiveness also shifts from one sector to another. This is a significant finding and has strong policy implications for international aid organizations.

Sethi et al. (2019) examines the relationship between foreign aid and economic growth for India and Sri Lanka using annual time series data from 1960/61 to 2014/15. This study uses various time series techniques such as Johansen–Juselius test, Granger causality test and VAR modeling to find out the short-run and long-run equilibrium dynamics among the variables under consideration. The empirical results confirm that long-run relationship exists among foreign aid inflows, economic growth, trade, inflation, domestic investment and financial development in India. However, in Sri Lanka, foreign aid does not have a significant impact on growth, both in the long-run and short-run. The governments of the respective countries are thus required to make efforts in employing proper monetary and fiscal policies in order to stabilize the domestic economic cycle as well as external economic transformation in accordance with the impact of foreign aid on economic growth in each of them.

Taking 95 developing countries as a sample, Yiew & Lau (2018) empirically investigates the role and the impact of foreign aid (ODA) on economic growth (GDP). They also include foreign direct investment (FDI) and population (POP) as the control variables. The panel data results indicate that a U-shape relationship exists between foreign aid and economic growth. Initially, foreign aid negatively impacts the countries' growth and over a period of time, it positively contributes to economic growth. Further, the results strongly support the view that both FDI and POP are more important determinants of GDP, implying that GDP is less likely to depend on ODA. Strengthening the legal framework would be essential for these countries while their over dependency on the influx of ODA might lead to negative impacts on the growth as a whole. Importantly, effective management of foreign aid would ensure the achievement of Sustainable Development Goals (SDG).

Abate (2022) was undertaken based on data collected from credible sources over the period spanning 2002–2019 on 44 developing countries across the world. Employing system GMM method with quadratic specification, currently a popular method in regressions involving endogenous variables, the study detected non-linear relationship between aid and economic growth where by the contribution of aid to economic growth is positive only at lower level (no more than 8–9% of GDP) and become harmful at a higher level Abate (2022). By employing dynamic panel regression model, it is also shown that

institutional quality and economic growth are of utmost importance in shaping the relationship between aid and economic growth. In order for aid to stimulate economic growth in the sampled countries, the average institution quality indicators should be fairly above -0.614. Abate (2022) established threshold level of aid below and above which the effect of aid on economic growth vary for all of the 44 countries taken together. However, it would be better to see if the threshold level varies with income level and regions by considering even larger panel dataset. Other than institutional quality and economic freedom, there might be significant mediator/moderator variables like human capital and financial development in the relationship between aid and economic growth.

Meaza (2018) has attempted to investigate whether there is long run relationship between official development aid and economic growth of Ethiopia for the time period extended from 1981 to 2015. To do so, multivariate cointegration technique was employed for the analysis of the long run relation where VECM analysis is used to assess the short run relationships and its linkage with the long run equilibrium path. The study confirmed that ODA and economic growth of Ethiopia are negatively related in the short run but in the long run, it has positive and significant effect on the economic growth of the country.

Foreign aid remained an important source of finance for capital scarce (poor) countries and continued to play a multifaceted role in financing their development needs (Tadesse 2011). Despite the massive literature on the subject, a consensus has not been reached by researchers regarding the growth impact of aid. On his study of the macroeconomic impact of aid in Ethiopia with special emphasis given to the impact of foreign aid on domestic capital formation and economic growth, an annual data covering the period 1970 to 2009 was employed. The empirical result from the investment equation estimated shows that aid has a significant positive impact on investment in the long run. Its positive impact is not limited only to the long run but also aid finances investment in the short run. On the other hand, volatility of aid by creating uncertainty in the flow of aid has a negative influence on domestic capital formation activity. Tadesse (2011) has also examined the growth impact of aid, among other variables and its interaction with policy index. The result from the growth equation revealed that aid contributed positively to economic growth in the long run, but its short run effect appeared insignificant. In the contrary, when aid is interacted with policy, the growth impact of aid is negative implying the deleterious impact of bad policies on growth in the long run.

Setargie (2015) has examined the impact of foreign aid on economic growth in Ethiopia through transmission channel (i.e., through financing investment) over the period 1980/01 to 2013/14 using multivariate co integration analysis. The empirical result from the growth model shows that aid has a significant positive impact on growth in the long run. The empirical result from investment model also indicated that the positive and significant contribution of aid on investment in the long run. In other words the theoretical view of the gap models which is Aid can enhance growth by financing the saving gap is proven in this study. This study indicated also that the country has no problem of capacity constraint as to the flow of foreign aid

Mahembe & Mbaya Odhiambo (2019) investigates the causal relationship between foreign aid and poverty reduction in 82 developing countries over the period 1981–2013. The study used the Pedroni (1999, 2004) panel cointegration and the dynamic VECM Granger causality tests in a trivariate setting with real GDP per capita as an intermittent variable. The main findings from the panel VECM Granger causality analyses are that in the short-run, there is evidence of a (i) unidirectional causal relationship

from GPD per capita to foreign aid; and (iii) unidirectional causality from poverty rate to foreign aid. In the long-run, the study found that (i) foreign aid tends to converge to its long-run equilibrium path in response to changes in per capita GDP, and headcount poverty rates and (ii) both GDP per capita and poverty rate jointly Granger cause foreign aid in the long run. Lastly, the study found a strong joint causal flow from poverty rate and GDP per capita to foreign aid.

Hussen and Lee (2012) investigate the impact of foreign aid on investment and economic growth of Ethiopia for the period 1971-2010. The result indicates that foreign aid has a statistically significant positive impact on domestic investment, while aid's positive impact on per capita GDP growth does not depend on any macroeconomic policy conditionality. Rather, aid effectiveness depends on the peculiar social, political and economic institutions of particular periods. Aid is effective during both socialist and democratic regimes. However, aid's impact on growth was greater for socialist regimes.

Summary of the recent empirical studies was presented in the following table. In Table 1, recent studies with their respective author/s, sample data used, the methodology employed and their major findings are summarized.

Table 1: Summary of Recent Empirical Study on the Nexus between Aid and Economic Growth

Author/s	Sample data, Country/s	Methodology	Dependent Variable	Independent variable	Empirical finding
Azam & Feng (2022)	Data from 37 developing countries consisting of low income, lower middle income, and upper middle-income groups over the period from 1985 to 2018.	FE Fixed-effects estimator, RLS Robust Least Squares estimator	Growth rate in GDP per capita (US$)	Aid received as ratio of GDP, Inflation, net inflows as ratio of GDP, Trade openness, Education is measured as the gross secondary school enrollment (%)	Foreign aid stimulates growth only among the low middle-income group. Foreign aid does not produce positive impact and may well worsen economic growth in low income and upper middle-income countries.
Asongu & Nwachukwu (2016)	Data from 52 African countries for the period 1996–2010.	Robust IV 2SLS	corruption-control and rule of law, regulation quality, and government effectiveness	Net Development Assistance (NODA), NODA from multilateral donors, NODA from DAC countries, Political stability, Regulation quality, Rule of law, Voice and accountability, Population growth, Trade, Democracy, Public investment	Development assistance deteriorates economic (regulation quality and government effectiveness) and institutional (corruption-control and rule of law) governance, but has an insignificant effect on political (political stability, voice and accountability) governance.

Tang & Bundhoo (2017)	SSA ten largest recipients of foreign aid over a period of 23 years from 1990-2012	pooled OLS, FE, RE FD, and 2SLS	growth rate in GDP per capita (GGDP).	Inv, Labor, Aid, Aidsqr, Policy, Aid*Policy, Aid*Institutional Quality	Aid by itself does not have significant impact on economic growth.
Tawiah & Karungi (2020)	Data from 16 African countries	ARDL, Cointegration	GDP growth	Aid, Aid*Pol. Orientation, Political orientation, Political stability, Corruption, Trade openness, Gross capital, Inflation, Foreign investment	Foreign aid has a significant impact on economic growth
Masha et al., 2017	Annual data for 55 LIDCs and 56 HIDCs from 1970 to 2010.	GMM	GDP	Unemployment rate, capital formation, government budget surplus, inflation rate, degree of trade openness, and corruption,	Foreign aid has positive effects on growth in high-income developing countries and negative effects on growth in low-income developing countries.
Abate (2022)	A panel data covering the period 2002–2019 was collected from 44 developing countries of the world.	System GMM & DP threshold regression	Real GDP/capita	Institutional quality, Economic freedom, Aid, Trade openness, Population growth, Inflation	Foreign aid and economic growth takes inverted U shape indicating the existence of optimal level of aid
Tadesse (2011)	1970-2009, Ethiopia	Multivariate cointegration, VECM	Government expenditure, Schooling, & Investment	inflation rate, the share of debt service to GDP, the ratio of non-aid financed investment to GDP, policy index (P)* aid (A), (X + M)/GDP & the square of ODA to GDP ratio	Aid has a significant positive impact on investment in the long run. Foreign aid is effective in enhancing growth.
Yiew & Lau (2018)	2005 through 2013 (nine years panel data) for 95 developing countries	Pooled OLS, Random Effects (RE), Fixed Effects (FE), and Robust FE	GDP	ODA, ODA2, FDI and POP	Initially, foreign aid negatively impacts the countries' growth and over a period of time, it positively contributes to economic growth.

Tang & Bundhoo (2017)	A sample of ten countries over a period of 23 years from 1990 to 2012.	Pooled OLS, FE, RE, FD, and 2SLS	Real GDP per capita growth rate, Investment and import	The rate of growth of capital stock, Labour, ODA as a %Age of GDP (Aid)2, Policy, Insquality, Aid×Policy, M2 as a %Age of GDP & Aid×Institutional Quality	The results show that foreign aid is a good ingredient for supplementing investment and imports requirements in these ten countries.
Mahembe & Odhiambo (2019)	82 developing countries for the period 1981–2013	Panel VECM Granger causality test	Economic Growth	poverty, and ODA	The study found a strong joint causal flow from poverty rate and GDP per capita to foreign aid.
Sethi et al., (2019)	data from 1960–61 to 2014–15, India and Sri lank	Johansen–Juselius test, Granger causality test and VAR	economic growth	Foreign aid inflows, trade, inflation, domestic investment, and financial development	In Sri Lanka, foreign aid does not have a significant impact on growth, both in the long-run and short-run.
Duramany-Lakkoh, (2021)	data for the period 1970 to 2018, Sierra Leone	cointegration and error correction methodology by Johansen and Juselius (1990)	GDP= Gross Domestic Product	FA= Foreign Aid Flows EXCR= Exchange Rate IMPT = Import EXPT= Export , FDI= Foreign Aid flow OPN = Openness of the economy PPG = Population growth	Foreign aid in Sierra Leone is positively and significantly related to economic growth both in the short run and long run.
Meaza (2018)	1981 to 2015, Ethiopia	VECM	GDP	labor, physical capital, official development aid, trade openness and human	ODA and economic growth of Ethiopia are negatively related in the short run but in the long run, it has positive and significant effect on the economic growth of the country
Setargie (2015)	1974–2013 Ethiopia	VECM	Real GDP	ODA, investment, aid policy, education, and labor force	Aid has a positive effect on economic growth in the long-run
Hussen and Lee (2012)	1971-2010, Ethiopia	Investment and GDP	OLS	S represent savings, A: aid, FOPI: foreign private investment, O: other foreign inflow, , DS: ratio of debt service to GDP	The result indicates that foreign aid has a statistically significant positive impact on domestic investment, and on per capita GDP growth.

Source: Own summarization

1.5. World Bank Indicators on the effectiveness of aid for Ethiopia

There is no consensus about how to define the term 'aid effectiveness' either in the literature or amongst practitioners. Different agencies have very different objectives for the aid they provide, and most have

a combination. Objectives range from economic growth, achievement of the MDGs or other social indicators, and the reform of policies and institutions through to foreign policy objectives, promotion of trade, the protection of global public goods, or the promotion of human rights for example. This mix of objectives, both between and within agencies, obviously makes the development of a measure of aid effectiveness which has a broad acceptance and comparability challenging. Below are some of the indicator used by World Bank to measure the aid effectiveness are discussed. As indicated in Figure 1, GDP per capita, PPP (constant 2017 international $) in 1990 is equal to $687. Although it falls to $605 two years later, the per capita GDP of Ethiopia has started to rise continuously in subsequent years. It begins to register a significant per capita income improvement after 2003 which amounts $718. By 2020 GDP per capita of Ethiopia, PPP (constant 2017 international $) became 2297 USD. Figure 1 also depicted net ODA received per capita, net ODA received (% GNI) and net ODA received (% central government spending). From 1995 onward net ODA received per capita has shown a continuum increase although net ODA received (% central government spending) has register slight declining.
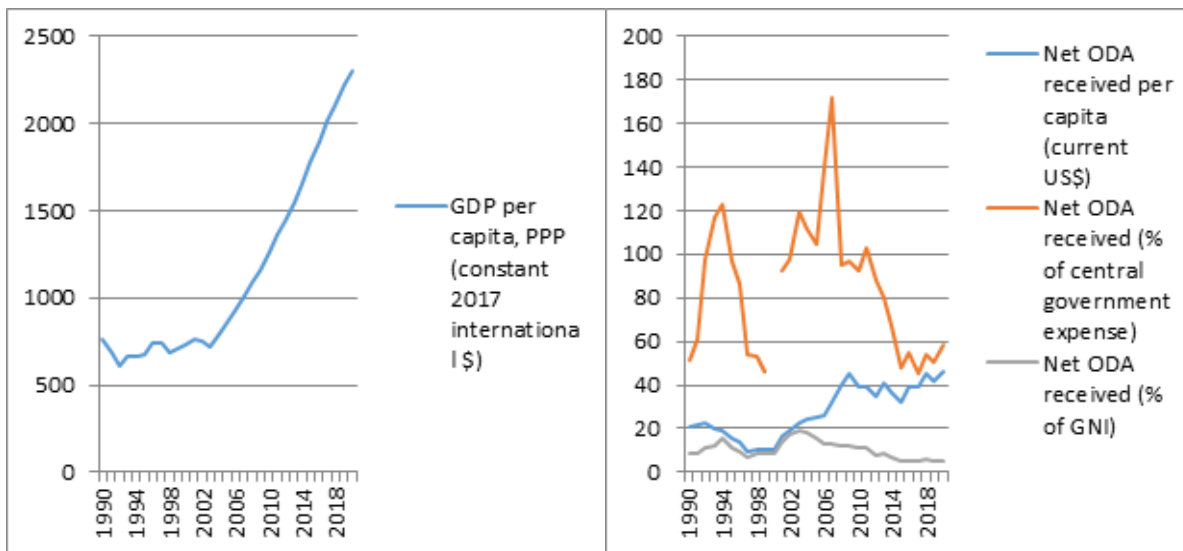
 Figure 1: GDP per capita, PPP (constant 2017 international $), net ODA received per capita, net ODA received (% GNI) and net ODA received (% central government spending).

The consistently high economic growth over the last decade resulted in positive trends in poverty reduction in both urban and rural areas. The share of the population living below the national poverty line decreased from 30% in 2011 to 24% in 2016 and human development indicators improved as well. However, gains are modest when compared to other countries that saw fast growth, and inequality has increased in recent years. Furthermore, conflicts in various parts of Ethiopia risk undermining the economic and social development progress the country has achieved in recent years.
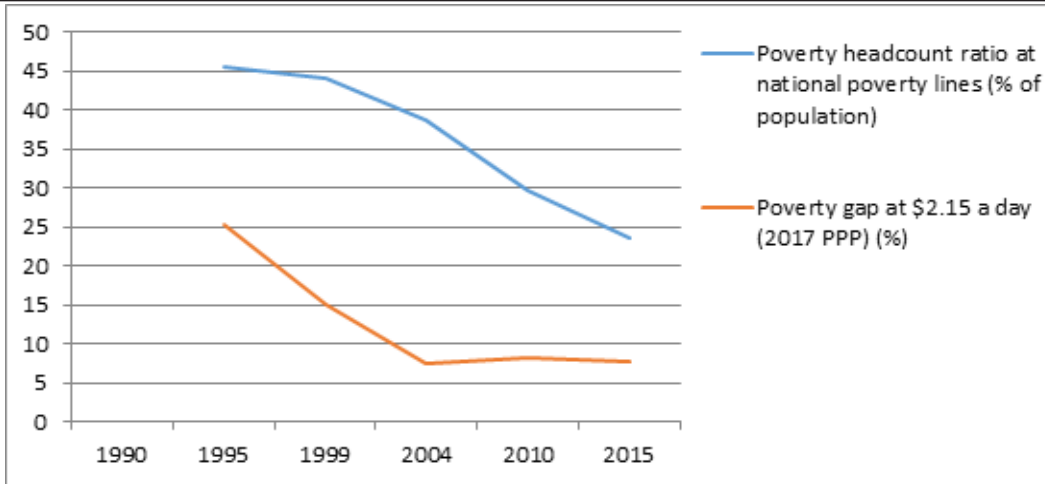
Figure 2: Poverty Head Count and Poverty Gap

The World Bank has also used life expectancy at birth, mortality rate, infant (per 1000 live births), and maternal mortality rate. Based on these indicators the country has registered a significant improvement from time to time.
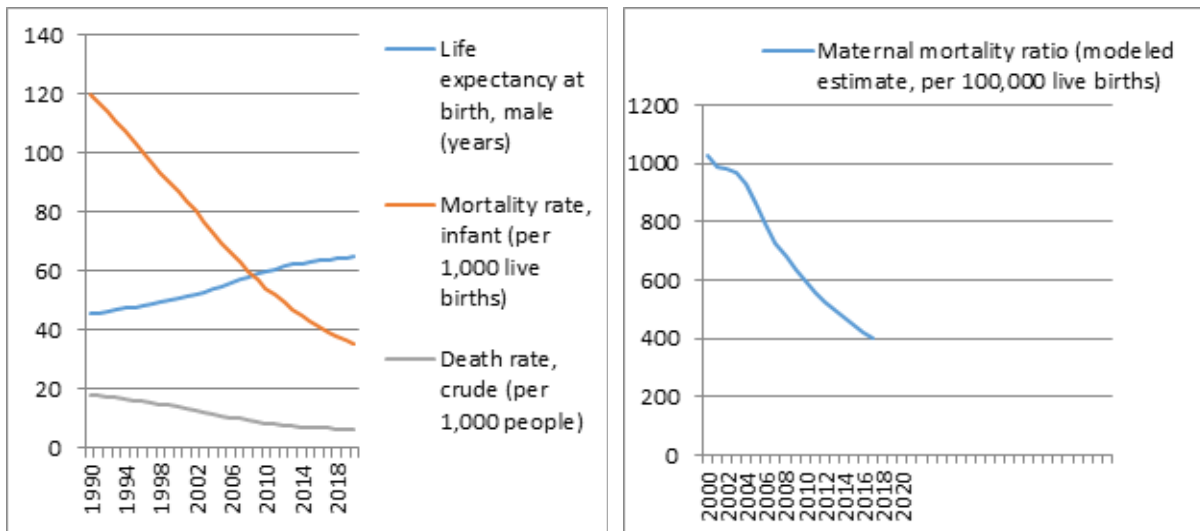
Figure 3: Life Expectancy, and Mortality Rates

The multi-lateral organization such as the world bank, IMF and others other bilateral aid agencies provide aid to reduce the incidence of diseases and pandemics in different regions. According to Bill Gates, eradicating Smallpox, Polio, Malaria and other Pandemic like Ebola from LDCs are unthinkable without foreign aid.
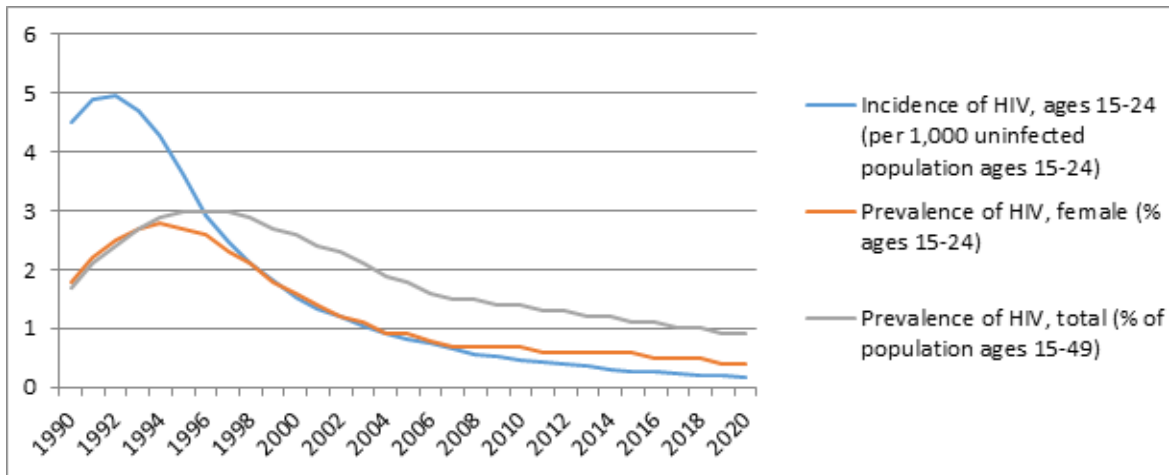
Figure 4: Prevalence of HIV AIDS in Ethiopia

As indicated in the above figure prevalence of HIV AIDS at various age level and gender has been significantly declining. Since most of the intervention is finance by foreign aid, it signify the effectiveness of aid at least in reducing various communicable diseases including tuberculosis and malaria. Figure 5 below also convey the same information of the effectiveness of aid.
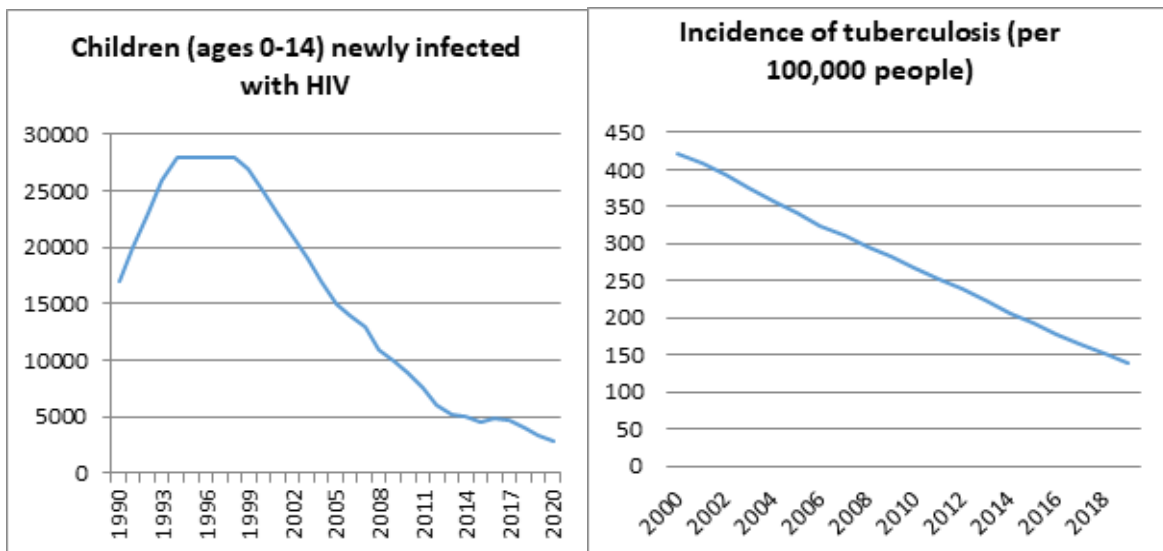
Figure 5: HIV AIDS and Tuberculosis Incidence

4. Conclusion

This paper was aimed at presenting a synthesized empirical literature on the effectiveness of foreign aid [1]on bringing about economic growth to recipient countries. This is done through a review of empirical studies on the impact and effectiveness of official development assistance (ODA) or foreign aid on

1 Foreign aid or foreign assistance is defined as "the international transfer of good, services or capital from a country or international aid agency to recipient country or its population." It consists of all resources transferred from donor to recipient country.

economic growth of LDCs. There are several types of aid including i) humanitarian and disaster relief such in the case of tsunami, earth quick or conflict causing the displacement and suffering of civilians ii) economic aid to sponsor the economic development or investment in infrastructure iii) military support which is used to assist a country or its people in its defense effort iv) healthcare programs such as those involving family planning, reducing infant mortality or prevention of a particular disease. Foreign aid can be public. This is also known as Official Development Assistance or ODA. It can be bilateral or multilateral. Alternatively foreign aid can be private. Private Development Assistances are generally provided by NGOs, or charity based organizations such as Red Cross or Oxfam.

In a nutshell, countries give foreign aid for three main reasons, i.e., one, moral or ethical or altruistic reasons. Aid can be given in compensation for past wrongs, past exploitation or consequences of colonialism. It could be given to counter the uneven distribution of global natural resource and global wealth and to promote shared prosperity. Or, it could be that certain countries feel a moral obligation to help those who are less fortunate and wish to help them improving their living standard. Two, countries could give foreign aid for their own economic self-interest. Aid could be given to develop or expand market for donor country's good, or it could be given to dispose surplus, if the donor country wants to get rid of surpluses in either goods or commodities. Three, countries give foreign aid for political reasons. Or, reasons of strategic self-interest such as to buy friends and influence, mainly for security reasons.

There are two camps of debate of the effectiveness of foreign aid. The proponent of aid includes Jeffrey Sachs, Paul Collier and the entrepreneur Bill Gates. His arguments for aid's effectiveness are well described in his book 'The End of Poverty' (2005). Jaffrey Sachs argues that foreign aid can solve the poverty trap. Extremely poor people are stuck in vicious circle of poverty, i.e., low per capita income leads to lower savings which in turn leads to lower investment. According to Sachs foreign aid can break the cycle by filling the saving gap.

Easterly and Moyo are well known for their critics on the effectiveness of foreign aid. They argue that foreign aid only serves to pop up the corrupt governments in poor countries who steal the aid and do not use it to provide public goods. Central to Easterly's thesis is the idea that top down planning for development (the sort that is required to implement massive aid programs) simply does not work. This is well summarized by Duncan Greene who identifies two core components of Easterly's arguments: (1) aid fails because its implementation is not accountable or responsive to the people served, and (2) aid creates perverse incentives for bureaucrats (e.g. promotion based on how much money you manage to disburse) that have little to do with development.

In Dead Aid, Moyo argues that it is high time to stop giving foreign aid to African nations. The provocative thesis is based on what she considers obvious evidence: over $1 trillion dollars' worth of 'development assistance' has been given to African nations, and they don't seem to be any better off for it. So she thinks: The notion that aid can alleviate systemic poverty, and has done so, is a myth. For Moyo, millions in Africa are poorer today because of aid; misery and poverty have not ended but increased. Aid has been, and continues to be, an unmitigated political, economic, and humanitarian disaster for most parts of the developing world.

Dozens and dozens of studies produced over the past few decades have assessed the relationship between foreign aid and growth through econometric analysis of cross-country (or "macro") data relating the two variables. These studies have consistently turned up inconclusive or contradictory results. In our

current empirical review focusing on recent studies, we came to know the conflict in on the effectiveness of aid is still there. While majority of the current literatures works find positive effects of foreign aid on growth, others recognize an inhibiting role of foreign aid in economic growth. Still others support neither positive nor negative impact of foreign aid on growth. On the other hand, studies conducted exclusively in Ethiopia majorly support the effectoveness of foreign for economic growth of the country. This does not mean no study has found negative relationship between foreign aid and economic growth of the country.

Evidence backed by the empirical results, which show that good economic policies and quality of institutional factors are found essential for aid effectiveness in bringing economic growth in most of the study that found positive relationship between aid and growth implying that governments and aid agencies should take into consideration these factors when it comes to improve aid efficiency.

Non econometrics indicators of aid effectiveness used by the World Bank such as maternal mortality rate, infant mortality rate, incidence of tuberculosis, prevalence of HIV aids show declining trend and thereby indicates aid effectiveness in Ethiopia.

Reference

Abate, Chala Amante. 2022. "The Relationship between Aid and Economic Growth of Developing Countries: Does Institutional Quality and Economic Freedom Matter?" Cogent Economics & Finance 10(1). doi: 10.1080/23322039.2022.2062092.

Asongu, Simplice A., and Jacinta C. Nwachukwu. 2016. "Foreign Aid and Governance in Africa." International Review of Applied Economics 30(1):69–88. doi: 10.1080/02692171.2015.1074164.

Asongu, S. A. 2012a. "On the Effect of Foreign Aid on Corruption." Economics Bulletin 32 (3): 2174–2180.

Azam, Muhammad, and Yi Feng. 2022. "Does Foreign Aid Stimulate Economic Growth in Developing Countries? Further Evidence in Both Aggregate and Disaggregated Samples." Quality and Quantity 56(2):533–56. doi: 10.1007/s11135-021-01143-5.

Bacha, E. L. 1990. "A Three-Gap Model of Foreign Transfers and the GDP Growth Rate in Developing Countries." Journal of Development Economics 32.

Barder, Owen. 2006. Are the planned increases in aid too much of a good thing? Center for Global Development Working Paper 90.

Barder, Owen. 2009. "Easterly vs Sachs." Owen Abroad, May 9. http://www.owen.org/blog/505

Barro, R. and Sala-I-Martin, X. 1995. Economic Growth. New York: McGraw Hill.

Boone, Peter. 1996. "Politics and the Effectiveness of Foreign Aid." European Economic Review 40(2):289–329. doi: 10.1016/0014-2921(95)00127-1.

Bourguignon, François and Martin Sundberg. 2007. "Aid Effectiveness: Opening the Black

Box." The American Economic Review 97: 316-321.

Burnside, By Craig, and David Dollar. 2000. "Aid , Policies , and Growth Author (s): Craig Burnside and David Dollar Source : The American Economic Review , Sep ., 2000 , Vol . 90 , No . 4 (Sep ., 2000), Pp . 847- Published by : American Economic Association Stable URL : Https://Www.Jstor. Org/St." 90(4):847–68.

Chang, H., 2007. Bad Samaritans: The Guilty Secrets of Rich Nations and the Threat to Global Prosperity. London: Random House Books.

Chenery, H. B. and A. Stout. 1966. "Foreign Assistance and Economic Development"." American Economic Review Vol. 55:679-733.

Collier, Paul, and David Dollar. 2002. "Aid Allocation and Poverty Reduction." European Economic Review 46(8):1475–1500. doi: 10.1016/S0014-2921(01)00187-8.

Collier, P. 2007. The Bottom Billion: Why the Poorest Countries Are failing and What Can Be Done about It?. Oxford, United Kingdom: Oxford University Press.

Dalgaard, Carl J. and Henrik Hanse., 2001. On aid, growth and good policies. Journal of Development Studies 37: 17-41

Dalgaard, Carl J., Henrik Hansen and Finn Tarp. 2004. On the empirics of foreign aid and growth. Economic Journal 114: 191-216

Easterly, William. 2006. Why the West's Efforts to Aid the Rest Have Done So Much Ill and So Little Good. New York: Penguin.

Easterly, William. 2005. "Can Foreign Aid Buy Growth ?" 17(3):23–48.

Engberg-Pedersen, John Degnbol-Martinussen and Poul. 2003. "Aid: Understanding International Development Cooperation (London: Zed Books)."

Eubank, Nicholas. 2012. "Taxation, Political Accountability and Foreign Aid: Lessons from Somaliland." Journal of Development Studies 48(4):465–80. doi: 10.1080/00220388.2011.598510.

Feyzioglu, Tarhan, Vinaya Swaroop and Min Zhu. 1998. A Panel Data Analysis of the Fungibility of Foreign Aid. The World Bank Economic Review 12: 29-58.

Griffin, K. 1970. "Foreign Capital, Domestic Savings and Economic Development." Bulletin of the Oxford University Institute of Economics and Statistics 32(2):99–112.

Hudson, J. and Mosley, P. 1994. Aid, Policy Reform and Endogenous Growth in Less Developed Countries. Discussion Papers in Development Economics 13, University of Reading.

Kenny, Charles. 2008. "What is Effective Aid? How Would Donors Allocate It?." The European Journal of Development Research 20: 330-346.

Kosack, S. 2003. "Effective Aid: How Democracy Allows Development Aid to Improve the Quality of

Life." World Development 3(1):1–22.

Little, Robert D. McKinlay and Richard. 1978. "A Foreign-Policy Model of the Distribution of British Bilateral Aid, 1960–70." British Journal of Political Science 8(03):313–31.

Mahembe, Edmore, and Nicholas Mbaya Odhiambo. 2019. "Foreign Aid, Poverty and Economic Growth in Developing Countries: A Dynamic Panel Data Causality Analysis." Cogent Economics and Finance 7(1):1–17. doi: 10.1080/23322039.2019.1626321.

Maruta, Admasu Asfaw, Rajabrata Banerjee, and Tony Cavoli. 2020. "Foreign Aid, Institutional Quality and Economic Growth: Evidence from the Developing World." Economic Modelling 89:444–63. doi: 10.1016/j.econmod.2019.11.008.

Masha Rahnama, Fadi Fawaz and Kaj Gittings. 2017. "The Effects of Foreign Aid on Economic Growth in Developing Countries." The Journal of Developing Areas 81(2):393–409.

Meaza, Cherkos. 2018. "What Is the Economic Impact of Development Aid ?" 5(3):331–43.

Mohammed Seid Hussen, and Kye-Woo Lee. 2012. "The Impact of Foreign Aid on Economic Growth in Ethiopia." Asian International Studies Review 13(2):87–112. doi: 10.16934/isr.13.2.201212.87.

Morgenthau, Hans. 1962. "A Political Theory of Foreign Aid." American Political Science Review 56(02):301–9.

Moyo, Dambisa. 2009. Dead Aid – Why Aid Is Not Working and How There Is Another Way for Africa. London: Penguin Books,.

OECD. 1985. Twenty-Five Years of Development Co-Operation- A Review,1985 Report.

Okada, Keisuke, and Sovannroeun Samreth. 2012. "The Effect of Foreign Aid on Corruption: A Quantile Regression Approach." Economics Letters 115(2):240–43. doi: 10.1016/j.econlet.2011.12.051.

Paul, Mosley. 1987. "Overseas Aid: Its Defence and Reform (London: Wheatsheaf Books."

Paul Narziss Rosenstein-Rodan. 1961. "International Aid for Underdeveloped Countries." The Review of Economics and Statistics 43(2):107–38.

Picciotto, Robert. 2007. "Development Effectiveness at the Country Level" United Nations University World Institute for Economic Research No. 2007/81.

R.Cassen and Associates. 1994. "Does Aid Work? (Oxford: Clarendon Press)."

Raffer Kunibert and H. W. Singer. 1996. The Foreign Aid Business: Economic Assistance and Development Co-Operation.

Rajan, Raghuram G. and Arvind Subramanian. 2008. Aid and growth: What does the cross-country evidence really show? Review of Economics and Statistics 90: 643–65

Ranaweera, Thilak. 2003. "Foreign Aid, Conditionality and Ghost of the Financing Gap: A Forgotten

Aspect of the Aid Debate."

Riddell, Roger C. 2007. Does Foreign Aid Really Work? New York: Oxford.

Romer, P. 1986. "Increasing Returns and Long-Run Growth." Journal of Political Economy 94:1002–1037.

Romer, P. 1990. "Endogenous Technological Change." Journal of Political Economy 98(5):571–1102.

Sachs, Jeffrey D. 2005. The End of Poverty: Economic Possibilities for Our Time. New York: Penguin Group (USA) Inc.. 375.

Setargie Ejigu, Fentaye. 2015. "The Impact of Foreign Aid on Economic Growth of Ethiopia (Through Transmission Channels)." International Journal of Business and Economics Research 4(3):121. doi: 10.11648/j.ijber.20150403.15.

Sethi, Narayan, Padmaja Bhujabal, Aurolipsa Das, and Sanhita Sucharita. 2019. "Foreign Aid and Growth Nexus: Empirical Evidence from India and Sri Lanka." Economic Analysis and Policy 64:1–12. doi: 10.1016/j.eap.2019.07.002.

Steven Radelet, Michael Clemens, and Rikhil Bhavnani. 2006. "Foreign Aid and Growth: The Current Debate and Some New Evidence." Finance and Development, a Quarterly Magazine of the IMF, Vol.42, No.3., 43–60.

Stiglitz, J., 2002. 'Overseas Aid is Money Well Spent'. Financial Times, April 14.

Tadesse, Tasew. 2011. Foreign Aid and Economic Growth in Ethiopia: A Co integration Analysis. the Economic Research Guardian – Vol. 1((2), Semi-annual Online Journal.

Tang, Kin-Boon, and Diya Bundhoo. 2017. "Foreign Aid and Economic Growth in Developing Countries: Evidence from Sub-Saharan Africa." Theoretical Economics Letters 07(05):1473–91. doi: 10.4236/tel.2017.75099.

Tawiah, Vincent, and Viola Karungi. 2020. "Differences in Political Orientation and Foreign Aid Utilization in Africa." Development Studies Research 7(1):119–30. doi: 10.1080/21665095.2020.1809486.

Temple, Jonathan, and Nicolas Van de Sijpe. 2017. "Foreign Aid and Domestic Absorption." Journal of International Economics 108:431–43. doi: 10.1016/j.jinteco.2017.07.010.

Todaro, Michael P., and Stephen C. Smith. 2012. Economic Developement.

Ugwuegbe, S., Okafor, I. G. and Akarogbe, C., Ugwuegbe, S, U. and Azino., 2016. Effect of External Borrowing and Foreign Aid on Economic Growth in Nigeria. International Journal of Academic Research in Business and Social Sciences April 2016, Vol. 6, No. 4 ISSN: 2222-6990 DOI: 10.6007/IJARBSS/v6-i4/2087

Werker, Eric, Faisal Z. Ahmed, and Charles Cohen. 2009. "How Is Foreign Aid Spent? Evidence from a Natural Experiment." American Economic Journal: Macroeconomics 1(2):225–44. doi: 10.1257/mac.1.2.225.

Werlin, H. 2005. "Corruption and Foreign Aid in Africa." Foreign Policy Research Institute 49(3):517-527.

White, H. 1992. "The Macroeconomic Impact of Development Aid: A Critical Survey"." The Journal of Development Studies 28, n.

White, J. (1974). 1974. The Politics of Foreign Aid. The Bodley Head, London.

World Bank. 1999. World Development Report 1998/99. Washington, DC: Oxford University Press for the World Bank.

World Bank. 2006. Controversies Over The Impact Of Development Aid: It Works; It Doesn't; It Can, But That Depends ...Y. Vol. 168.

World Bank. 2017. Implementation Completion And Results Report (IDA-46520, IDA-52500, IDA-H5180, IDA-H8460, TF-98235, TF-A0915, TF-A0779, TF-A0843) ON.

Yiew, Thian Hee, and Evan Lau. 2018. "Does Foreign Aid Contribute to or Impeded Economic Growth?" Journal of International Studies 11(3):21–30. doi: 10.14254/2071-8330.2018/11-3/2.

Determinants of Life and Non-life insurance demand in Ethiopia: an empirical study on Ethiopian insurance companies.

By

Dawud Ahmed[1]
Kedir Esmael[2]

Abstract

Ethiopia's financial industry is largely dominated by banking sectors. Although, the contribution of insurance companies as a financial intermediary is growing, the demand for buying insurance has received little attention in Ethiopia. Hence, the present study is attempted to examine the driving factors determining insurance demand in Ethiopia. The study employed a secondary data obtained from World Bank data base (WDI) and the study identified important socio economic and demographic variables including: Income (GDP per capita), inflation (CPI), urbanization, life expectancy, age dependency, financial sector development, real interest rate, saving (GDS to GDP), Real GDP growth rate, and life and non-life insurance premium growth respectively. OLS estimation technique was employed to analyse the results. The OLS regression result shows Income and life insurance premium growth was found significant and positively related to life insurance demand. On the other hand, population growth, real GDP growth rate and non-life insurance premium growth was found positively and significantly affects non-life insurance demand. Similarly, education, per capita income, financial sector development and saving affects life insurance penetration positively and significantly.

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1 Lecturer, University of Gondar, Gondar, Ethiopia
2 Lecturer, University of Gondar, Ethiopia

1. INTRODUCTION

In Ethiopia, insurance market is set to remain at developing stage, characterized by low levels of insurance penetration which is caused by structural challenges such as poverty, famine, and low incomes. The reason for The total life insurance premium is negligible as compared to other African countries like South Africa, Kenya, and Egypt, which is 0.2. The market is dominated by non-life insurance, with life insurance only accounted for 7.6% of total insurance premium written. Both life and non-life insurance are growing from a very low base and will continue to be heavily dependent on the acceptance of coverage among the relatively small classes.

Although the number of insurance companies has been growing steadily, empirical studies showed that demand for buying insurance is not growing as much as it should be. the market has significant unexploited long-term growth potential given low level of liberalization of insurance markets, lack of harmonized insurance regulation, and limited financial access (Tyson, 2015).

Several studies have been conducted on the determinants of insurance demand particularly in the case of life insurance for the last 20 years (Akhter & Khan, 2017; Alhassan & Biekpe, 2016; Beck & Webb, 2003; Iyawe & Osamwonyi, 2017; Outreville, 1996; Schlag, 2003; Seifu, 2020). However, all the mentioned studies were cross country studies particularly, in Europe, Asia, and the Middle East. In Ethiopia demand for insurance is investigated by few researchers (Anteneh, 2016; Daniel, 2019; Gebreyes, 2011; Kura & Legass, 2018; Meko et al., 2019; Nahusenay Ejigu, 2016; Shiferaw, 2017; Sulaiman et al., 2015; Yilma, 2014). However, these studies show and examine the key determinants by mainly focusing on socio-economic and demographic determinants. They only focus on demand side, i.e., the supply side remains unexplored. In addition, the studies were mainly focused on life insurance category, while the non-life insurance, which has larger share (around 90%, of gross written premium), remains unexplored.

The major objective of this paper was two folds. First, it aimed to analyze the driving factors of life and non-life insurance demands. Second, it aimed to identify which factor/s would have notable effect on life and non-life insurance demand (Economic or Demographic). Apparently, this paper is alleged to fill the identified gap in the literature by identifying basic economic and socio-demographic determinants of both life and non-life insurance demand. In addition, the result will be insightful and would have enormous contribution for insurance companies and policy makers in devising a strategy that increases both life and non-life insurance demand. In addition to filling this knowledge gap, it will provide important information to those who want to do similar studies on a larger scale. In addition, the paper attempted to identify which factors have a noticeable effect on both insurance demand and supply. Generally, this paper would fill the gap left by previous studies and explore the remaining variables that have not yet been addressed. The remaining sections are organized in the following order: literature review in section

two, materials and methods in section three, results in section four, discussion section five, and finally conclusion and policy recommendations section six.

2. Review of related literatures.

Concepts of insurance demand

The operational definition of demand as its provided by various empirical studies was two folds; the first one is (quantitative indicators) which denoted that demand for insurance is measured based on the number of policies issued and sold for insureds. The second measure of life insurance demand is based on the total premium volume or sums insured (value indicator). In other words, demand indicators are often related to macro-economic or socio-economic variables: insurance expenditure per capita (insurance density) and insurance premium to GDP or insurance penetration(Schlag, 2003). The theoretical aspects of life insurance is viewed as life insurance have dual purposes, one it is a means to maximize lifetime utilities and second besides maximizing lifetime utility it would have saving component. Hence, life insurance demand is primarily a function of income and prices(Schlag, 2003). Therefore, being considered the theoretical foundations of life insurance demand the following theories are summarized.

The following Figure 1 shows the premium per capita for life and non-life insurance during the period 1980 to 2019. The graph depicts that non-life insurance is growing steadily after 2005/2006 and reaches highest pick for the year 2014 and the amount reaches approximately 9 billion Ethiopian birr. However, as shown in the following figure life insurance premium remains stagnant.
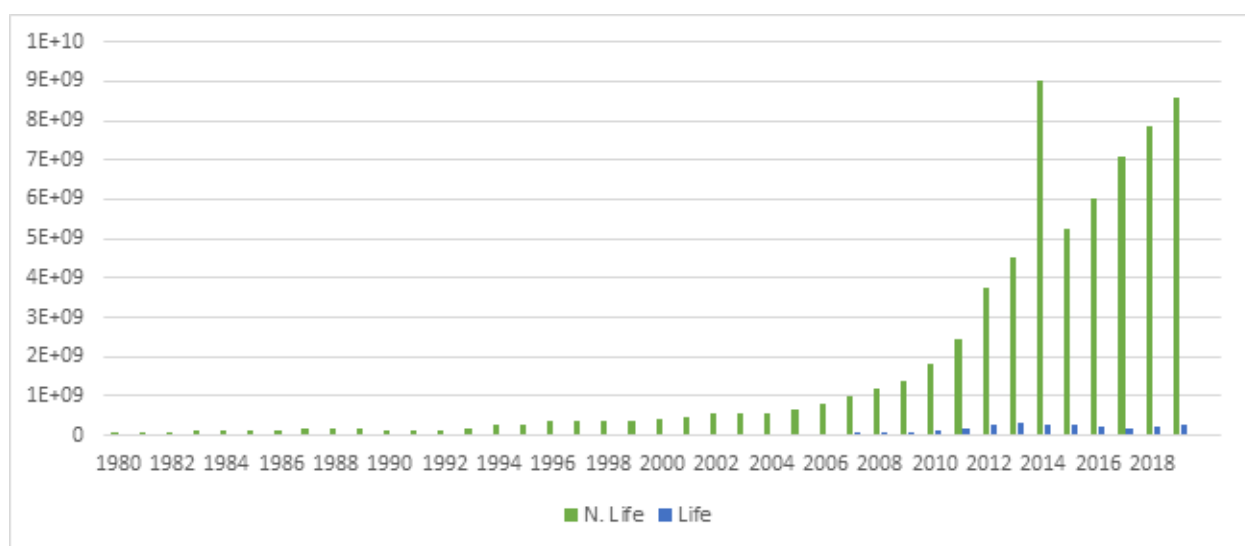
Figure 1: life and non-life insurance density 1980 to 2019

Theoretical Review

Theoretical models for exploring insurance demand have been developed by (Yaari, 1965)and the theory postulates that demand for life insurance is attributed to a person's desire to bequeath funds to dependents and provide income for retirement. This framework posits the demand for life insurance to be a function of wealth, expected income over an individual's lifetime, the level of interest rates, the cost of life insurance policies (administrative costs), and the assumed subjective discount rate for current over future consumption. He also introduced a consumer's life time utility.

Another simple theoretical model of insurance demand were proposed by (Mossin, 1968) posits life insurance is considered as a risk averse decision making endowed with an initial wealth level. Mossin considered insurance coverage as an inferior good. The result indicated that demand for life insurance varies inversely with the amount of wealth an individual possesses. (Hankansson, 1969) examined bequest motive in considerable detail using a discrete-time model of demand for financial assets in general and life insurance purchase in particular. (Pissarides, 1980) extended Yaari's work to prove that life insurance was theoretically capable of absorbing all fluctuations in lifetime income. Karni & Zilcha (1985) developed a methodology towards measuring individuals risk perceptions (risk averse or otherwise) and how such perceptions affect insurance demand.

Lenten & Rulli (2006) extends this framework by explicitly incorporating the preferences of the dependents and beneficiaries into the model. Specifically, he derives the demand for life insurance as a maximization problem of the beneficiaries, the spouse and the offspring of the life insurance policyholder. Deriving utility maximization by both spouse and offspring separately and assuming no bequest by the policyholder and an elastic utility function.

Fortune (1973) on the other hand, analyzed the empirical implications of expected utility hypothesis of choice under uncertainty for demand for life insurance and concluded that demand depends on income, non-human wealth and the rate of discount. Apparently, Jeff Madura a famous economist postulates that Life insurance companies compensate the beneficiary of a policy up on the policyholder's death. They charged policyholders a premium that should reflect the probability of making a payment to the beneficiary as well as the size and timing of the payment. Life insurance companies also commonly offer employees of a corporation a group life insurance policy. To sum up, the theoretical evidence provided variables like income, rate of interest, current consumption and accumulated savings as variables influencing insurance consumption in general and life insurance demand in particular.

Demographic and social variables were also considered in theoretical models and their potential impact on an individual's life insurance consumption decision was investigated. Life insurance consumption

increases with the breadwinner's probability of death, the present level of family's consumption and the degree of risk aversion. In the next section, selected empirical studies is presented to scale up life insurance demand.

Empirical review and hypotheses development

Truett & Truett (1990) on their comparative study on the demand for life insurance in Mexico and the United States identified that age, education, and level of income affect the demand for life insurance and that the income elasticity of demand for life insurance is much higher in Mexico than in the United States.

Based on a cross-sectional analysis of 45 developing countries, Outreville (1996) analyzed the demand for life insurance for the period 1986. The study considered variables like agricultural status of the country in terms of percentage of agricultural labor force in total labor force; health status of the country in terms of amenities like percentage of population with access to safe drinking water; percentage of labor force with higher education and the level of financial development. Two dummy variables were used to reflect competition in the domestic market and foreign insurer participation. Their result shows that personal disposable income and level of financial development significantly relates to insurance development. Since the political philosophy regarding market openness varies from country to country, market structure dummy appeared to be significant.

The drivers of life insurance usage in OECD (organization of Economic Cooperation and Development) nations were investigated by (Li et al., 2007). They discover that life insurance demand has strong positive income elasticity. Furthermore, their research suggests that demand rises with the number of dependents and level of education, and falls with life expectancy and social security expenditure. Moreover, the country's level of financial development and the degree of competition in its insurance market appear to stimulate life insurance sales, whereas high inflation and real interest rates tend to reduce life insurance consumption. Overall, they found that when the product market and socioeconomic characteristics are evaluated together, life insurance demand is better explained.

Elango & Jones (2011) investigated the drivers of insurance demand in emerging nations for the period 1998 to 2008. According to their findings, most of demographic factors affect the insurance density than economic and institutional determinants, whereas economic factors affect the insurance premium growth rate significantly.

Petkovski & Jordan (2014) investigated the factors influencing life insurance usage for 16 central and South-Eastern European nations (CSEE) for the period 1992 to 2011. Based on their finding, Non-life insurance penetration rises with increased per capita income and the number of passenger automobiles

per 1000 people had positive and significant impact on non-life insurance consumption. It also confirmed that trade openness affects non-life insurance consumption positively, implying that countries having more open economies can have higher assets. Moreover, from the institutional factors rule of law is an important factor. However, variables such as financial development, education, and inflation were not statistically significant determinants. As a result, it is worth nothing property rights protection and enforcement will increase demand for non-life insurance.

Dragoş et al. (2019) investigated various factors which affects life and non-life insurance demand in rising Asian and European Economies (AEE) over 10 years period using 17 emerging economies. The finding showed that income is a crucial and positive determinant of non-life insurance demand. On the other hand, urbanization affects significantly the demand for life insurance in Asian countries, but not in CEE countries and also has major positive impact on non-life insurance demand in both regions. Furthermore, education was found to be significant for non-life insurance, whereas income distribution had negative impact on both regions.

Yuan & Jiang (2020) attempted to analyze the marginal propensity to insure using six class of economic development in the world. The study found that for life insurance income per capita (GNI) was found positive in different levels of income, whereas inflation affects negatively. The development of financial sector was found also positive. Generally, life insurance is the basic and preferred personal and household financial investment. On the other hand, the effect urbanization, income and inflation results positive significant relationship on the side of Non-life insurance. The justification behind inflation which results positive coefficient was during the study period the economy was in moderate inflation.

Besides this Zyka (2014) investigated the factors influencing the development of insurance business for the period 1999 to 2009 and the study found population size, economic growth, urbanization, and paid claims are determinants that have positive and significant impact on country's aggregate insurance premium using co-integration analysis. Furthermore, the researcher argued that since the mentioned variables influenced the population willingness to utilize available insurance products (all of which raises demand for insurance) as a result premiums will rise. However, it was found the greatest businesses' market share had negative influence on premium levels, implying that a company having highest market share can reduce the market competition among several insurance businesses.

Poposki et al. (2015) used time series data for the period 1995 to 2011 to investigate the determinants of non-life insurance consumption in eight South east Europe (SEE) nations using co-integration and panel error correction model. The finding revealed that number of passenger per 1000 people; per capita GDP and inflation are significant indicators of non-life insurance penetration.

From Ethiopian perspective, Sulaiman et al. (2015) analyzed the factors that influence life insurance market and the study used time series data for the period ranges from 1979/80 to 2007/2008. The researcher considered 11 variables of which six of them economic and the remaining five variables are socio-demographic and attempted to analyze the variable on both demand and supply sides. The finding revealed that, there is a long-run negative relationship between life insurance demand and inflation. On the other hand, young dependency had statistically significant influence on life insurance market demand but old age dependency ratio had statistically significant influence on life insurance supply (penetration).

Abbas & Li (2016) examined factors that influence the growth of insurance market in Tanzania for 20 years period using OLS regression and the finding showed that there is positive interrelationship between insurance business development and economic growth in Tanzania. On the other hand, personal disposable income, and interest rate had negative impact on insurance premium volumes, whereas GDP growth rate and inflation has positive and significant impact on insurance business growth in the region. In addition, Burić et al. (2017) analyzed the impact of GDP, unemployment and interest rate on gross written life insurance premium in western Balkans for the period 2005 to 2015. The study concluded that GDP and household wages have significant positive impact on gross premium, whereas unemployment and interest rate have negative significant impact on gross life insurance premium.

OLS regression was employed to analyze the economic and demographic factors . Secondary sources of data was used to explore determinants and annual time series data ranges from 1980 to 2019 which has been collected from NBE (annual reports of National Bank of Ethiopia), World Bank database (WDI) and Eviews 9 statistical software, were employed for analysis. Moreover, the premium data has been taken from annual audited financial statements of individual insurance companies. Even though, the reliability of secondary data which is found from different sources in some way is contentious. But the selected source of data is presumed to be genuine. Currently 18 insurance companies provide general insurance coverage of which 15 insurance companies provide both life and non-life coverage The model expressed in function form as it is presented below, have both empirical and theoretical foundations. In this regard both life and non-life insurance demand and supply is a function of income, financial development, level of interest and inflation rates, Age dependency ratio (both old and young), life expectancy, savings, real GDP growth rates, urbanization and Tertiary education. The OLS regression equation is presented as follows:

$$LID = \beta 0 + \beta 1 YADEP + \beta 2 OADEP + \beta 3 LEXP + \beta 4 URB + \beta 5 INF + \beta 6 RINT$$
$$+ \beta 7 GDPPC + \beta 8 FDEV + \beta 9 EDU + \beta 10 GDS + \beta 11 POPG + \beta 12 RGDP$$
$$+ \varepsilon \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots .. Eq(1)$$

$$NLID = \beta 0 + \beta 1 YADEP + \beta 2 OADEP + \beta 3 LEXP + \beta 4 URB + \beta 5 INF + \beta 6 RINT$$
$$+ \beta 7 GDPPC + \beta 8 FDEV + \beta 9 EDU + \beta 10 GDS + \beta 11 POPG + \beta 12 RGDP$$
$$+ \varepsilon \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots Eq(2)$$

$$LIP = \beta 0 + \beta 1 YADEP + \beta 2 OADEP + \beta 3 LEXP + \beta 4 URB + \beta 5 INF + \beta 6 RINT$$
$$+ \beta 7 GDPPC + \beta 8 FDEV + \beta 9 EDU + \beta 10 GDS + \beta 11 POPG + \beta 12 RGDP$$
$$+ \varepsilon \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots Eq(2)$$

Where: B0=Intercept or constant B1 – B12 = Coefficients of parameters, ε=error term, LID=Life insurance density, NLID=Non-Life insurance density, LIP = Life insurance penetration, YADEP=Young Age dependency ratio (number of youth dependents between age 1-14 per total population), OADEP=Old age dependency, LEXP=Average Life expectancy rate, URBR=Urbanization rate (number of urban population to total population), INFR= inflation rate (CPI), RINT=real interest rate, GDPPC=GDP per capita (Income), FIND=Financial development (Quasi Money supply to broad definition of money supply), RGDP=Real GDP growth rates, GDS=Gross domestic saving to GDP, POPG=Population growth rate and EDU = Tertiary education.

Table1: Description and measurement of Variables.

Variables	Definition	Measurements	Notation	Expected sign
Dependent variables				
Density	Is a premium per capita which measures how much each inhabitant spends on insurance (Beck and Webb, 2014)	Gross written premium/ mid-year population.	DEN	
Penetration	Measures the insurance activity relative to the size of the economy (Beck & Webb, 2003)	Premium/GDP	PEN	
Independent variables				
Economic Factors				
Income	Disposable income of private households.(Schlag, 2003)	GDP at constant MP/ Population	GDP	+
Real Interest rate	Inflation adjusted interest rate	Inflation-Deposit/Saving rate.	RIR	-
Inflation	The general price level in the Economy		CPI	-

Financial Development	The measure of financial sector development where Banks are dominant sector.	Quasi money (M2-M1)/Broad money (M2)	FIND	+
Real GDP growth	Changes in real GDP across time		RGDP	+
Socio-Demographic Factors				
Old age dependency	The ratio of dependents: People older than 64 years of age to the working age population age 15 to 64		OADR	+
Young age dependency	The ratio of dependents: People younger than 15 years of age to the working age population age 15 to 64		YADR	-
Life Expectancy	The number of years that an average individual expected to live.		LEX	+
Urbanization	Percentage of Urban population to total population.		URB	+
Tertiary education	Tertiary education (private and public university, technical and vocational, college students) to total educated population	EDU	+	

4 Results

Table 2: Descriptive statistics of study variables

		Mean	Max.	Min.	Std. Dev.	Obs.
Dependent Variables	Density (life)	0.994815	3.53887	0.03107	1.306656	39
	Density (Non-life)	18.53256	91.70233	2.351216	24.57152	39
	Penetration (Life)	1.553586	4.845858	0.087993	1.642267	39
economic determinants	Real GDP growth	5.773108	13.85933	-11.14435	6.495258	39
	Inflation	0.094562	0.364	-0.0959	0.093485	39
	Real interest rate	0.027795	0.1359	-0.324	0.104649	39
	Financial sector development	0.356593	0.652497	0.202799	0.10638	39
	GDP per capita	8.358694	9.921337	7.804096	0.561407	39
Demographic determinants	Age Dependency ratio (Old)	0.062189	0.063838	0.059349	0.001072	39
	Age dependency ratio (Young)	0.883287	0.928802	0.718409	0.062376	39
	Population growth	2.973879	3.590509	2.370061	0.299387	39
Socio cultural Determinants	Tertiary education	3.391741	10.49657	0.49115	3.621547	39
	Urbanization	4.804923	5.747	4.034	0.470447	39
	Life Expectancy	52.098	62.4	45.3	5.118	39

Premium Variables	Life insurance growth	13.60685	61.34563	-0.33264	19.84478	39
	Non-Life insurance growth	17.76915	96.95261	-0.017673	28.76095	39
	life insurance premium	68622693	3.00E+08	3210000	94788230	39
	non-life insurance premium	1.69E+09	9.00E+09	90211935	2.62E+09	39

Note: Insurance penetration indicates the proportion of insurance premium relative to the size of the economy whereas, insurance density measures the average insurance consumption of households on private and public insurance underwriters.

As indicated in table 2 above, the average life insurance spending is $0.99 and the maximum amount is $3.53 per household. Whereas, the Non-life insurance spending is $18.53 and the maximum amount spent amounts $91.70 it implies in Ethiopia people spends less than one dollar and less than $20 for life and non-life insurance products, which is the lowest in East Africa. On the other hand, life insurance supply which is measured by life insurance premium to GDP shows $1.55 mean value and $4.84 maximum value.

Independent variables in this study grouped into four: Economic, Demographic, Socio-Cultural and Premium variables. In the economic determinants, we analyze Real GDP growth rate, inflation, Real interest rate, financial sector development and GDP per capita. Moreover, Real GDP growth rate may have significant positive effect on both life and Non- life insurance consumption likewise GDP per capita may also have positive impact on insurance consumption. Conversely inflation rate could have significant negative impact and most empirical evidences concluded that countries with a high inflation rate, may have lower insurance demand.

We also considered three demographic determinants: population growth, age dependency ratios and life expectancy. The impact of population growth as a driver of insurance demand is ambiguous. Some studies indicated that it may have statistically positive significant effect on particular insurance segments. For countries like Ethiopia which is dominated by Non-life insurance sectors, the relationship is expected to be positive and significant being take into account the share of non-life insurance during the study period. In addition the size of economy could consists of economically unproductive population. Hence, young and older people obviously could have different demand and may significantly impact the insurance sector development. The young age dependency ratio the mean value 88% of the total population is young and the mean value of old age is 6% respectively whereas the average life expectancy for the study period was 52 years with a maximum of around 62 years.

Empirical results

The following table presents the OLS regression results of Non-life insurance density, life insurance density and life insurance penetration respectively. The first table 3; presents the determinants of Non-life insurance density: in the first column demographic factors, the second column economic factors and finally the third column presents both demographic and economic factors together. Table 4 and 5 presents the results of same independent variables regressed against life insurance density and life insurance penetration respectively.

Table 3: Summary results on Determinants of Non-Life insurance density (1980 to 2019)

Variables	Model-1	Model-2	Model-3
Constant	92.847	30.612	1.2722
	(0.3078)*	(4.040)*	(0.0289)
Life expectancy	42.467		6.672
	(1.565)		(0.869)
Age dependency ratio	-113.40		4.494
	(-2.7115)**		(1.0708)
Population growth	-15.514		3.245
	(-1.779)***		(2.183)**
Urbanization	18.324		0.9998
	(3.452)*		(1.0309)
Inflation (General)		0.004	-0.0011
		(0.2806)	(-0.04509)
Interest Rate (real)		-4.496	-3.742
		(-2.682)**	(-1.849)***
Income (Ln GDP per capita)		-3.663	-5.497
		(-3.728)*	(-4.203)*
Financial sector development		6.143	7.9508
		(1.828)***	(1.096)
Saving (GDS to GDP)		-0.0206	-0.001
		(-1.1631)	(-0.045)
Real GDP growth		0.081	0.0691
		(2.765)*	(2.130)**
Non-Life insurance growth		0.920	0.926
		(56.713)*	(46.715)*
R-squared	0.80	0 .998	0.998
Adjusted R-squared	0.77	0.997	0.998
F-statistic	26.28	25.27	16.99

Prob. (F-statistic)	0.0000	0.0000	0.0000
Durbin-Watson	1.57	1.39	1.73
No of observations	38	38	38

* The variable is statistically significant at <1%

**The variable is statistically significant at <5%

***The variable is statistically significant at <10%

Note: Figures in parenthesis indicates the t-statistic.

Table 4: Summary of results on Determinants of Life insurance density (1980 to 2019)

Variables	Model-1	Model-2	Model-3
Constant	26.418	-4.915	-4.840
	(2.414)**	(-3.688)**	(-0.5581)
Life expectancy	6.624		0.480
	(6.638)*		(0.308)
Age dependency ratio (Old)	1.435		-0.707
	(1.093)		(-0.814)
Population growth	0.0368		0.183
	(0.9007)		(0.829)
Age Dependency (Young)	-13.197		
	(-6.729)*		
Urbanization	0.205		0.0356
	(0.985)		(0.174)
Inflation (General)		-0.0003	-0.001
		(-0.1223)	(-0.402)
Interest Rate (real)		0.405	0.266
		(1.027)	(0.634)
Income (Ln GDP per capita)		0.600	0.690
		(3.401)*	(2.862)*
Financial sector development		0.314	-0.0113
		(0.4666)	(-0.0792)
Saving (GDS to GDP)		0.0074	0.005
		(2.229)*	(1.529)
Real GDP growth		-0.003	-0.004
		(-0.5188)	(-0.632)
Life insurance growth		0.0506	0.046
		(12.927)*	(9.660)*

R-squared	0.946	0.978	0.981
Adjusted R-squared	0.938	0.973	0.974
F-statistic	113.16	192.61	127.47
Prob. (F-statistic)	0.000	0.000	0.000
Durbin-Watson	1.47	1.560	1.98
No of observations	38	38	38

* The variable is statistically significant at <1%

**The variable is statistically significant at <5%

***The variable is statistically significant at <10%

Note: Figures given in parenthesis indicates the t-statistic

Table 5: Summary of results on Determinants of Life insurance penetration (1983 to 2019)

Variables	Model-1	Model-2	Model-3
Constant	-11.109	-6.51	-20.008
	(-0.752)	(-5.687)*	(-2.709)
Life expectancy	12.615		
	(8.502)*		
Age dependency (Old)	3.653		0.292
	(2.06)**		(0.655)
Population growth	-0.5147		0.312
	(-1.307)		(2.029)***
Age Dependency (Young)	-12.057		2.235
	(-4.555)*		(1.512)
Urbanization	0.408		-0.0329
	(1.451)		(-0.239)
Education			0.0878
			(2.867)*
Inflation (General)		0.0015	-0.0006
		(0.609)	(-0.336)
Interest Rate (real)		-1.09	-0.857
		(-2.989)*	(-3.0877)*
Income (Ln GDP per capita)		0.735	0.913
		(4.853)*	(4.209)*
Financial sector development		2.828	2.269
		(4.906)*	(3.006)*

Saving (GDS to GDP)		0.0077	0.004
		(2.681)**	(2.340)*
Real GDP growth		0.0067	0.0003
		(1.339)	(0.0765)
Life insurance growth		0.052*	0.046*
		(15.753)	(12.371)
R-squared	0.940	0.990	0.996
Adjusted R-squared	0.930	0.987	0.994
F-statistic	100.527	430.973	532.30
Prob. (F-statistic)	0.000	0.000	0.000
Durbin-Watson	1.66	1.09	2.12
No of observations	38	38	38

* The variable is statistically significant at <1%

**The variable is statistically significant at <5%

***The variable is statistically significant at <10%

Note: Figures given in parenthesis indicates the t-statistic

Results from Eviews 9.0; Source: Author's calculation

5. Discussions

Based on results presented in the above model, we ought to discuss and synthesize the findings similar or in contrary with this finding in the following section. The first result presented above in table 3, is about OLS regression results of non-life insurance density, table 4 provided the results of determinants of life insurance density and finally table 5 presented results of determinants of life insurance penetrations respectively.

Table 5 presents the OLS regression result of socio-demographic and economic factors regressed against non-life insurance demand (non-life insurance density). The result has shown that in the first column demographic factors are regressed against non-life insurance demand, in the second column economic factors regressed against non-life insurance demand and in the third column both demographic and economic factors together regressed against non-life insurance demand. R2 shows 0.80 and 0.998 for model 1, 2 and 3 respectively. The model fitness test (F-statistics) and P-value (P=0.000) indicates the model is significant in all cases. According to the result, Age dependency ratio and population n growth affects negatively and significantly whereas, urbanization influences positively and significantly when the demographic factors are separately regressed. Subsequently, the economic variables; real interest

rate and income affects negatively and significantly at 5% and 1% level of significance respectively and the result is consistent to (Abbas & Li, 2016).

On the contrary, Economic growth (Real GDP growth rate), Financial sector development and Non-life insurance premium growth rate affects the non-life insurance density positively and significantly at 10%, and 1% level of significant respectively and the result is consistent with (Elango & Jones, 2011). On the other hand, as indicated in table 4, the result confer that income and real interest rate affects negatively and significantly; the result is consistent with (S. Park & Lemaire, 2011) whereas, real GDP growth, population growth and Non-life insurance premium growth affects positively and significantly at 5% and 1% level of significance respectively, the result is consistent with (Elango & Jones, 2011). Generally, the models shown above indicates non-life insurance density is affected by; urbanization, age dependency, population growth, income, real interest rate, financial sector development and non-life premium growth significantly. However, life expectancy, inflation and savings do not have significant impact on non-life insurance density.

Table 4 summarized OLS regression results of demographic, economic, both demographic & economic factors regressed against life insurance density (life insurance premium per capita). R2 indicates 0.94, 0.990 and 0.996 respectively, the F-statistics and model significant value indicated that the model is statistically sound with (p-value=0.000) for all models. Durbin-Watson stat. shows that the overall model close to 2.00, it indicates there is no serial correlation among series of error terms. According to the model result shown in column 1, life expectancy affects life insurance density positively and significantly at 1%, it indicates when life expectancy increases by a unit, life insurance density increases in the same dimension by 12.61% holding other independent variables remains constant implied that longer life expectancy needs lower mortality coverage and higher demand the result is consistent with findings (Beenstock et al., 1986; Meko et al., 2019; Outreville, 1996; Sen & Madheswaran, 2013). On the contrary, Age dependency (Youth) affects life insurance density negatively and significantly at 1% level of significance, which inferred that an increase youth dependency ratio by 1%, results a decrease life insurance density by 13%, holding other independent variables remains constant and according to literature a higher number of youth dependents in the family results a higher demand for consumption and lower demand for life insurance. The result is congruent with findings (Beck & Webb, 2003; Fischer, 1973; Sen & Madheswaran, 2013).

Table 4 above also shows the economic factors which determine life insurance density. As indicated in the table, the economic factors is the cause of highest variation in life insurance density. The result indicates income (Ln GDP at current market price) affects life insurance density positively and significantly at 1% level of significance, the result shows an increase by ln of GDP by 1%, results an increase the life insurance density by 0.600 it implies the need for life insurance increases for dependents against the

loss of future income due to premature death of bread weaners. The positive effect of income on life insurance demand had both theoretical and empirical justifications (Beenstock et al., 1986; Campbell, 2015; Fischer, 1973; Fortune, 1973; Lewis, 1989; Truett & Truett, 1990) all found positive significant effect. On the other hand (Beck & Webb, 2003; J. M. Browne & Kim, 1993) are the most noticeable empirical evidences which found similar results.

Table 5 presents the impact of demographic and economic factors on life insurance penetration. The insurance penetration ratio measured the contribution of insurance sector to the country's GDP. As indicated in (Singh, 2018) Ethiopian insurance penetration is the lowest as compared other East African countries. The first model shows demographic factors which explain 94% of life insurance penetration, and the P-value shows the model was correctly specified.

According to the result, life expectancy life insurance penetration positively and significantly at 1% level of significance; the theoretical findings of (Lewis, 1989) postulates that, dependents' life time utility would be maximized with an increased probability of wage earners death. Another explanation for longer life expectancy decreases the price of life insurance and tends to increase the consumption for life insurance. The life expectancy exhibits the expected relationships with life insurance penetration and the result is consistent with (Abbas & Li, 2016; Sen, 2008; Sen & Madheswaran, 2013).

The above result affirmed that dependency ratio (both Young and Old) significantly affects life insurance penetration. The expected relationship between old age dependencies is positive and the result confirmed this expectation; it affects positively and significantly and the result is consistent (Beck & Webb, 2003). On the contrary, young age dependency affects negatively and significantly. As Brokešová et al.(2014) noticed young age dependency may have negative influence on insurance penetration due to the fact that these individuals prefer cash money and keep this money for immediate availability. This may be caused by low level of financial literacy and lack of awareness on the financial products.

Regarding economic factor, the factors which caused the highest variations for life insurance penetration. According to the result income, financial sector development, and life insurance growth affects life insurance penetration positively and significantly at 1% level of significance. Apparently, saving (GDS to GDP) also had direct relationship with life insurance penetration. On the other hand, interest rate affects life insurance penetration negatively and significantly implying that an increase interest rate by a unit, results a decrease life insurance supply by 1.09 and the result is consistent with (Fortune, 1973; Sen & Madheswaran, 2013).

Generally, the above model shows the effect of both demographic and economic factors together, as indicated in the table R2 shows slight change from the second model and according to the result population

growth and education influences significantly and positively from demographic factors. On the other hand the following economic factors: income, financial sector development, savings and life insurance growth affects positively and significantly, whereas, real interest rate had an inverse relationship with life insurance supply.

6. Conclusion

The study sought to analyze basically the impacts of Economic (Financial) factors and demographic factors on both life and non-life insurance demand. A number of empirical research has been undertaken for the past, however the demand for non-life insurance received little attention especially in Ethiopia's context. So, this study was conducted to critically see and analyze the effects of demographic as well as economic factors on both life and non-life insurance demand by regressing separately with both dependent variables pertaining to avoid the possible multi-collinearity problem.

To undertake this study we employed secondary data sourced from World Bank database (WDI) and National bank of Ethiopia (NBE). Based on review of both theoretical and empirical evidences and. In connection with income however we find the opposite direction what we expected. conceivably, The theoretical underpinning of Dickinson & Khajuria (1988) postulated that income reflects two conflicting effects if the wealth effects happens to be negative. On the one hand, the rich prefer to expose themselves to more risk. On the other hand, they may need to have more insurance coverage.

Likewise, from the empirical analysis, economic factors such as income, interest rate, financial sector development and economic growth were important driving factors on non-life insurance consumption. In addition, the combined result revealed that population growth, interest rate, income and real GDP growth rate were found significant determinants for non-life insurance density.

Apparently, we attempted to investigate the determinants of life insurance penetration both life and non-life insurance products. As literature confirmed Ethiopia is among the lowest life penetration rate (gross written life insurance premium to GDP) in the world. This article attempted to analyze the possible causes for lowest penetration rate. According to the result, from demographic factors life expectancy and age dependency (Both old and young) were significant factors. On the other hand, economic factors such as; interest rate, income, banking sector development, savings were found significant and the possible causes for the lowest penetration. Generally, as in the case provided in life insurance density economic factors were more significant.

Policy Implication and future research directions

Our analysis and finding may have a number of policy implications. The OLS regression revealed that

Income (Log GDP per capita) was found positive and statistically significant in both life and non-life insurance density. In this regard, as per capita income steadily rising up alongside with standard of living the insurance industry might therefore supply alternative insurance products. This may reduce the paucity or costly attitude of insurance products. As a result, demand will be increased. Therefore, insurance managers should formulate strategies that stimulate households to purchase alternative insurance products commensurate with their level of income.

Finally, none of the study would be undertaken without limitation. Therefore, this paper would be more insightful if it is done by each policies separately and these issues remain open for future researchers. Lastly, the paper was mainly considered only economic & demographic factors to examine insurance demand however, there are other factors such as institutional factors, governance factors, psychological factors, and cultural factors that could influence on insurance demand particularly in Ethiopia, so we barely recommend future researchers to investigate in depth and deliver conclusive evidence on the dimensions of these factors on both life and non-life insurance demand.

References.

Abbas, A. O., & Li, N. (2016). Factors that Drive the Development of Insurance Industry in Tanzania. World Journal of Finance and Investment Research,

Akhter, W., & Khan, S. U. (2017). Determinants of Takāful and conventional insurance demand: A regional analysis. Cogent Economics and Finance, 5(1), 1–18.

Alhassan, A. L., & Biekpe, N. (2016). Determinants of life insurance consumption in Africa. Research in International Business and Finance, 37(October), 17–27.

Anteneh, N. (2016). insurance sector development and economic growth in Ethiopia (Issue July).

Beck, T., & Webb, I. (2003). Economic, demographic, and institutional determinants of life insurance consumption across countries. World Bank Economic Review, 17(1), 51–88.

Beenstock, M., Dickinson, G., & Khajuria, S. (1986). The determination of life premiums: An international cross-section analysis 1970-1981. Insurance Mathematics and Economics, 5(4), 261–270.

Brokešová, Z., Pastoráková, E., & Ondruška, T. (2014). Determinants of insurance industry development in transition economies: Empirical analysis of visegrad group data. Geneva Papers on Risk and Insurance: Issues and Practice, 39(3), 471–492.

Browne, C. and F. (2000). International Property-Liability Insurance Consumption Author. 67(1), 73–90.

Browne, J. M., & Kim, K. (1993). An International Analysis of Life Insurance Demand. Journal of Banking and Finance, 79(2), 616–634.

Burić, M. N., Smolović, J. C., Božović, M. L., & Filipović, A. L. (2017). Impact of economic factors on life insurance development in Western Balkan Countries. Zbornik Radova Ekonomskog Fakultet Au Rijeci,

Campbell, R. A. (2015). The Demand for Life Insurance : An Application the Economics of Uncertainty. 35(5), 1155–1172.

Cargill, T. F., & Troxel, T. E. (1979). Modeling Life Insurance Savings: Some Methodological Issues. The Journal of Risk and Insurance, 46(3), 391.

Daniel, Z. (2019). Determinants of insurance Development in Ethiopia. In Addis Ababa Universty (Issue June). Addiss ababa University.

Demarso, Y. K., & Abba, B. A. (2020). Trade Competition among Insurers in Ethiopia: A Critical Analysis. Beijing Law Review, 11(02), 444–463. https://doi.org/10.4236/blr.2020.112028

Dickinson, G., & Khajuria, S. (1988). The Relationship between Property-Liability Insurance Premiums and Income. 55(2), 259–272.

Dragoş, S. L., Mare, C., & Dragoş, C. M. (2019). Institutional drivers of life insurance consumption: a dynamic panel approach for European countries. In Geneva Papers on Risk and Insurance: Issues and Practice (Vol. 44, Issue 1).

Elango, B., & Jones, J. (2011). Drivers of insurance demand in emerging markets. Journal of Service Science Research, 3(2), 185–204.

Fischer, S. (1973). A Life Cycle Model of Life Insurance Purchases: International Economic Review, 14(1), 132–152.

Fortune, P. (1973). A Theory of Optimal Life Insurance : The Journal of Finance, 28(3), 587–600.

Gebreyes, R. (2011). determinants of Life insurance Demand in Ethiopia. June.

Hankansson, N. H. (1969). optimal investment and consumption strategies under risk, an Uncertain lifetime, and insurance. International Economic Review, 10(3), 443–446.

Hwang, T., & Gao, S. (2003). The determinants of the demand for life insurance in an emerging economy -the case of China. Managerial Finance, 29(5–6), 82–96.

Iyawe, O. O., & Osamwonyi, I. O. (2017). Financial Development and Life Insurance Demand in Sub-Sahara Africa. International Journal of Financial Research, 8(2), 163.

Karni, E., & Zilcha, I. (1985). Uncertain lifetime, risk aversion and life insurance. Scandinavian Actuarial Journal, 1985(2), 109–123.

Kura, T. S., & Legass, H. A. (2018). Determinants of Life Insurance Demand: Evidences From Ethiopia. Asia Pacific Journal of Advanced Business and Social Studies, 4(2), 86–99.

Lee, S. J., Kwon, S. Il, & Chung, S. Y. (2010). Determinants of household demand for insurance: The case of Korea. Geneva Papers on Risk and Insurance: Issues and Practice, 35(SUPPL. 1), 82–91.

Legesse, G. (2019). Identification and Analysis of determinant factors for the growth of Non-life insurance Gross written premium in Ethiopian insurance industry. In In Business (Issue 632). AAU.

Lenten, L. J. A., & Rulli, D. N. (2006). A Time-Series Analysis of the Demand for Life Insurance Companies in Australia: An Unobserved Components Approach. Australian Journal of Management, 31(1), 26–28.

Lewis, F. D. (1989). Dependents and the demand for life insurance. The New Palgrave Dictionary of Economics, 79(3), 452–467.

Li, D., Moshirian, F., Nguyen, P., & Wee, T. (2007). The demand for life insurance in OECD countries. Journal of Risk and Insurance, 74(3), 637–652.

Meko, M., Lemie, K., & Worku, A. (2019). Determinant of life insurance demand in Ethiopia. Journal of Economics, Business & Accountancy Ventura, 21(3), 293.

Mossin, J. (1968). Aspects of Rational insurance purchasing. Journal of Political Economy, 553–568.

Mulugeta negash, K. venu gopal & S. asmare. (2018). identifying and Analyzing factors contributing for growth of Non-Life insurance gross premium a developing country premium: case of insurance industry in ethiopia. Journal of Exclusive Management Science, 7(01), 1–15.

Nahusenay Ejigu, S. (2016). Macro level determinants of life insurance purchasing demand in ethiopia. In International Journal of Research in Economics and Social Sciences (IJRESS) (Vol. 6).

Niyimbanira, F. (2013). An overview of methods for testing short- and long-run equilibrium with time series data: Cointegration and error correction mechanism. Mediterranean Journal of Social Sciences, 4(4), 151–156.

Outreville, J. F. (1996). Life Insurance Markets in Developing Countries. The Journal of Risk and Insurance, 63(2), 263.

Park, S. C., & Lemaire, J. (2012). The impact of culture on the demand for non-life insurance. The Impact of Culture on the Demand for Non-Life Insurance, 42(02), 501–527.

Park, S., & Lemaire, J. (2011). Culture Matters: Long-Term Orientation and the Demand for Life Insurance. Asia-Pacific Journal of Risk and Insurance, 5(2).

Petkovski, M., & Jordan, K. (2014). An analysis of non-life insurance determinants for selected countries in Central and South Eastern Europe: A co-integration approach. Romanian Journal of Economic Forecasting, 17(3), 160–178.

Pissarides, C. A. (1980). The Wealth-Age Relation with Life Insurance. 47(188), 451–457.

Poposki, K., Kjosevski, J., & Stojanovsk, Z. (2015). The Determinants of Non-life Insurance Penetration in Selected Countries from South Eastern Europe. Economics and Business Review, 1 (15)(3), 20–37.

Robert F Engle &, J, C. W., & Granger. (1987). Co-Integration and Error Correction : Representation , Estimation , and Testing Published by : The Econometric Society Stable 55(2), 251–276.

Schlag, C.-H. (2003). Determinants of demand for life insurance products-Theoretical concepts and empirical evidence.

Seifu, T. (2020). Influence of culture on Buying decisions of life insurance Policy in the case of Ethiopian insurance industry. Addiss Ababa university.

Sen, S. (2008). An Analysis of Life Insurance Demand Determinants for Selected Asian Economies and India. In Time.

Sen, S., & Madheswaran, S. (2013). Regional determinants of life insurance consumption: Evidence from selected Asian economies. Asian-Pacific Economic Literature, 27(2), 86–103.

Sherded, W. A. (1984). An Analysis of the Determinants of the Demand for Automobile Insurance Author (s): William A . Sherden Published by : American Risk and Insurance Association 51(1), 49–62.

Shiferaw, A. (2017). Factors Affecting Life Insurance Demand: A case study on (Ethiopian Insurance Corporation) EIC Addis Ababa, Ethiopia.

Singh, M. (2018). Low Rate of Penetration for Life Insurance: A Comparison of East African Countries.

International Journal of Economics and Management Studies, 5(4), 33–38.

Sulaiman, L. A., Migiro, S., & Yeshihareg, T. (2015). Investigating the factors influencing the life insurance market in Ethiopia. Problems and Perspectives in Management, 13(2), 152–160.

Sylla Dieng, M., Fall, M., & -Gaston BERGER, L. (2017). Socio-Economic, Demographic and Institutional Variables' Impact on the Development of Life Insurance in Sub-Saharan Africa and Madagascar. International Journal of Economics and Finance, 9(1).

Treerattanapun, A. (2011). The Impact of Culture on Non-Life Insurance Consumption. Wharton Research Scholars Journal, 5(13), 1–24.

Trinh, T., Nguyen, X., & Sgro, P. (2016). Determinants of non-life insurance expenditure in developed and developing countries: an empirical investigation. Applied Economics, 48(58), 5639–5653.

Truett, D. B., & Truett, L. J. (1990). The Demand for Life Insurance in Mexico and the United States: A Comparative Study. The Journal of Risk and Insurance, 57(2), 321.

Tyson, J. E. (2015). life insurance markets in SSA: Capturing the benefits for economic development. 45.

Yaari, M. E. (1965). Lifetime , Theory Life the Insurance , Consumer. Review Literature And Arts Of The Americas, 32(2), 137–150.

Yilma, A. (2014). Determinants of Life Insurance Demand in Ethiopia. Addiss ababa university.

Yuan, C., & Jiang, Y. (2020). The marginal propensity to insure : An international analysis. International Review of Economics and Finance, 69(May 2017), 102–109.

Zyka, E. (2014). Factors affecting the insurance sector development: Evidence from Albania. The Economy and Energy of the Black Sea Region, 17(51), 171–188.

Do resource endowment and governance institutions grace human capital in sub-Saharan African countries? An application of the System GGM dynamic panel model.

By

Ferede Mengistie[1]

Abstract

The effects of resource richness and governance institutions on average year of schooling and returns to education in Sub-Saharan African countries were investigated in this study. Panel data types from 2005 to 2018 were used in this study, and a dynamic panel model was used for analysis. This study found that good governance institutions that exercise power based on principles and meritocracy are enhancing average year of schooling and returns to education. However, abundant resources are not a guarantee of increased average year of schooling and returns to education; rather, they are a means to ineptitude. The study recommended that policies develop robust institutions based on good principles and standards that have been shown to improve resource outcomes in human capital growth.

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1 Lecturer, Department of Economics, College of Business and Economics, Debre Tabor University; Debre Tabor; Ethiopia. Email: ferededtu2030@gmail.com.

1. Introduction

Returns to education and average year of schooling are fundamentally linked to resource richness. Its accumulation hastens the development of countries' infrastructure and wealth accumulation(Al-Qudsi, 1989; Ekpung & Diepreye, 2014). Natural resource endowment, however, is insufficient to accelerate human capital accumulation proxy by average year of schooling and returns to education. Perhaps it has a crowding-out effect on average year of schooling and returns to education. However, abundant resources are not a guarantee of increased average year of schooling and the beginning of public education investment by increasing resource dependency and increasing less-skilled occupations within the human capital development process(Keser & Gökmen, 2018).

Scholars studying the effects of resource endowment on human capital explain why, in many countries and regions, the "blessing" of abundant natural resources frequently becomes a "curse," highlighting the crowding-out effect of natural resources on human capital. The effects of resource outcomes on average year of schooling and returns to education investment, on the other hand, completely offset any increase in public education investment (Shafuda & De, 2020; Sun et al., 2018). Another study found that human capital, which is represented by public investment and consists of a set of skills, knowledge, capabilities, and attributes personified in people, is critical to firms' ability to absorb and systematize knowledge and innovate, but it is heavily influenced by resources(Lenihan et al., 2019).

Africa has only a sliver of economic and human capital development. The interdependence of variables such as aggregate growth, health, and education indicators is regarded as a critical driving force in the effort to improve average year of schooling and returns to education. Furthermore, explicit consideration is given to the development of infrastructure and institutions as potential drivers of average year of schooling and returns to education (Aryeetey & Udry, 2000; Mohammed Shuaibu et al., 2016).

The exercise of power over a country's economic, social, and political institutions in order to achieve resource mobilization and socioeconomic development is known as governance. It entails a variety of activities, including the development of favorable political, legal, economic, and human capital. Corruption has a negative impact on a country's economic, social, and political development, as evidenced by increased transaction costs, decreased efficiency of public services, and discouragement of social values (Rjoub et al., 2021). On the other hand, in countries with weak institutions, corruption is seen as a way to "lubricate the wheels" of economic growth, whereas in countries with strong institutions, corruption has a negative impact on economic growth (C. Huang, 2016). The findings show that the estimated coefficients for primary and secondary school enrollment and average years of schooling used as education measures have a positive and statistically significant effect on economic growth in SSA (Ogundari & Awokuse, 2018). As various empirical evidence shows, resources have a positive

contribution to human capital on the one hand and a negative contribution to human capital on the other. So far, studies have failed to consider why all Africans are uneducated and underdeveloped while they are endowed with natural resources. This study aimed to answer why Africa has low average year of schooling and returns to education despite having abundant natural resources and examined the mutual effects of resource richness and governance institution on average year of schooling and returns to education in sub-Saharan African countries.

2. Literature

In general, human capital is defined as a group of people who are distinguished by their skilled and fashionable use in the labor market. It is also clear that recognition of an individual's knowledge, competencies, skills, acquisition, maintenance, and upgrading is a paradox. It can be defined solely in economic terms as an individual's acquisition of knowledge in the pedagogical, sociological, and psychological fields. It is, however, required in order to differentiate between various sets of perspectives and objectives. This is exemplified by the distinction between general and vocational education (Caucutt & Lochner, 2020).

Good governance is the management of government in a way that is fundamentally free of abuse and corruption while adhering to the rule of law and respecting people's rights to participate in public affairs. Good governance entails ensuring communities' active participation in decision-making processes, as well as emphasizing effective collaboration among civil society, governments, and communities. Transparent, inclusive, and effective local development should be ensured by strengthening the capacities of local governments as responsible citizens in their communities. Raising awareness and education levels among young people are the most productive strategies for society to be a pillar for good governance and to develop a sense of good governance institutions(Liu et al., 2018). Human capital accumulation may be constrained by resource booms. These booms can raise the opportunity costs of education by favoring low-skill jobs, making it advantageous for individuals to discontinue their education. This has the potential to reduce college completion, increase low-skill occupations, and have no long-term effects on wealth accumulation (Raheem et al., 2018; Shahrukh Rafi Khan, 1985).

According to the findings of a study conducted by Ahmad & Saleem, (2014) government effectiveness, political stability, corruption control, and regulatory quality all have a significant impact on human development. It is well understood that government effectiveness, corruption control, political stability, and regulatory quality all play important roles in human development. It is well understood that government effectiveness, corruption control, political stability, and regulatory quality all play important roles in human development. The country that focuses on these governance indicators will advance human development and, as a result, improve its people's well-being. Another study conducted by Herizal et

al., (2013) on An Indonesian adventure By using secondary data and a descriptive study, results show that corruption reduces the actual government budget that is intended for human development. As a result, human capital alone does not contribute to achieving expected and potential economic growth. Corruption, on the other hand, is critical for Asia's economic growth and human capital development due to the actual government budget that is intended for human development. As a result, human capital alone does not contribute to achieving expected and potential economic growth. Corruption, on the other hand, is important for the economic growth and human capital development of Asian countries with weak governance institutions, and it has a negative impact on them when the governance institutions are strong(C. J. Huang, 2016).

In addition to this (Mosquera, 2019) studied on a blessing or a curse? The long-term effect of resource booms on human capital in Ecuador by using panel data with the application of the fixed-effect model shows that resource booms may shrink human capital accumulation. This can increase the opportunity costs of education by favoring low-skill jobs, making it ideal for people to discontinue their education and its disclosure to the boom. Reduced college completion, increased low-skill occupations, and, finally, poor wealth accumulation.
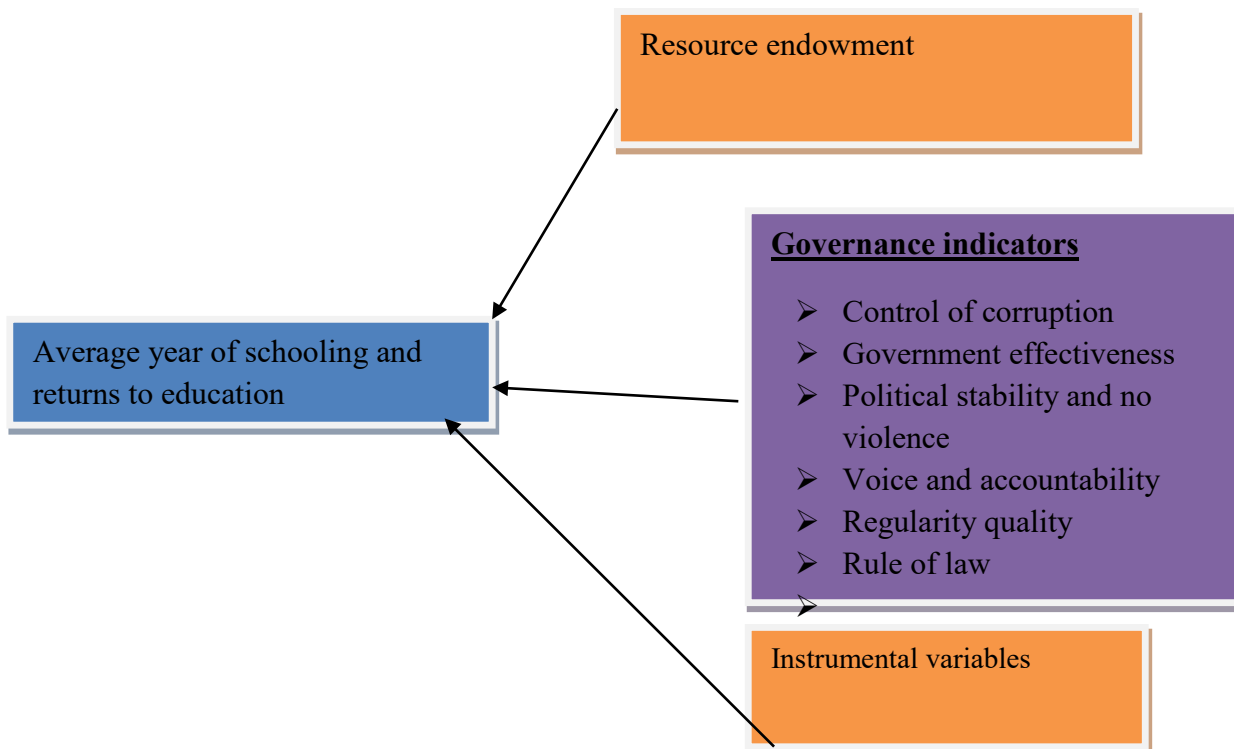

Figure 1 Conceptual frame work

Source: computed based on empirical literatures

The researcher examined the effects of governance, foreign direct investment, and natural resource endowment on human capital development in Sun-Saharan African countries in 2019/20 using panel data types from 2005 to 2018. Penn the World Data Source (PWt, 2019), World Development Indicator (WDI, 2019), and World Governance Indicator (WGI, 2019) data were all reliable. Because the generalized method of moments (GMM) helps to achieve unbiased, consistent, and efficient parameter estimates that best represent the dynamic nature of the model with the set of optimal instrumental variables, both descriptive and econometric data analysis were carried out and interpreted using the results of the system GMM dynamic panel data model with the application of stata13 software packages. The generalized method of moments (GMM) helps to achieve unbiased, consistent, and efficient parameter estimates that best represent the dynamic nature of the model with the set of optimal instrumental variables (GutierrezRobert & Rachid, 2017). Also, GMM brings and helps to ensure consistency in the presence of arbitrary heteroskedasticity, but at the cost of possibly poor finite sample performance. If heteroskedasticity is in fact not present, then standard IV may be preferable (GutierrezRobert & Rachid, 2017).

According to Moral-Benito, (2013) estimate the following dynamic panel model as

Yit=B0+ai+B1yit-1+B2xit+uit   (1)

In above equation(1) the following points are taken as instructive assumption, where ai is individual difference or unobserved effect yit, human capital, yit-1, lag of human capital xit, vector of explanatory variables and uit , error term. When we run the analysis by using linear or static model, confidently the following limitations have been existing.

(1) the explanatory variables in xit are assumed to be endogenous and it may be correlated with the error term. (2) The fixed effects are contained in the error term in equation(1) which consists of the unobserved country-specific effects "vi" and the observation specific errors "eit". meaning that,

uit =vi +eit   (2)

3. The presence of lag dependent variable yit-1 gives rise to autocorrelation.

4. Panel dataset has a short time dimension and a larger country dimension, result to random walk.

The difference GMM can be transformed as;-

$$\Delta Yit = + B1\Delta yit\text{-}1 + B2\Delta xit + \Delta uit \qquad (3)$$

(In general form the transformation is given by

$$\Delta yit = B1 \, \Delta yit\text{-}1 + \Delta' \, x \, it \, \beta2 + \Delta uit. \qquad (4)$$

By transforming the regressors by first differencing the fixed country-specific effect is removed, because it does not vary with time. Equation (1) is developed based on the following orthogonality condition.

E(dit-sΔuit)= 0 for t = 3,…,T and 2 $\leq$ s $\leq$ T - 1,

In general, dynamic models are more efficient than static models at resolving problems such as omitted variables, co linearity among explanatory variables, autocorrelation, heteroskedasticity, endogeneity, and measurement errors. Dynamic panel data methods are appropriate enough for panel arrangements attributed with a small T and large N, otherwise, another model may be preferable (Baum, 2009). Here the researcher employed system GMM estimation over difference GMM because of that:

- if the dependant variable close to bring random walk or the instrument close to unity difference GMM is inefficient and bias estimator,

- When number of "T" less than N random walk and it will be bias in this case system GMM is more efficient than difference GMM.

- Also, Roodman (2006) stated that system GMM estimation is efficient and robust to Heteroscadasticty and autocorrelation than Difference GMM estimation. Because system GMM use control variables as instrument.

In this study, the system GMM model regression is specified as

$$hit = \alpha hit\text{-}1 + \gamma git\text{-}1 + x \; it\text{-}1\beta + \mu t + uit, \qquad (5)$$

where hit is the human capital level of country i, yit−1 is the lagged log of human capital, xit−1 is a vector of lagged control variables, time effects and uit is an error term with E(uit) = 0 for all i and t.

Variables definition and measurements

Variables	Definitions	Merriments
Education attainment (proxy of human capital)	the average year of schooling and returns to education	Year of schooling
Resource endowment	It is the total amount resource endowment in the percentage of GDP	Percentage

Labor participation	The amount of working hour spend on one education activity to percentage of GDP	Working hour
Foreign direct investment	Investments Have been made by foreign country on resource owned country.	Inflow percentage of GDP.
Control		
Voice and accountability (V&A)	constitute state of being aware (perception) of the extent to which a country's citizens are able to participate in selecting their government, as well as freedom of expression, freedom of association, and a free media	Percentage
Political stability and absence of violence	Measures perceptions of the likelihood (fact of being likely) that the government will be destabilized and remove forcibly from power by un constitutional or violent means, including politically-motivated violence and terrorism.	Percentage
Government effectiveness	Captures perceptions of the quality of public services, the quality of the civil service and the degree of its independence from political pressures, the quality of policy formulation and implementation and the credibility of the government's commitment to such policies.	Percentage
Regulatory quality (RQ):-	Captures perceptions of the ability of the government to formulate and implement sound policies and regulations that permit and promote private sector development.	Percentage
Rule of law	captures perceptions of the extent to which agents have confidence in and act accordance to rule or abide by the rules of society, and in particular the quality of contract enforcement, property rights, the police, and the courts, as well as the likelihood of crime and Violence.	Percentage
Control of corruption	Captures perceptions of the extent to which public power is exercised for private gain, including both petty and grand forms of corruption, as well as the "capture" of the state by elites and private interests.	Percentage

4. Result and discussion

Mutually descriptive and inferential methods of analysis were used to analyze the study's findings. For example, graph or panel plots used in descriptive statistics, whereas the dynamic panel system GMM method of data analysis is used in inferential statistics. The model meets the following basic requirements: the number of instruments and their validity, autocorrelation, and heteroskedasticity.

The relationship between human capital, as measured by year of schooling, and returns to education and resource endowments in Sub-Saharan African countries from 2005 to 2018 is depicted in Figure 1. The graph shows that, with the exception of Cameron and Cape Verde, the average year of schooling and returns to education in Sub-Saharan African countries almost always follow the same pattern. The findings revealed that the year of schooling and returns to education in Sub-Saharan African countries had not increased significantly over the previous 14 years. Regardless of resource endowment, the

percentage of recourse contribution to gross domestic product in Africa does not significantly contribute to education, schooling, and return to schooling. In all countries, resource endowment and education schooling, as well as their returns, have failed to make a significant contribution to social and economic change.
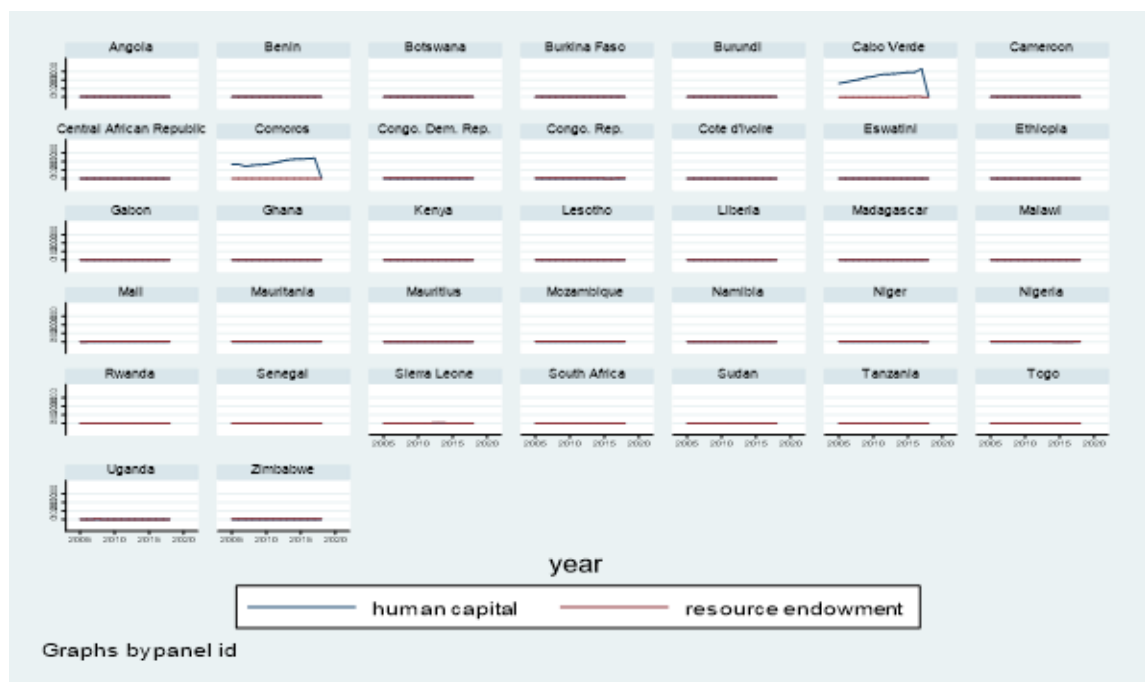

Figure 1 human capital and resource endowment over time in sub-Saharan African countries

Source: own computation by stata 16 from World Bank data base 2020

As shown in the Figure 2 below, there is a high level of decreasing political stability and no violence in Sub-Saharan African countries over the last 14 years. It confirms that perceptions of the likelihood (fact of being likely) of a government being destabilized and forcibly removed from power through unconstitutional or violent means, including politically motivated violence and terrorism, are increasing over time. Other governance indicators, such as corruption control, rule of law, government effectiveness and regularity, and voice accountability have shown the same trend over time in this study. This highlights the extent to which public power is used for private gain, including both petty and grand forms of corruption, as well as the "capture" of the state by elites and private interests in recent periods. Moreover, the quality of contract enforcement, property rights, the police, and the courts, as well as the likelihood of crime and violence and the quality of public services, the quality of the civil service and its independence from political pressures, the quality of policy formulation and implementation, and the credibility of the government's commitment to such policies, become habitual.
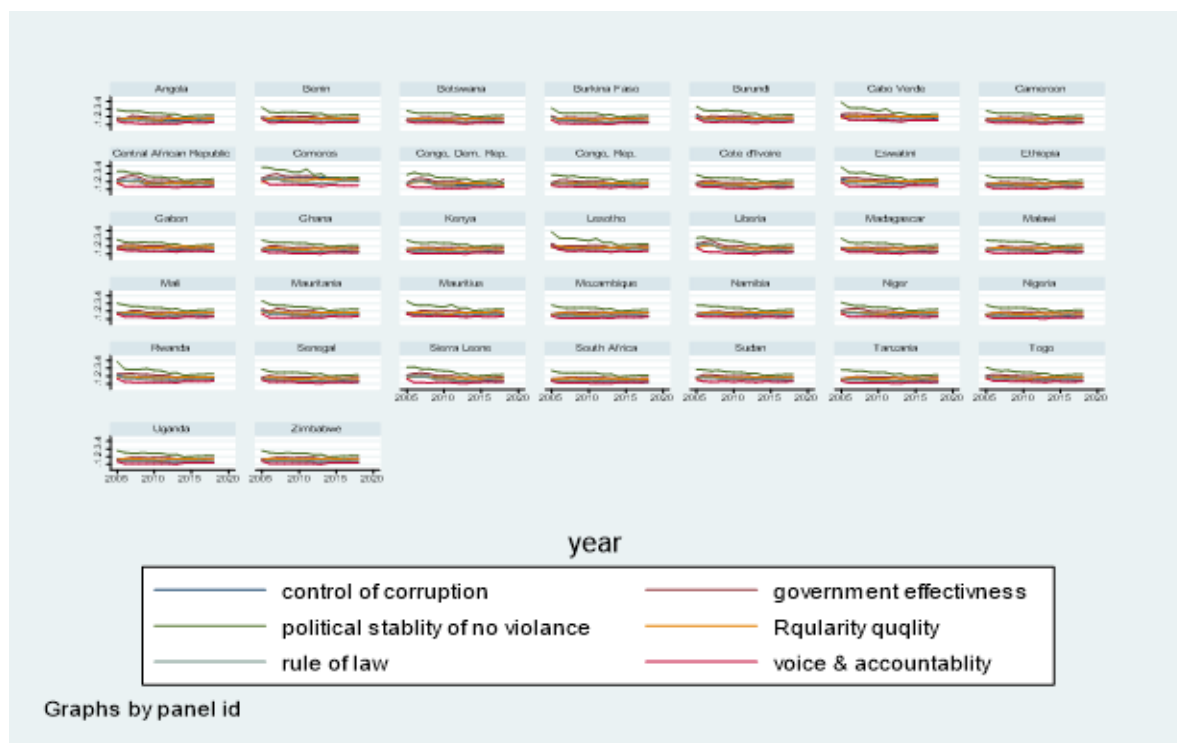
Figure 2 governance indicators in sub-Saharan African countries

Source: own computation by Stata 16 from World Bank data base 2020

Table. 1 Econometrics results of dynamic panel two step system GMM model results

VARIA BLES	Coefficient
Lag of human capital	0.192**
	(0.077)
Resource endowment	-10.442*
	(5.732)
Labor participation rate	-14.178**
	(2.310)
Foreign direct investment	-0.000*
	(0.000)
Control of corruption	-10.223
	(17.851)
Government effectiveness	16.479
	(17.550)
Political stability and no violence	-2.155
	(3.414)

Regularity quality	-13.156*
	(6.339)
Rule of law	-29.906**
	(13.311)
Voice and accountability	46.160***
	(11.271)
Constant	1,125.118***
	(257.351)
Observations	489
Number of years	14
ar1p	0.0177
ar2p	0.101
Hansenp	0.353
Sarganp	0.845
Number of groups	14
Number of IV	12

Source: own computation by stata 16 from world bank data base 2020

Note; - Standard errors in parentheses*** p<0.01, ** p<0.05, * p<0 indicts the level of significances of variables at different level of significance such as 1perecent 5 percent and 10 percent, respectively.

The model's results must satisfy the validity of the instrument, the absence of autocorrelation, and heteroskedasticity issues, and the number of instruments must be less than the number of groups (Baum, 2009). As a result, the results of the above dynamic panel two-step System GMM model met the regular precondition. Human capital index lag, it is represented by the average year of schooling lag, and educational returns have a positive and significant effect on human capital development at a 5% level of significance. This means that for every one-year increase in the previous average year of schooling and returns to education, the current average year of schooling increases by 0.192 units. In the case of Sub-Saharan African countries, the base year average year of schooling and returns to education level has a positive and significant effect on increasing the returns to education and their average year of schooling. In line with result of (Oniyangi, 2013) According to the findings of this study, resource endowment has a negative and significant impact on human capital development in Sub-Saharan African courtiers. An increase in resource endowment as a percentage of GDP results in a 10.44 unit decrease in human capital. This is due to the fact that Sub-Saharan African countries have more natural resources but are still underdeveloped. Resource-rich countries pay less attention to empowering the degree of average year of schooling and returns to education, instead relying solely on their endowed resource. Rather,

resource endowment has become a source of conflict and instability, which has resulted in a decline in economic growth, a situation known as the resource curse. Natural resources have an indirect impact on economic growth in general and average year of schooling and returns to education in particular. This is due to institutional dilemmas manifested by Dutch disease, rent-seeking, and underinvestment in education. Furthermore, resource endowment has a greater crowded-out effect on public education investment than national income. Simply put, rather than increasing resource endowment, this resource endowment is amplifying the source of less skilled job opportunities.

Also, at a 1% level of significance, the labor participation rate (LPR) is statistically significant, but it is negatively related to the human capital indicator, which is the average year of schooling and returns to education. As a result, as labor force working hours increase, the capacity to boost adequate average year of schooling and returns to education is jeopardized. Essentially, the high participation of young labor in the economy becomes a sensitive cause of future human capital accumulation in Sub-Saharan African countries.

Despite the results of Ahmad & Saleem, (2014) According to the findings of this study, rule of law and regularity quality are statistically significant at 5% and 10% levels of significance, respectively, and have a negative impact on human capital development in Sub-Saharan African countries. Furthermore, at the 1 percent level of significance, voice and accountability have a positive and statistically significant relationship. Furthermore, at the 1 percent level of significance, voice and accountability have a positive and statistically significant relationship. This is beneficial to human capital development. Other governance indicators, such as corruption control and political stability, are statistically insignificant. Good governance can serve as a springboard for improving institutional performance in the delivery of educational services. Standards, information, incentives, and accountability are critical components of high performance. However, governance institutions in Sub-Saharan African countries are blamed for failing to implement rules and regulations in accordance with principles and procurers of the rule of law. Corruption control has had a negative impact on education and its return. This outcome is true because reducing corruption would increase human capital in countries with effective institutions. African education institutions grew up in a phony education system; in this environment, fighting corruption creates inequality and makes it difficult for students to attend school and be inventive and visionary. When the levels of institutions are effective, the quality of governance indicator can be effective in either escalating economic growth or human capital development; otherwise, it becomes one cause of decreasing levels of human capital development. The presence of defective institutions, which is attributed to high transaction costs and a low degree of democracy, is the main reason for the negative effect of some governance indicators in Africa. While the effects of governance indicators just become effective if the institutions are effective.

5. Conclusion

Human capital is a broad concept that includes improving individual capacity through education, incentives, training, and promoting entrepreneurial ability. According to various empirical findings, resource abundance and good governance are regarded as a wheel of fortune for average year of schooling and returns to education in many developing countries. Nonetheless, this study confirmed that resource richness is a detriment to human capital. In contrast to the beneficial effect of natural resources in hastening infrastructure, it limits average year of schooling and returns to education. Resource abundance causes society to be hesitant to tutor because it increases their engagement in unskilled work and limits their perception of new opportunities. The findings confirmed that good governance indicators are the pinnacle of human capital development. By increasing investments and employment opportunities, good governance institutions help to increase human capital. According to this finding, resource endowment has a negative impact on human capital investment in Sub-Saharan African countries by increasing societal reliance rather than looking for new opportunities to accelerate average year of schooling and returns to education. As a result, it is recommended because policies are developed on the basis of principle and meritocracy that enable to raise outcome of resource and governance institution on average year of schooling and returns to education.

Conflicts of Interest: The author declares no conflict of interest.

Reference

Ahmad, Z., & Saleem, A. (2014). Impact of governance on human development. Pakistan Journal of Commerce and Social Sciences (PJCSS), 8(3), 612–628.

Al-Qudsi, S. S. (1989). Returns to education, sectoral pay differentials and determinants in Kuwait. Economics of Education Review, 8(3), 263–276. https://doi.org/10.1016/0272-7757(82)90006-1

Aryeetey, E., & Udry, C. (2000). Saving in Sub-Saharan Africa Working Papers. January.

Baum, C. F. (2009). Instrumental variables and panel data methods in economics and finance. February.

Caucutt, E. M., & Lochner, L. (2020). Early and late human capital investments, borrowing constraints, and the family. Journal of Political Economy, 128(3), 1065–1147. https://doi.org/10.1086/704759

Ekpung, E. G., & Diepreye, E. A. (2014). The determinants of public expenditure on educational infrastructural facilities and economic growth in Nigeria. E3 Journal of Business Management and Economics, 5(6), 152–161.

GutierrezRobert, & Rachid, E. (2017). Using a Dynamic Panel Estimator to Model Change in Panel Data. 1–10.

Herizal, Y., Ridho, S. L. Z., &, & Anggraini, R. (2013). GOVERNMENT EXPENDITURE AND CORRUPTION: AN INDONESIA EXPERIENCE. Public Sector Accounting, Financial Crisis, and Austerity, in Birmingham, on 1 – 4 September, 2013., 1–16.

Huang, C. (2016). North American Journal of Economics and Finance Is corruption bad for economic growth ? Evidence from Asia-Pacific countries. North American Journal of Economics and Finance, 35(100), 247–256. https://doi.org/10.1016/j.najef.2015.10.013

Huang, C. J. (2016). Is corruption bad for economic growth? Evidence from Asia-Pacific countries. North American Journal of Economics and Finance, 35(100), 247–256. https://doi.org/10.1016/j.najef.2015.10.013

Keser, A., & Gökmen, Y. (2018). Governance and Human Development: The Impacts of Governance Indicators on Human Development. Journal of Public Administration and Governance, 8(1), 26. https://doi.org/10.5296/jpag.v8i1.12336

Lenihan, H., McGuirk, H., & Murphy, K. R. (2019). Driving innovation: Public policy and human capital. Research Policy, 48(9), 103791. https://doi.org/10.1016/j.respol.2019.04.015

Liu, J., Tang, J., Zhou, B., & Liang, Z. (2018). The effect of governance quality on economic growth: Based on China's provincial panel data. Economies, 6(4), 1–23. https://doi.org/10.3390/economies6040056

Mohammed Shuaibu, Oladayo, T., & Popoola. (2016). OeconomiA Determinants of Human Capital Development in Africa : A Panel Data Analysis. 7(4).

Moral-Benito, E. (2013). Likelihood-based estimation of dynamic panels with predetermined regressors. Journal of Business and Economic Statistics, 31(4), 451–472. https://doi.org/10.1080/07350015.2013.818003

Mosquera, R. (2019). A Blessing or a Curse? The Long-Term Effect of Resource Booms on Human Capital and Living Conditions. SSRN Electronic Journal, March. https://doi.org/10.2139/ssrn.3364717

Ogundari, K., & Awokuse, T. (2018). Human capital contribution to economic growth in Sub-Saharan Africa: Does health status matter more than education? Economic Analysis and Policy, 58(February), 131–140. https://doi.org/10.1016/j.eap.2018.02.001

Oniyangi, S. (2013). The Effects of Natural Resources on Gender Inequality : An Explanation for the Resource Curse ? Submitted to the Department of Economics of Amherst College in partial.

Raheem, I. D., Isah, K. O., & Adedeji, A. A. (2018). Inclusive growth, human capital development and natural resource rent in SSA. Economic Change and Restructuring, 51(1), 29–48. https://doi.org/10.1007/s10644-016-9193-y

Rjoub, H., Ifediora, C. U., Odugbesan, J. A., Iloka, B. C., Rita, J. X., Dantas, R. M., Mata, M. N., & Martins, J. M. (2021). Implications of governance, natural resources, and security threats on economic development: Evidence from sub-saharan africa. International Journal of Environmental Research and Public Health, 18(12). https://doi.org/10.3390/ijerph18126236

Shafuda, C. P. P., & De, U. K. (2020). Government expenditure on human capital and growth in Namibia : a time series analysis. Journal of Economic Structures. https://doi.org/10.1186/s40008-020-00196-3

Shahrukh Rafi Khan, M. I. and S. I. C. (1985). Rates of Returns to Education and the Determinants of Earnings in Pakistan : The Pakistan Development Review , 24(3).

Sun, H., Geng, W. S. Y., And, & Kong, Y. (2018). Natural resource dependence , public education investment , and human capital accumulation. Petroleum Science, 0(2016). https://doi.org/10.1007/s12182-018-0235-0

Impact of Privatization on Economic Growth and Income Inequality in Ethiopia

By

Susie Teshome[1]

Abstract

This systematic literature review paper discusses the argument between whether privatization is efficient over SOEs or not. The entire review is based on the theoretical and empirical literature published in various national and international reputable journals and also incorporates reports. Many previous studies abroad have proved that privatization has botha positive and negative effect on investment, triggering the economic growth and income inequality which has been observed particularly in the economies of transition. Empirical evidences show arobust corroboration of theoretical implications that privatization increases profitability and efficiency in both competitive and monopolistic sectors. Since 1994 in Ethiopia privatization has long been considered as a strategy for economic growth improvement and implemented as a means of attracting a sizable investment, avoiding poor performed SOEs and minimizing fiscal pressure. Most studies in Ethiopia prove that privatization provide a positive impact in promoting economic growth and but having few studies it is difficult suggest the impact on income inequality. Privatization has a number of benefits, including the reduction of the burden on the state, improving efficiency, turning loss-making SOEs into viable business entities, improving government revenues from taxes, and serving as a vehicle for attracting new capital and technology, and brings competitiveness. Nevertheless, itis not at expected level to enhance economic growth and thus to create dynamic private sector in Ethiopia due to most SOEsare found in relatively low infrastructural facilities, corruption and countries frequent political instability. The review of this paper suggests that although impact of privatization on Ethiopian economic growth and resources distribution as not expected level, the Government should strengthen the existing privatization process and modalities of privatization particularly in the large SOEs and manufacturing sector to develop and promote investment. Necessary support should also be given to a large number of SMEs and self-employed individuals.

Keywords: Privatization, SOEs, Economic Growth, Ethiopia

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1 PhD fellow, School of Economics, University of Gondar, Ethiopia

1. Introduction

1.1 Background of the Review

Across the globe, privatization has become one of the instruments of the economic reform process. Initially taking place in industrialized economies and extend to developing economies. The reason for privatization has been debated since its formal introduction in the 1980s (Megginson, 2017). However, theprivatization process for the past three decades indicates that privatization is adopted by the world economies particularly for economic and political considerations, depending on their perspectives (Goran et al., 2020). More than 120 governments in the world have sold their shares in state-owned enterprises to private sectors and generatedsignificant revenue (Megginson, 2017). According to Privatization Barometer (PB) (2017), governments around the world have raised around $3.63 trillion since 1988 by selling SOEs to private investors, of which over $2.26 trillion was raised after 2004.During that period European governments represented 48.3% of the global privatization total revenue (ICD, 2019).

Privatization of public enterprises has been one of the major structural reform programs for developed and developing countries aimed at strengthening the private sector for promoting economic growth, sustainability, employment opportunities, income generation,and improving people's welfare (Goran et al., 2020). It has been becoming a crucial component for achieving rapid macroeconomic growth by alleviating deficits due to subsidies spent on inefficient SOEs (Auwalin, 2019; Wang et al., 2016).When governments divested SOEs in developed countries, in the 1990s, their objectives were to enhance economic efficiency by improving firms' performance and increasingtheir revenue, and introducing competition in monopolized sectors (Vickers and Yarrow, 1988).

Privatization has also emerged as an economic policy for developing countries to boost economic growth by attracting both domestic and foreign investments (Cook and Uchida, 2003) being adopted under the World Bank and IMF supervision (Sheshinski and López-calva, 2003).It contributes nearly 84% to GDP and 90% to job creation in developing countries (ICD, 2019). But in SSA Since 1990,the share privatization proceeds are nearly 3% of the developing world (Nellis, 2008). These proceeds have been used for social sector development overheads and influencesocial welfare.Privatization thus is seen as a driver of inclusive growth and job creation, and its impact on economic growth and social well-being is well-noted in developing countries (Auwalin, 2019).

Ethiopia is one of the sub-Saharan African countries where privatization has been implemented since 1994 (Selvam, 2007). Privatization in Ethiopia was introduced in 1994by proclamation No. 87/1994 as one component of the overall economic reform in conjunction with the International Monetary Fund (IMF) and the World Bank aimed to stimulate the economy by creating a more market-orientated

system (Deneke, 2001). It was introduced as a means to attract a sizable investment including foreign direct investment,to promote economic growth via encouraging the private sector's participation in the economy and generating sufficient revenue (Dejene, 2015) and Until 2017 the privatization proceeds from foreign sources accounted for more than 24 billion (Ashenafi and Reddy, 2018).It also generated foreign exchange earning the country which used to import intermediate inputs, fuel, and capital goods, which are essential for the economic growth of the country (Kedir and Biniam, 2020).

Despite being a late starter in Africa, Ethiopia's privatizationis so unique in Africa for three reasons (Nellis, 2008): First, it was not only viewed as an effort to privatizeSOEs but also seen as a policy helping the country transmit from central planning pattern of the economyto the market-led economy. Second, it aimed directly or indirectly at poverty reduction since most people in the country was poor with an estimated per capita income of about $100. As of 2003/04, 44% of thepeople live below the poverty line (World Bank, 2004). Finally, the objectives of the privatization program contain an open inclination toward social objectives.The government thusfound it necessary to revitalize the crucial role of the private sector and get rid of poorly performed loss-making SOEs, in particular, to curtail unproductive resource drain and promote economic development (Hansson, 2004; Wodajo and Senbet, 2017).

Privatization was facilitated in many countries including Ethiopia through the sale of the SOEs, which were converted to share companies in some cases (Nellis, 2008). The purpose of privatization is to reallocate and transfer resources and ownership from the state to private investors, to reduce inefficient government intervention in the economy thereby stimulating economic growth (World Bank, 2019). There are two argumentsand ongoing debates among economists and policy makers about the efficiency and other economic effects of the privatization of state-owned enterprises (SOEs). One of the arguments is that there would be many gaps if the government withdraws from and leaves the economy to individual entrepreneurswhich might lead to low economic growth and higher income inequality. They argue that if adequate measures are taken there has been hesitation about the employment and broader distributional impacts of privatization and privatization may not be necessary (Zelnick and Dingerson, 2016). The other argues that SOEs contribute to fiscal deficit and ultimately lower economic growth (Megginson, 2017) and thus privatization is necessary to correct government failures and inefficiency of SOEs. The tone of the privatization debate has also evolved in the international financial institutions, as privatization activity has shifted towards developing economies and as a consequence of some privatization failures in the 1980s and 1990s (Jomo, 2008).With these debateson the need for privatization, this paper reviewsthe impact of privatization on economic growth and income inequality with an emphasis on Ethiopia by supporting different theoretical literature and empirical evidence.

1.2. Objective of the Review

The objective of this paper is to review the effects of privatization on Ethiopian economic growth and income inequality.

The review paper is organized into five sections. The first section deals with an introduction to privatization. The second section describes the approaches of the review. Section three introduces a discussion of a review of literature which includes the concepts of privatization, theoretical perspectives, privatization in Africa and the world, and empirical evidence of privatization, the final section presents conclusions and recommendations.

2. Approaches of the review

The main objective of this paper is to review the impact of privatization on economic growth and income inequality by comparing and contrasting two different arguments on privatization whether or not privatization significantly promotes economic growth and reduces income inequality. The entire review of the paper is based on the theoretical and empirical literature published in various national and international reputable journals. This paper also incorporates some reports as supplementary to the review.

3. Body of discussion

3.1. Basic Definition and Concepts of Privatization

Privatization is defined in many ways in the literature. It can be defined both in its narrow and broad meanings. In its narrow meaning, it simply entails a shift of production, activities, or services being undertaken by the public sector to private ownership (Young, 1991). In its broader meaning, it refers to a process by which the state's role within the economy is circumscribed while at the same time the scope for the operation of private capital is deliberately extended (Kumssa, 1996). In other words, privatization, in its broader context, is the process of lessening regulations and facilitating a shift of ownership and economic management from public domain to the private sector (Cook and Uchida, 2003). Privatization also refers to the transfer of ownership and control of property or business from the state to privately owned entities (Wang et al., 2016).

Privatization has been also associated with the transfer of productive assets from the public to the private sector in terms of ownership, management, or finance. Such transfers are, by their very nature, politically sensitive and subject to potential corruption and abuse (Estrin and Pelletier, 2018). Also, others like Starr (2018) perceives privatization as the transfer of government share in designated enterprises to private shareholder, comprising individuals and corporate bodies through the sale of an enterprise. In this

broader sense privatization does not necessarily lead to the complete transfer of ownership and control of the service to the private sector and in this case, the term marketization is used interchangeably with privatization (Vickers and Yarrow, 1988). In Ethiopia's context privatization means the transfer, through the sale of an enterprise or government share holdings in a share company to private ownership (FNG, 1998).

Privatization has been used to represent three main concepts: divestiture, deregulation, and delegation. Divestiture refers to the partial or full sale of an enterprise from the public to the private sector (Ghosh, 2004). Deregulation, also known as liberalization, refers to the removal of restrictions on market entry and is intended to increase the role of competition (Rothenberg, 1987). Delegation usually involves the government maintaining control and being responsible for the service delivery, but the actual production activity is done by the private sector (Savas, 2000). Within the basic welfare services, privatization has been used to refer to an increase in the individual's responsibility for his or her welfare (Kumssa, 1996).

In developing countries privatization and public sector reforms have been more demandingtobring about macroeconomic stability (Jomo and Mahmood, 1994). Mostdeveloping countries undertook privatization to assuage donor fears over domestic reform commitment than economic conviction(Auwalin, 2019). Privatization has thus important socioeconomic implications for the various interest groups and touches on a complex set of issues, including property rights, nationality, ethnicity, bureaucratic practices, donor conditionality, nature of markets, and politics(Wang et al., 2016).It is a remedy for SOEs whose conditions are not good (Suleiman etal., 2017). The issues of whether privatization has achieved the intended result or accentuated inefficient operation of firms are the focuses of discussions in countries that underwent this process.

3.2. Objective of Privatization

Privatization has been a crucial component of structural reform programs for both developed and developing economies aiming at achieving greater efficiency, enhancing economic growth, and reducing public sector borrowing requirements through the elimination of unnecessary subsidies (Estrin and Pelletier, 2018; Sheshinski andLópez-calva, 2003).Besides, incentive and contracting problems create microeconomic inefficiencies as a result of public ownership, assuming that managers of nationalized enterprises chase objectives that differ from those of private firms. The private sector may succeed in the optimum use of resources by maintaining efficiency (Sharda, 2019). When governments divested SOEs into private enterprises they have their objectives which can be political, economic, or social objectives (Nellis, 2008).

There are two main views regarding the objectives of privatization that have been projected by theoretical studies; normative and altruistic (Cass, 1988). The normative theory states that privatization is essential

to diminish waste, lift economic efficiency and multiply the activities of the private sector by increasing both domestic and foreign investment. The altruistic theory on the other hand views the issue from the perspective of maximizing aggregate welfare; keen to dispose of an optional system for one where market forces determine performance based on the assumption of competition. In the normative view, the main driving force for privatization is the eradication of the soft budget constraints (Cavaliere et al., 2006).

Various works of literature in different countries identified different objectives of the privatization of SOEs. Following Sheshinski and López-calva (2003),Vickers and Yarrow (1988),and Balza et al.(2013), some of the main objectives of privatizationinclude:

• Achieving higher allocative,productive efficiency and ensuring adequate revenue

• Strengthening the role of the private sector in the economy

• ImprovingGDP growthand improving the public sector's financialhealth

• Freeing up resources toallocate in other important government activity (i.e. social policy)

• Introducing more competition and earning more foreign currency

• Changing the public-private sector mix and achieving wider share ownership

• Reducing the frequent political interference in the daily activities of public enterprises

The first two objectives have a normative rationale and relate to the microeconomic perspective. The latter ones, related to macroeconomic and public sector finance are the reduction ofborrowing requirements and the potential reallocation of expenditure towards social policy areas (Sheshinski and López-calva, 2003). The settings of objectives as well as the choices among objectives are the key issues at the outset of any privatization program (Berg and Shirley, 1987; Cavaliere et al., 2006). The most important objective of privatization in developing countries is yet the desire to reduce fiscal and credit pressures on the national budget (Bennett, 2004). Thus privatization is often viewed as a budget relief and credit reducing exercise.

3.3. Why Privatization is enacted as Economic Policy

Privatization has become an inevitable feature of political and economic policyin developing countries (Hansson, 2004). According to Cavaliere et al. (2006), governments of many countries implement privatization as economic policy to achieve the following basic economic goals:

• Toreduce countries'national budget deficits and the stock of national debt (contributes in reduction of

government expenditure due to subsidies, helps to increase tax revenue).

• To foster financial market development (contribute to the growth of stock market capitalization and trading all over the world).

• To increase the efficiency of enterprises (controversially, as per the hypothesis of conventional wisdom, privatization policies could increase efficiency provided the transfer of an enormous number of resources from government control to market allocation along with it reduced income inequality).

Cost reduction, improving economic performance, reducing the government's role in the economy by limiting interventions, and enhancing capital market development are also reasons for privatization in many countries (Jeffrey and Schoenberg, 2006). Moreover, most developing countries face fluctuating export earnings, balance-of-payment problems, fiscal imbalances, diminishing inflow of external capital, and public debts (Jomo, 2008). Accordingly, they decided that the state to withdraw from economic activities that can be possibly handled by the private sector. Privatization programs are thus implemented by looking at the extent to which the stated ultimate goals have been achieved through their economic policy (Shapiro and Willig, 1994).

3.4. Benefitsand Problems of Privatization

Many reasons explain the movement by countries toward privatization to restructure the government. Much of the impetus is the desire to inject competition into the delivery of state services to provide services to citizens in a more-efficient and cost-effective manner (William, 1993; Boubakri et al., 2009). If structured appropriately and sufficiently monitored, privatization can:save taxpayers' money byreducing program costs,increasing flexibilityto meet program needs,improving service quality,improvingthe country's fiscal situation, allow policymakers to spend allowing more time to see that essential services are efficiently delivered, make bureaucracies smaller and more manageable, and improve maintenanceto preserve the asset value of the investment (Stiglitz, 1999; Jones et al., 1988).

Privatization can also increase efficiency and stimulate innovation by lowering operating costs (Roland, 2008). Particularly developing countries have less invested in old technology and are therefore more willing to invest in new technology wherethe spillover effect is created from innovations (Easterly, 2002). Moreover, privatization leads to an increase in FDI which can potentially play a significant factor in the quest for growth. It enables countries to pay a portion of their existing debt, thus raising the level of investment (Boubakri et al., 2009).

Despite these benefits,there are also some arguments against privatization. These are: it can create a natural private monopoly when the most efficient number of firms in an industry is oneand leads to a

problem of regulating private monopolies, conflict in the public interest, the government may lose out on potential dividends and leads short-termism of firms (Tejvan, 2020).

3.5. Methods of Privatization

Countries around the world have practiced different methods of privatizing state assetsbased on the initial conditions of the country's economy and the economic ideologies of the political party in charge (Savas, 2000). The process of a privatization program is often easy for small institutions, whileit becomes harder when finding the appropriate buyers for largerenterprises (Ghosh, 2004). It is not a uniform process across countriesmainly due to their political nature and the various approaches to privatizing. There are many methods of privatization. The most common method of privatization includes the sale of assets, outright sale of shares, selling shares to the workers and management, joint ventures, lease arrangements, liquidation, restitution(denationalization) of public enterprises, deregulation, management contracts, debt-equity swaps and franchising (Nitri, 2010; Berg and Shirley, 1987; Jeffrey and Schoenberg, 2006). All these entail some form of private sector participation in product or service delivery (Rothenberg, 1987).

Following Nitri (2010) and Berg and Shirley (1987) the nature and scope of some of these methods can be explained as follows:

i. Sale of assets: this is the process of selling the assets of SOEs to a private organization or an individual. This method tends to create negative public perceptions. Governments tend to be accused of selling public assets at giveaway prices in this form of privatization. This is usually done by auction sales.

ii. Sale of Shares: this usually happens when the ownership of public enterprises is transferred from the public sector to the private through the partial or total sale of shares sector is the process where the state sells its shares to a private organization or an individual. Partial sale of shares refers to cases where the government sells a certain proportion of the total outstanding shares. While total sales/complete divestiture involves the outright sale of all shares to a single buyer, to the workers, or management of public enterprises being privatized.

iii. Joint Venture: This can take the form of a partnership between an existing SOE and a private investor. Sometimes the government and a private investorestablished a new organization and take over all or part of an existing SOE and transfer them into the newly formed enterprise.

iv. Lease Arrangements: This occurs when a private firm takes the responsibility of operating and maintaining the assets of a public-owned firm. The government retains the ownership as well as responsibility for financing capital investments. Because the new operator has a strong incentive to

reduce cost and improve efficiency, the government will benefit from the efficiency gains that arise as a result as well as dividends where relevant.

v. Liquidation: This is the process of taking business assets and turning them into cash, which may be used to pay off debt or to reap revenue. It involves the winding up or withdrawal of an enterprise as a legal entity and the sale of its assets to create a vacuum that can thereafter be filled by the private sector.

vi. Restitution: This is a return of assets or shares to former owners from whom they had been acquired by the government through nationalization or confiscation without adequate compensation. It is normally regarded as full privatization.

vii. Deregulation: it is also known as liberalization, refers to the removal of restrictions on market entry and is intended to increase the role of competition (Ghosh, 2004).

viii. Management contracts: These place a public enterprise under private management for a specific period, during which the contractor is paid a fee. Such a fee may partly be based on performance. Ownership of assets remains with the enterprise and ownership of shares remains unchanged. This method is often used in situations where there is a need to turn around a company in readiness for eventual privatization (Oliver and Bhatia, 1998).

Each of the mechanisms of privatization mentioned above has its advantages and disadvantages (Bennett, 2004). The methods can be selected based on the nature of enterprises, capital markets, and objectives for privatization. But to select appropriate methods, their advantages and disadvantages ought to be carefully weighted and considered (Megginson, 2005). Because in the absence of a well-functioning property-right market, privatization may result in the transfer of public assets to private agents who do not use them in a substantially more efficient way than they had been used under state ownership (Jefferson, 1998). Based on the experience of African countries among the method mentioned above identified some privatization methods as appropriate for African countries. These include the sale of shares; liquidation; competitive sale of assets; concessions; management contracts; restitution; joint ventures, management, and employee buyouts; and equity swaps for existing or new debt.

3.6. The Theoretical Perspectives of Privatization

The theoretical principle of privatization more resembles the microeconomic benefits of the policy by allocating scarce resources from the public inefficient to the private efficient use (Vickers and Yarrow, 1988). Though many theories have been used to support the privatization agenda it is generally stated in three main theories. These are the principal-agent theory or residual claimant, public choice theory, and the property right theory. The basic assumption of these theories is that free-market forces enhance

efficiency in organizations (Odukoya, 2007).

The principal-agent theory: This theory looks at privatization from the divergence of interest point of view. Despite theproblem of interest, divergence is common both in private and public enterprises whereas it is much lesserin private enterprises (Schneider, 2003). A manager acts out of self-interest and ignores the owners' interests (Odukoya, 2007). The vital point here is that managers of private enterprises have the incentive to maximize efficiency more than those of public enterprises (Vickers and Yarrow, 1988). This then involves the need for incentives as a basis for facilitating monitoring by managers. It is the absence of monitoring incentives for public enterprise managers that account for the inferiority on the efficiency scale of public enterprises when compared with private businesses (Kivisto, 2007). According to this theory therefore privatization gives an incentive that motivates the manager to adjust his/her interest in the enterprises better than the public-owned (Cavaliere et al., 2006).

The principal-agency theorists also argue that managers in both private and SOEs are assumed to maximize their utility rather than that of the organization or its owners. However, the problem is reduced in private firms through external mechanisms and internal mechanisms through boards of directors and incentives for managers (Schipke, 2001).Additionally, it indicates that because private firms have clearer goals, it is easier for owners (principals) to hold managers (agents) accountable therefore managers perform better in private firms than in SOEs (Vickers and Yarrow, 1988). Similarly,Dharwadkar et al. (2000) indicate agency conflicts as the main source of inefficiencies of SOEs and privatization will tend to raise the cost to politicians in influencing firms since subsidies to private firms are necessary to force them to remain inefficient are politically harder to sustain.

The second theory is the public choice theory and the basic assumption of this theory is that humans are egoistic, rational, and utility maximizers (Andic, 1992). This theorystates that the performance of SOEsis a function of the combined actions of the general public, politicians, bureaucrats, and managers,each group seeking to maximize their particular objectives (which may not coincide with efficiency) (Yarrow, 1999).According to this theory,the entities are selfish utility maximizers (Schneider, 2003), and none have identical information with the result being the internal inefficiency of the firm. In a competitive environment,however, there is uniform access to information, contributing to greater efficiency (Odukoya, 2007).

The public choice theory also states that the underlying case for privatization is the view that there is government failure orthe public choice argument, in the sense that public policy is likely to operate in ways that impede the efficient functioning of markets (Yarrow, 1999).Government failure refers to the failure of policies to allocate resources efficiently, redistribute them in a well-targetedmanner, and stabilize the economy in the period of stagflation. The principle of utility maximization according to

the public choice perspective dominates human behavior both in the marketplace and in politics (Tanzi and Schuknecht, 2000).As a result, the inefficiency of state firms is attributed to bureaucrats pursuing their objectives such as excess labor spending which conflicts with the efficient operations of SOEs (Cavaliere et al., 2006).

Concerning property rights theory, changes in the allocation of property rights change the structure of incentives that decision-makers face in the firm and hence lead to changes in both managerial behavior and company performance (Megginson, 2005; Odukoya, 2007). This theory states that people should respect the allocation of resources in social and economic relations. Besides owners of companies should address the losses they cause to others against the profit they gain (Balza et al., 2013). Property rights are the social institutions that delimit the range of privileges granted to individuals with specific resources. Following this view, Starr (2018) asserts that the theory of property rights specifies social and economic relations that people must observe concerning the allocation of resources while taking into consideration both the benefits to owners and the harm they cause to others (Omran, 2004). According to this theory, a private owner, with the right to residual income, exercise greater monitoring effort than a public sector counterpart with no such direct rights.The propositions of property rights and principal-agent theories are based on unrealistic assumptions which include the existence of an efficient capital market and a perfect flow of information for private shareholders (Kivisto, 2007).The review of privatization theories above suggests that SOEs are inefficient because of the high transaction cost in protecting (Dharwadkaret al., 2000) and enforcing property rights associated with bureaucrats' and politicians' inability and in certain cases fear of losing their support base (Cavaliere et al., 2006).

3.7. Privatization around theWorld

Since the development of the private sector in the late 1970s and 1980s, the share of private investments and revenue in the global economy has increased. Worldwide Western Europe has been the leader in privatization revenues representing roughly a third of privatization proceeds over the period 1977 to 2002 (Roland, 2008). The aggregate share of the private sector is yet much larger in industrialized countries than in developing countries. Besides, the private sector has been actively engaged in expanding production and welfare gains (Goran et al., 2020).Table 1 below shows global investment growth from 1990 to 2017 compared to additional development indicators. The share of the private sector is consistent with decreasing unemployment rates and an increasing economic growth rate.

Table 1: Private investment's share of GDP compared to some development indicators (%)

Indicators \ Periods	1990–1996	1997–2003	2004–2010	2011–2017
Private sector's share of GDP	6.064	7.028	8.262	7.837
Unemployment rate	5.735	6.190	5.697	5.524
Tax revenue	24.816	25.819	24.57	24.795
Annual growth rate	2.452	2.980	3.030	2.811

Source: own calculations, World Development Indicators (2019)

Moreover, Figure 1 below portraysthe yearly worldwide privatization revenues, in US$ billions from 1988 to 2016, and shows an increasing trend. Worldwide, governments raised the highest revenue (nearly $319.9 billion) in 2015 and the second-highest ($266.4 billion) during 2016 through privatization sales. Privatization proceeds exceeded $1.189 trillion from 2012 to 2016. China was the leading privatizing nation during 2016, raising an astonishing $176.8 billion through 298 sales of at least $50 million. The second-largest privatizer of 2016, after China, was the United Kingdom, which executed 13 sales worth $34.78 billion. The next five largest privatizers of 2015, after China and the UK, were Italy (11 deals; $12.38 billion); Japan (3 deals; $11.95 billion); India (34 deals; $11.36 billion); the United States (7 deals; $11.00 billion); Sweden (6 deals; $9.11 billion) and Australia (5 deals; $8.59 billion) (PB, 2017).
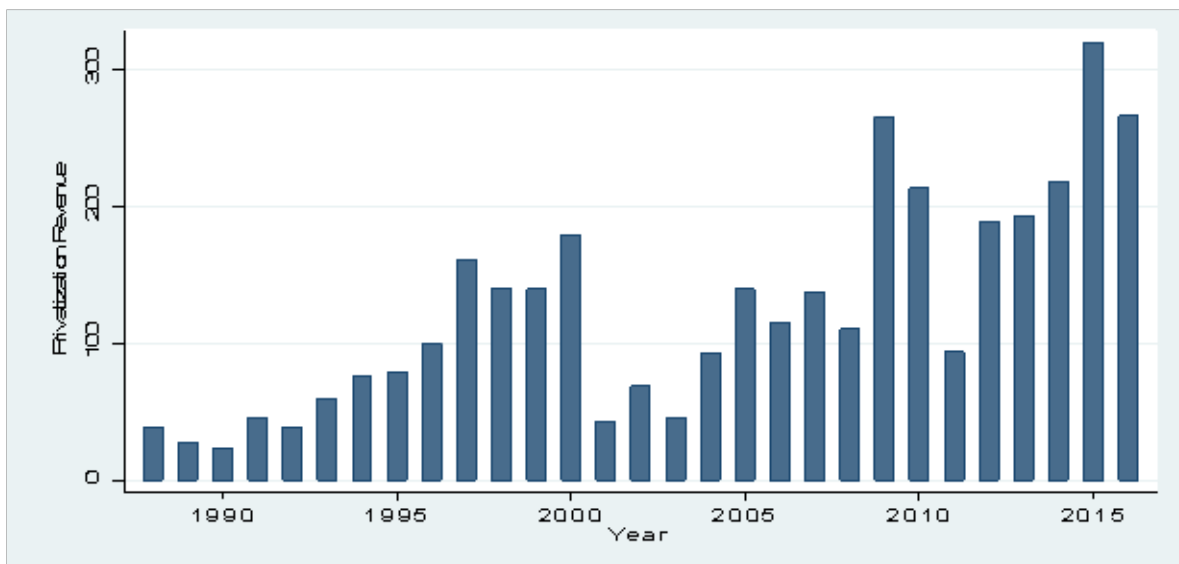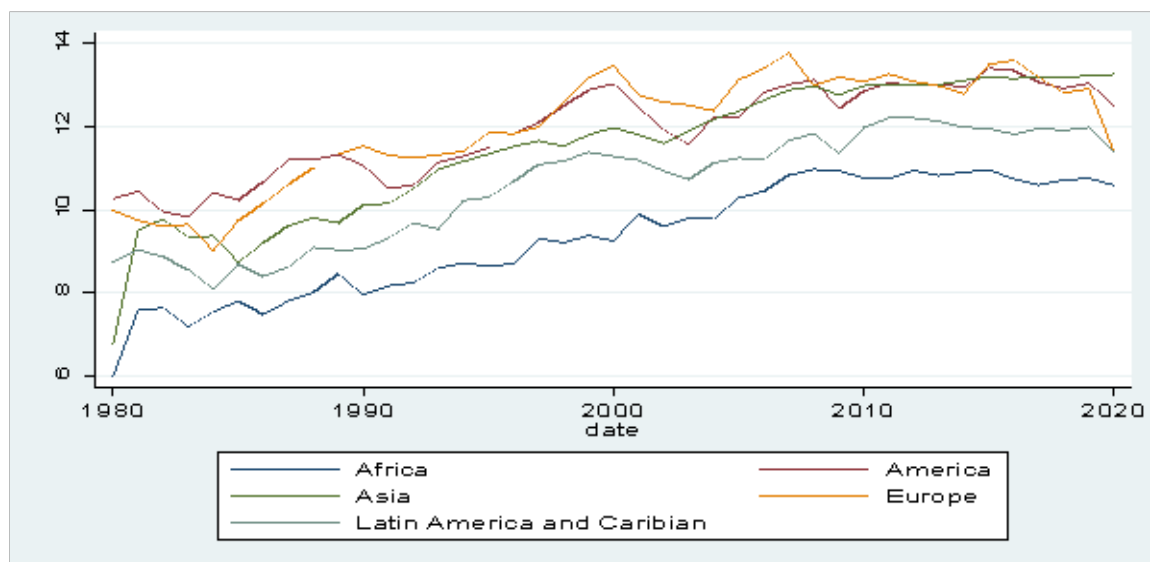

Source: own graphics based on World Privatization Barometer data

Figure 1: Worldwide privatization revenues 1988-2016 ($billion)

The shares of EU countries are only 20.0% of worldwide totals in 2016 and lower than the long-run

average share of about 44.6% (PB, 2017). Over 1988 to 2008 total privatization proceeds amounted to the US $220 billion in Latin America (28% of the total world proceeds and 0.5% of GDP over the period) where Argentina, Brazil, and Mexico have the highest share.Central andEastern Europe have sharedproceeds totaling $240 billion. Theproceeds of privatization have been much more limited in Africa, the Middle East, andSouth Asia with total proceeds below $50billionfor each of these regions. While South Asia has had a limited privatizationexperience, this was not the case in East Asia with 30% of total world proceeds. The proceeds of privatization in South Asia totaled US$ 17.45 billion andin Sub-Saharan Africa with $11 billion (3%) of total proceed(Megginson, 2017).Privatization also accounts for a significant share of FDI of the world economy.Figure 2 below shows the global transfer of FDI due to privatization from 1980 to 2020 where on average the lowest is recorded in Africa and the highest is in Europe and America, but from 2010 to 2020 FDI in Asia it increases while it declines in Europe and America.

Source: own graphics based on UNCTAD (2019) data

Figure 2: Average FDI inflows in the world, 1980-2020

3.8. Privatization in Africa

Privatization was implemented in Africa in the early 1980s. Many believe that the liberalization waves and budgetary constraints sparked privatization as an economic solution. Furthermore, it has been taken as an alternative measure to the existence of weak SOEs. However, the external pressures from the World Bank and other donor countries, particularly the Western protagonists of economic reforms and globalization are also considered a strong force behind the privatization of many African economies

(Nellis, 2008).

Privatization programs in Africa occurred in successive waves, with some countries privatizing much earlier than others (Adams, 2007). The first groups to start the program, in the late 1970s to early 1980s, are Francophone countries mainly; Benin, Guinea, Niger, Togo, and Senegal.The second groups started in the late 1980s are Anglophone and Francophone countries (Ghana, Nigeria, Ivory Coast, Mali, Kenya, Malawi, Mozambique, Madagascar, and Uganda) (Nellis, 2008). Finally, countriesthat privatized their SOEs in the late 1990s are Cameroon, Ethiopia, Sierra Leone, Tanzania, Burkina Faso, and Zambia.In this privatization process,Africancountrieshaveprivatizedaround 40% of their SOEs and are concerned with smaller manufacturing, industrial or service firms (Auwalin, 2019).It is exhibited by a lack of significant progress due to corruption, mismanagement, andthe interests of senior bureaucrats. Despite this Nigeria's privatization program had been one of the most successful in SSA in the 1990s (Nellis,2008).

The purpose of privatization in developing countries is mainly to raise revenue via the sale of assets (Estrin and Pelletier, 2018). Figure 3 below shows a breakdown of FDI inflows due to privatization by sub-region. At the sub-regional level, disaggregated data shows a strong performance in North Africa, followed by West Africa and Southern Africa. The Eastern and Central Africa sub-region are the least performing. Egypt remained the largest FDI recipient not only in the sub-region but also in Africa in 2018. Besides in SSA from 2000 to 2008 total proceeds increased to US$12.654 billion. Nigeria comprised 51% of this amount, followed by Kenya (10%), Ghana (9%), and South Africa (6%) (UNCTAD, 2019). FDI can have positive spillovers on growth through job creation, technological transfer, and capital accumulation.
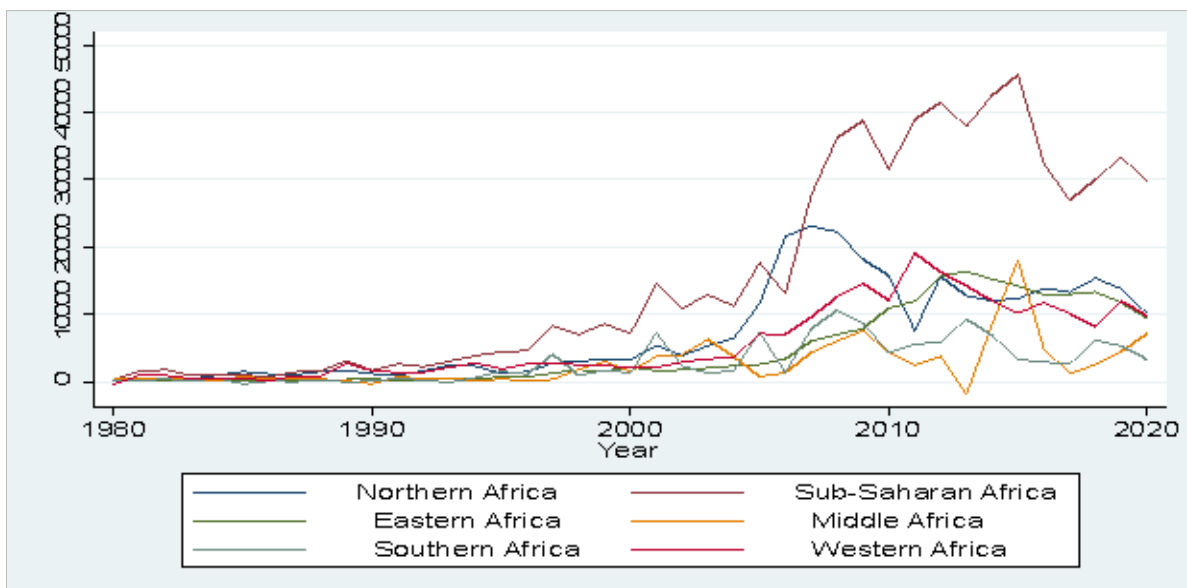
Source: own graphics based on UNCTAD (2019) data

Figure 3: Africa FDI inflows, by sub-regions, 1980-2020

4. Empirical studies on the impacts of privatization

4.1. Empirical Studies on the Impact of Privatization, International Experience

There are two theoretical arguments regarding the impact of privatization (whether it is positive or negative). Many empirical (at firm or country-level) studies have been conducted to give support to either of the two debates onthe impacts of privatization. Some studies conclude that privatization has a positive effect on economic growth and income inequality while others do not. Here the empirical studies conducted and experiences outside Ethiopia are reviewed by considering the impact of privatization in terms of economic growth and income inequality.

Filipovic (2006) conducted the impact of privatization on economic growth in developing countries using cross-country regression analysis and concludes that privatization is a potentially successful policy of economic growth as long as implemented with other economic reforms. This finding is consistent with the empirical findings of Soltani and Anis (2012) and Boubarkri et al. (2009), who found a positive relationship between privatization and economic growth.

Evidence like Sheshinski and López-calva (2003) also demonstrates that public enterprises have performed miserably compared to private enterprises, especially in developing countries. However, this doesn't mean that all public enterprises are inefficient there are highly viable public enterprises in several cases. On the other hand, Cook and Uchida (2003) applied a cross-country growth regression analysis using extreme bound analysis. They used data from 63 developing countries from 1988-to 2000 and found that privatization has contributed negatively to economic growth due to the lack of competition.Others like Vuksic (2016) and Vujacic and Vujacic, 2011) on Croatia and Serbia state that privatization was ineffective and failed to drive growth, creating some economic and social consequences. Consequently, the authors suggest the idea of the revitalization of SOEs rather than privatization, especially in the developing countries where the institutional infrastructure in terms of competition and regulation is not well established.

Sobir et al. (2016) studied the macroeconomic gains from privatization during the transition period in Uzbekistan for the period 1994 to 2014. According to these authors,small-scale privatization hasa positive and significant effectonthe economic growthof Uzbekistan. By reducing inflation, via its impact on the budget deficit, privatization could also protect efforts to expand exports through currency devaluation (Roland, 2008). On the hand,Ozata (2014) used the Turkey data for the period 1986-2012

and analyzed the effect of privatization on growth. The author posits a negative effect of privatization on economic growth.

Studies found that between the time 1990 to 2003, in 120 developing countries, 7860 transactions occurred that generates nearly$410billion that accounting for 0.5% of the developing countries' GDPduring the period of privatization.Ahluwalia (2002) supports and agrees that privatization increases economic efficiency and generates more income and rapid growth. Nellis(2008) also analyzesAfrica's privatization experience using firms divested through public share offering during the period 1989-1996. They found that privatization increased significantly capital spending but insignificant changes in profitability, efficiency, and output.On the other hand, Sheshinski and López-calva (2003) argue that privatization increases profitability and efficiency in both competitive and monopolistic sectors. They also argue that privatization without effective competition policy puts existing monopolies in private hands, which may in turn have enough power to capture the state apparatus to prevent the introduction of competition policy. Privatization within an economy that lacks competition would also result in adverse effects including higher prices because of monopolies and less domestic investor participation (Smith and Trebilcock, 2001)

A study by Abdulkadir (2016) on 142 countries for the period of 1960-2014 in different scenarios, found a positive relationship between privatization and GDP per capita growth. The author founds that the effect of privatization in the case of developing countries is positive, but in the regional grouping, it varies consistently from the other studies. It is negative for Africa albeit insignificant while the effect of privatization has a slight increase in Latin America and the Caribbean, and Asia and a 3 to 4% increase in GDP in rich countries of Oceania, Europe, and North America.

Related studies examined the effect of privatization on firm financial performance in Kenya based on return on turnover, assets, and equity data from 1991 to 2008. The analyses covered three years before and after privatization for each of the firms. The authors found out that the firms improved their performance after privatization where the return on turnover improved in the first year after privatization. They suggest that government should concentrate on activities such as the provision of services and creating the legal and institutional framework conducive to increased private investment. But the transfer of poorly performing SOEs to private hands could reduce investment in those enterprises from earlier levels (Balza et al., 2013).

Ujkan et al. (2021) assess how the privatization of SOEs affects economic growth in Kosovo, entailing an empirical test using a panel effects regression analysis over the period 2003 to 2018. The author found that privatization at the aggregate level does not boost economic growth; in particular, the methods used to privatize SOEs are not a determining factor. They show that the quality of institutions

is fragile, confirming negative associations with economic growth. They also indicated that the effects of privatization vary according to the method used, and are faced with serious impediments to privatization funds being directly invested in the economy.

Todo (2016) explored the effects of privatization on exports, jobs,and productivity in China (1990-2013). The author concludes that the privatization of SOEs in transition economies like China has been found to improve the employment and productivity of privatized SOEs. The author reveals that privatization has indeed a positive effect on export propensity, employment, and productivity in both the short and long term. The effect mostly stems from changes in firms' attitudes about profits and risks due to competitive pressure. The author also suggests that privatization should be associated with restrictions on how involved managers can be in the ownership of privatized firms and institutional reforms should be implemented that promote trade openness, financial freedom, and anti-corruption. A related work by Li et al. (2016) adopted a triple difference approach which enables them to separate the pure privatization effect from the listing effect; using a database from 1999 to 2009 matched with comparable SOEs and privately-owned firms. Their findings show a significant positive increase in profitability post-privatization of Chinese SOEs.

Plane (1997) carried out a study on 35 developing countries for the period 1984 to 1992 and the author concludes that on average privatization reforms increased economic growth in these countries from 0.8% to 1.5% during the study period. Other studies inBolivia, Argentina, Mexico, and Perualso confirmed a positive statistical relationship between privatization and output. They assert that SOEs generated big losses and privatization revenues are large enough to offset the social costs of job losses. They suggest that privatization had positive effects on the poor through the fiscal effects, and privatized companies were the main taxpayers (Chong and López, 2003).

One of the accounts of the macroeconomic implications of privatization cautions that unless significant efficiency gains are realized by the budget, privatization can worsen budgetary prospects over the medium term (McKenzie, 2011). One of the reasons for this unfavorable outcome is that state assets are often under-priced and the government usually continues to shoulder the associated costs of divestiture such as labor retrenchment pay-outs. Similarly, SOEs help to curb market failures by implementing pricing policies that take account of social marginal costs. While privatizing enterprises might leadto financial profitability but workers bear the burden of restructuring through layoffs and wage cuts (Estrin and Pelletier, 2018). According to Kumssa (1996) however in SSA private enterprises are more efficient while SOEs contribute to fiscal deficit, inflation, and ultimately lower economic growth thus argues countries should consider privatization as a strategy to boost their economy.

In Barnett's (2004) study of panel data for 10 developing countries, the impact of privatization on fiscal

variables, growth, unemployment, and investment was explored. The author indicated that privatization is positively correlated with real GDP growth and results on average 0.4% GDP growth rate per year. Gupta (2005) reviewed various methods of privatization in transition economies and reported that privatization promotes economic efficiency and growth.The Mexican workers in the privatized SOEs had a significant wage increase but this came at the expense of lost employment in the privatized firms which have long-term welfare consequences (Estrin and Pelletier, 2018). Fabian (2007) provides complementary evidence about the impact of privatization on growth and finds a positive effect from mass privatization but it is smaller than from the more gradual methods of privatization.

Admas (2009) analyze his study on the impact of foreign direct investment (FDI) and domestic investment (DI) due to privatization on economic growth in Sub-Saharan Africa for the period 1990-2003 and found that FDI due to privatization has a positiveimpacton Economic growth. The author also found that FDI initially has a negative effect on domestic investment and subsequently a positive effect in the later periods. Besides studies suggest that privatization, especially when accompanied by complementary reforms has a positive effect on economic growth. Concentrated private ownership has a stronger positive effect on performance than dispersed ownership.Three factors appear to drive the more positive effect of privatization on foreign than domestic owners. Domestic managers have limited skills and access to world markets, domestically privatized firms have been more subject to tunneling and new large shareholders artificially decreased performance. On the other side, Vernon-Wortzel and Wortzel (2004) indicated that SOEs' problems do not arise from ownership but from lack of clear objectives, inappropriate control, motivation, and reward systems. Consequently, they suggest the idea of the revitalization of SOEs than privatization, especially in the developing countries where the institutional infrastructure in terms of competition and regulation is not well established.

The welfare effects of privatization are inconclusive resembling either negative or positive effects. Here are some of the studies on privatization and income inequality:

Chao et al. (2016) construct a two-sector general equilibrium model to explore the impacts of partial privatization and they find that privatization decreases wage inequality. Estrin and Pelletier (2018) also provide empirical evidence on privatization in developing countries, with particular emphasis on the distributional impacts of privatization. The authors find that private ownership alone is no longer argued to automatically generate economic gains in developing economies; pre-conditions and an appropriate process of privatization are important to attain a positive impact. This includes well-designed reforms; the implementation of complementary policies; the creation of regulatory capacity; attention to poverty and social impacts; and strong public communication; which are often challenging in developing countries. The authors also argue that higher efficiency and profitability can be obtained under privatization through lower levels of employment, lower wages, reduced public service provision, and higher product prices,

with negative distributional and social effects.

While Bakkeli (2017) explores whether a higher degree of privatization can be linked to increased income inequality in China based on data collected between 2004 and 2005. The author then examines whether the impact of an individual's socioeconomic position on their income varies across regions with different degrees of privatization. The author confirms that income inequality is higher in regions with higher degrees of privatization, and larger privatization correlates with lower individual income. Besides, privatization is associated with greater individual differentiation and overall income inequality (Bandelj and Mahutga 2010).

Piketty (2014) argues that the transfer of wealth through privatization was an important element in the growth of private wealth in Britain than in other Western European countries between 1970 and 2010. The author argues that privatization does not necessarily entail a net transfer of wealth between the public and private sectors and need not affect its distribution. The author further highlighted the impact of privatization in the growth process and on capital accumulation. According to this author SOEs to be privatized are valued in a way that their price represents the discounted sum of the profits to be earned from them, and then privatization means that the state is replacing an income stream with its discounted capital value in its asset portfolio.

Ahmad (2017) analyzes the role of a political regime (democratic or non-democratic) in assessing the impact of economic freedom on inequality. More precisely, the author estimates an inequality model that explicitly captures the interaction between privatization and democracy and finds that income inequality following liberalization policies is reduced when it is implemented in a more democratic political framework. Ceriani et al. (2018) investigate the relationship between privatization and income inequality through redistribution, focusing on the role of democratic institutions in developing countries. Using a panel of low and middlecountries in the period 1988-2008, they find that an increase in privatization revenue results ina decreaseinincome inequality when democratic institutions are well consolidated. The authors suggest that, in developing countries, the choice of policymakers to both democratize and start economic reforms may lead to an improvement in income equality. Other evidence for instance Hall and Lawson, (2014) points to a negative relationship between economic freedom and income inequality and the strong positive relationship between growth and economic freedom, any change in the direction of more economic freedom (i.e. privatization of SOEs) would lead to an increase in inequality. Nevertheless, other evidence in the case of China and the US points to an inverted-U-shaped relationship between privatization and income inequality.Once passed the tipping point, any improvements to economic freedom lead to a decrease in income inequality (Wu and Yao, 2015; Bennett and Vedder, 2013).

Zelnick and Dingerson (2016) explored how the insertion of private interests into the provision of public

goods and services increasesinequality in the US. According to these authors privatization profoundly affects the quality and availability of vital goods and services delivered by the government like education, social services, and water. When governments directly provide a service, they often provide living wages and decent benefits to workers. When private companies take control, they slash wages and benefits in an attempt to cut labor costs, replacing stable jobs with poverty-level jobs. In their analysis, they identify five ways in which privatization of SOEs increases income inequality thereby disproportionately hurting poor individuals: the creation of user fees, decreased wages and benefits, and increased socioeconomic segregation. Hence adequately fund of public goods and services and measuring the impact of potential privatization before privatizing are the way of addressing inequality and restoring an equitable society.

Miguel and Ballesteros (2020) analyze the link between privatization reforms and income inequality on data from 25 European countries between 2003 and 2013. The authors find a positive link between privatization and inequality and suggest that income inequality is higher in countries that have resorted to privatization reforms to a greater extent. They concluded that social consequences should be considered when evaluating regulatory reform, like privatization.

Adams (2007) also examines the impact of privatization on economic growth and income inequality in Sub-Saharan Africa between 1990 and 2002. The main finding of this author is that privatization did not contribute to growth but helped to reduce income inequality whereas inflation due to privatization contributed negatively to income equalization. The author suggests that the necessary market-supporting institutions must be in place for privatization to have an appreciable impact on the economy. The authors claim that on average, privatization has worsened wealth distribution and, to a lesser extent, income distribution.

Generally, this empirical evidence ensures that structural reform due to privatization has induced either positive or negative changes in key macroeconomic variables that contribute to overall economic growth and income inequality. Though not all these changes can be attributed to privatization they assert that the public sector's financial health and a better macroeconomic setting have been fueled by the reduction of SOE activity around the world.

4.2. Empirical Studies on the Impact of Privatization in Ethiopia

It is not simple to provide a clear picture and conclusive evidence of the effects of privatization on the overall economy in Ethiopia. Few studieshave been conducted on measuring the dynamic effects of privatization on income inequality. Here are some of the studies conducted in Ethiopia.

Ashenafi and Reddy (2018) analyzetheimpact of privatization on economic growth usingtimeseries data from 1994-2017,by considering real GDP growth as a proxy for economic growth and privatization

proceeds as a measure of the magnitude of privatization. They found that privatization proceeds and FDI due to privatization have a positive impact on economic growth. Foreign direc tinvestment due to privatization is the main contributor to real GDP change followed by privatization ensuring government budget deficit and inflation. The author suggests the government strengthen privatization policies together with other policies

Wodajo and Senbet (2017) also expressed in their finding that there was no improvement in productivity in the manufacturing sector from 1994 to 2010and at worst; it led to a decline in productivity. They show that privatized firms exhibit no notable productivity (measured as firm output per employee) gains in absolute terms. They argue that the main reason for this outcome is the economic and business environment prevailing in Ethiopia, which does not allow the standard economic assumptions of market competition to hold. In terms of marginal productivity gains resulting from the use of various factor inputs, the authorsfound that privatized firms tend to exhibit small marginal gains inproductivity. On the other side,they argue that capacity utilization was lower in former SOEs but since inception, it is higher in firms that were privately owned. Finally, they conclude that mostly the Ethiopian private sector is weak; there would be many gaps if the government completely leaves the economy to individual entrepreneurs.

A pioneering study was conducted by Rebeka (2001) in the Ethiopian context between 1993/94 and 1998/99 aiming at comparing the technical efficiency of 25 privatized industries before and after privatization. She found that while privatization had a positive effect on improving technical efficiency in the food processing industries, it had a negative effect on the beverage, textile, and leather sectors. For non-metal, wood, printing, and chemical industries, privatization had neither a positive nor a negative effect on efficiency. But when these industries were under government ownership, they were characterized by stabilization and rehabilitation of the economy.

Selvam (2007)also examined the relationships between privatization and budgetary deficit, more of fiscal, in percent of GDP, and openness data from1994 to 2004. The author shows that the privatization was too slow and very fragile, coupled with poor processing, to acquire the minimum benefits which have been gained in the rest of the developing world causing doubt about the conduciveness of the privatization paradigm towards investment. The author also shows that there is a weak correlation (the coefficient is -0.268) between privatization and budget deficit. According to this author, there may be two reasons which justify this no effect phenomenon: first, the privatization proceeds brought by the size of privatization were too small to affect the budgetary deficit, and second, the retaining of major SOEs by the government may leave the budgetary deficit to have little or no link to the privatization but reduces investment spending. Reduced investment spending implies a slower capital formation and lowers economic growth and the author advisesthe government to minimize its deficit before privatization.

Alemayehu (2015) analyzed the impact of privatization on firms' performance. As a policy, the government avoided incentives to public firms in the form of financial subsidies. Although it is difficult to segregate the amount of revenue that the government got from privatized firms through taxes, this author argues that the privatization process has contributed little to shaping the fiscal structure of the country. In terms of generating revenue, privatization proceeds accounted for about 10-21% of non-tax revenue and about 4-8% of the overall government revenue, excluding grants. Israel (2019) also evaluates the financial and operating performance of privatized Ethiopian firms, which were privatized during the period 2004 to 2015. The author finds that there is an increase in profitability, capital expenditures, operating efficiency, and output achieved by all privatized firms following privatization. While the author finds a significant decrease in employment and leverage following privatization.

Mahlet (2021) conducted on whether privatization has an impact on the economic growth of Ethiopia by considering GDP per capita as a proxy for economic growth and claims on private sector % of GDP to measure the magnitude of privatization using data from 1994 to 2019. The author finds that privatization and FDI have a positive and significant impact on long-run economic growth in Ethiopia but are insignificant in the short run. The author suggests that the insignificant impact could be a result of the problems encountered in the privatization process and some managerial changes might take a few years to affect performance as with other major institutional changes. Similarly, Mengistu (2020) asses the macroeconomic impacts of privatization in Ethiopia using the data from 1994 to 2018 focusing on the growth, fiscal, and debt relations. The author finds that privatization is highly correlated with a budget deficit and debt stock affects economic growth negatively both in the short run and long run indicating the debt overhang problem of the country which is a possible cause of privatization that does not have a long-lasting growth impact. He also finds that private sector contribution affects economic growth negatively in the long run and the positive economic growth impact of competitiveness comes from the country's trade potential and not from the policy of privatization.

A small-scale study conducted by Wolde (2010) found mass layoffs after the transfer of ownership. He also reported that the workers who became unemployed due to privatization did not receive any training for re-entry to the labor market either from the government or the new owners. Selvam et al., (2006) also examine the relationship between privatization and investment. The authors find out that coupled with economic and political instability, the effect of privatization on investment is robustly negative. Gross domestic savings as a share of GDP over the first phase of privatization accounted for 7.64%, which declined to 3.52% after privatization. They affirm that the nation's inherent problems of bureaucracy and property issues must be overcome to make the privatization program more fruitful in the aspect of investment attraction.

Other literature explored the impact of privatization on firms and the economy as a whole, more specifically:

Gebeyehu (2005) found thatSOEs outperformed the private sector in equipment per person, the value of productive assets, and employment and found 12% decrease in employment in Ethiopia privatized firms. Selvam (2008) identified that the production level declined by 14.21% in the post-privatization period (1995-2004), no positive shifts in management philosophy or training were found but there were modest gains in after-tax profit from 1995 to 2004. Besides Selvam, (2008) argued that technical efficiency improved after 2004 but Gebeyuhu (2005) finds that technical efficiency was not higher in privatized firms (69%) relative to SOEs (around 75%). Negash et al. (2018) conclude that privatization without changing the institutional framework would not bring improvement in the performance of SOEs or attract new investment. Raising extra revenue with the non-tax system to finance the growing investment need of the public sector reducing the size and improving the performance of the public sector and boosting the expansion of the private sector are common rationales behind privatization (Gulilat, 1994).

As already noted before, there are a few empirical proofs in linking privatization to income inequality in Ethiopia.As a consequence, implications underlying the relationship between privatization and income inequality in Ethiopia remain unknown. But the relationship between privatization and income inequality in Ethiopia can be discussed in light of market transition theory. According to this theory, employees in public sectors mayface reduced protection, reduced wages, and income when economic policy is taken in a more market-oriented direction, while individuals in the private sector may get better wages through the restructured system (Victor, 1989). Some empirical studies have shown evidence inconsistent with market transition theory as it ignores the fact that market and state are highly related. But this theory seems consistent in the Ethiopian context.

5. CONCLUSIONS AND RECOMMENDATIONS

5.1 Conclusions

Despite low-income countries including Ethiopia privatization has proven more difficult to launch, and less likely to generate quick, positive effects it is observed from this review that privatization can have either positive or negative impact on both economic growth and incomeinequalityandthepositive effect is dependent on the establishment of effective institutions. The effect on unemployment is ambiguous and no clear trend can be identified.

Finally, based on the debates on privatization this paper tried to review whether privatization has a positive impact or negative impact on the economy through economic growth, income inequality, and other channels. Based on my review the impact is mixed that is some studies conclude a positive impact while others conclude a negative impact of privatization on economic growth and income inequality. Based on this review my conclusion is that if privatization is implemented along with well-designed reforms, complementary policies, and the creation of regulatory capacity, it can have a positive influence

on economic growth and income inequality. Without such conditions, it would not bring any improvement in the economy.

5.2. Recommendations

Based on this review paper the following recommendations are offered:

Therefore, the Government should strengthen the existing privatization program, particularly in the manufacturing sector. Some of the success of privatization as a policy that promotes economic growth may lie in the fact that privatization leads to other structural changes in the economy, so privatization should be strengthened along with complementary policies. From the review, it is clear that there are no sufficient studies conducted in Ethiopia on the social impact of privatization and environmental implications, on income inequality, employment effects, and wealth and income distribution. Hence before implementing the privatization program further, the policymakers should identify factors for the successful implementation of the program and its impact on income inequality.

To enhance the contribution of foreign direct investment, the government needs torevise and strengthen privatization policies to increase FDI which is believed as a backbone of growth. This includes an increased capability of advanced technology, increased access to foreign savings; improve infrastructure, and access to the international market. Besides the role of the state has not to be limited to the provision of certain economic and social infrastructures but go as far as investing in areas where the private sector is unable to involve due to fear of long gestation periods, huge capital requirements, and less profitable in purely financial terms.

Rapid deregulation has rarely been a good strategy, particularly in the banking and finance sector as the experience of Chile and Mexico showed in the 1990s. Hence, Ethiopia's cautious stance in opening up the financial sector to foreign private capital is appropriate. It is also important to ensure that while the current privatization initiatives are focused on privatizing large SOEs (e.g. power, logistics, and telecoms), the necessary support should be provided to a large number of SMEs and self-employed individuals if the country has to move to middle-income status. Finally from the review, some studies report that joint ventures perform better than wholly foreign-owned and domestic firms. This suggests that both domestic and foreign parties of a joint venture bring in important and complementary attributes essential to achieving high performance. This provides an important insight into the type of privatization a country like Ethiopia should attract.

6. REFERENCES

Abdulkadir S. A. (2016). Privatization dragged out of a hat as part of an economic toolbox-evidence

from a cross country study. Master thesis of at Copenhagen University, Denmark.

Adams, S. (2007). The impact of privatization on economic growth and income inequality in Sub-Saharan Africa, Journal of Social, and Economic Studies, 31: 295-320.

Adams, S. (2009).Domestic investment, FDI and economic growth in sub-Saharan Africa.Journal of Policy Modeling, 31(6):939-949

Ahluwalia, M, S. (2002). Economic reforms in India since 1991: Journal of Economic Perspectives, 16 (3): 67-88.

Ahmad, M. (2017).Economic Freedom and Income Inequality: Economies, MDPI 5(2): 1-28,

Alemayehu, W. (2015). Effects of privatization on selected privatized public enterprises: pre and post privatization performance analysis. Addis Ababa University, Ethiopia.

Andic, F. (1992). Privatization theory and policy: United Nations Industrial. Development Organization156: 1¬-57

Ashenafi Desalegne, and Reddy, V.K. (2018). Impact of privatization on economic growth in Ethiopia, a time series empirical analysis, 1994-2017.

Auwalin, I. (2019). Privatization in developing countries: Sustainability and Socio-Economic Growth, Social Sciences, 1266–1269.

Bakkeli, N.Z. (2017). Income inequality and privatization: a multilevel analysis comparing prefectural size of private sectors in Western China. J. Chin. Sociol. 4, (7)

Balza, L., Jimenez, R. and Mercado, J. (2013).Privatization, institutional reform, and performance.IDB-TN-599. Inter-American Development Bank

Bandelj, Nina, and Matthew C. Mahutga. 2010. How socio-economic change shapes income inequality in post-socialist Europe. Social Forces, 88(5): 2133–61

Bennett, D.L and Vedder, R.K. (2013) A dynamic analysis of economic freedom and income inequality in the 50 U.S: The Journal of Regional Analysis and Policy, 43(1): 42–55.

Bennett, J. (2004). Methods of Privatization and Economic Growth in developing and Transition Economies: Working Paper No 105.04. Milano, Italy.

Berg, E, and Shirley, M. (1987).Divesrifure in Developing Countries, World Bank Discussion Paper 11: Washington, DC: The World Bank.

Boubakri, N., Cosset, J., Debab, N. and Valéry, P. (2009). The dynamics of foreign direct investment and privatization: An empirical analysis. Management international, 13(2): 81–92.

Cass, R.A. (1988). Privatization: Politics, Law and Theory, Marq.L.Rev. 71(3): 449-523

Cavaliere, A., Scabrosetti, S. and Lavoro, N. U. (2006). Privatization and Efficiency: From Principals and Agents to Political Economy.

Ceriani, L, Scabrosetti, S and Francesco, S. (2018). Inequality, privatization and democratic institutions in developing countries, Working Papers 118

Chao, C., Hazari, B. and Yu, E. (2006). Rising wage inequality in developing economies: Privatizationand competition. Journal of Economic Development, 15(3):375–385.

Chong A. and López, F. (2003). The truth about privatization in Latin America: Research Network Working Paper.

Cook, P and Uchida, Y. (2003). Privatization and economic growth in developing countries: Journal of Development Studies, 39(6): 121-154

Dejene Gizaw. (2015). The impact of foreign direct investment on economic growth: A case study of Ethiopia.

Deneke, S. (2001). International Conference on African Development Private Sector Development in Ethiopia

Dharwadkar, B., George, G. and Brandes, P. (2000). Privatization in Emerging Economies: An Agency Theory Perspective, 650–669.

Easterly, W. and Levine, R. (2002). How Endowments Influence Economic Development. National Bureau of Economic Research Working Paper 9106. Cambridge, MA.

Estrin, S and Pelletier, A. (2018). Privatization in developing countries: What are the lessons of recent experience? The World Bank Research Observer, 33(1):65–102.

Fabian, G. (2007). Privatization and output behavior during the transition: Journal of Comparative Economics, 35(1): 3-34.

Federal NegaritGazeta (FNG). (1998). Privatization of Public Enterprises in Ethiopia, Report

Filipovic, A. (2005). Impact of privatization on economic growth: Issues in political economy Vol.14

Gebeyehu, W. (2005). Has privatization promoted efficiency in Ethiopia? A comparative analysis of state owned and privatized industries, Ethiopian Journal of Economics, 9(2):109–133.

Ghosh, S. (2004). Move to Markets. An empirical analysis of privatization inDeveloping Countries: Ph.D. Dissertation. University of North Carolina at ChapelHill.

Goran, M. M., Almas, H. and Nabaz, T. K. (2020). The dynamics of private sector development in natural resource dependent countries, Global Economic Review, 49(4): 396-421

Gulilat Kebede. (1994). Privatization and Public Enterprises Reform: Modalities and Sequencing. Addis Ababa, Ethiopia.

Gupta, N. (2005). Partial privatization and firm performance.Journal of Finance, 60: 987-1015.

Hall, C and Lawson, A. (2014). Economic freedom of the world: an accounting of the literature.

Hansson, G. (2004). Economic performance and the role of the private sector in Ethiopia: Country economic report, SIDA.

ICD. (2019). Economic Growth: Private Sector Development.

IMF (2018). Debt sustainability analysis of low income countries; IMF Country Report

Israel Birhanu. (2019). A pre and post privatization performance of state owned enterprises:A case study of privatized firms in Addis Ababa, Ethiopia.

Jefferson, G. (1998). China's State Enterprises: Public Goods, Externalities, and Coase. The American Economic Review, 88(2): 428-432.

Jeffrey, S and Schoenberg, M. (2006). Government Privatization: History and Issues in the US.

Jomo, K.S and Mahmood, A,M. (1994).Privatization and public sector reforms: The political economy of state intervention. The Pakistan Development Review, 33(4): 647-659

Jomo, K.S. (2008). A critical review of the evolving privatization debate: successes and failures.

Jones, L., Pankaj T. and Ingo, V. (1988). Net benefits from privatization: a valuation methodology, unpublished paper, Boston University.

Kedir, A.M. and Biniam E. B. (2020). Privatization for sustainable growth in Ethiopia:International Growth Centre 19064-ETH-1.

Kivisto, J. (2007). Agency theory as a framework for the government-university relationship: Tampere sis university press.

Kumssa, A. (1996). The political economy of privatization in Sub-Saharan Africa: International Review of Administrative Sciences. 62: 75-87. London.

Li, B., Megginson, L., Shen, Z. and Sun, Q. (2016) Do share issue privatizations really improve firm performance in China? Working Paper.

Mahlet Belay. (2021). The effect of privatization of public enterprises on economic growth, in Ethiopia.

McKenzie, M. (2011). Privatization and economic growth in Australia: The shorthand of a long process, Applied Economics, 40: 1953-1967.

Megginson, W. (2005). The financial economics of privatization, Foreign Policy, 118: 14-27.

Megginson, W.L. (2017), "Privatization, State Capitalism, and State Ownership of Business in the 21stCentury", Foundations and Trends R in Finance: 11(2):1–153.

Mengistu Alamneh. (2020). The macroeconomic impacts of privatization in Ethiopia: a time series analysis, Addis Ababa, Ethiopia.

Miguel, N and Ballesteros, B. (2020). Effect of privatization on income inequality: a European analysis. Empirica, 48: 697-716

Negash, M., Hassan, S., Girma, A. and Kebede, E. (2018). Rethinking the Ethiopian privatization, Pambazuka News.

Nellis, J. (2008). Privatization in Africa. What has happened? Privatization: successes and failures.

Ntiri, C. A. (2010). Can the performance of the state-owned enterprises improve when privatized? A Case study of Ghanaian based firms, Blekinge Institute of Technology, Ghana.

Odukoya, A. O. (2007). Theoretical and empirical issues in privatization: A Comparative study of the British and Nigerian Experience, 14(1): 25–43

Oliver, C and Bhatia, A. (1998). Privatization in Africa. Washington D.C.: The World Bank.

Omran, M. (2004). The Performance of public and newly privatized firms: Does privatization really matter? World Development, 32 (6): 1019-1041.

Ozata, E. (2014). The macroeconomic impacts of privatization: the Case of Turkey. Journal of Business,

Economics, and Finance, 2(5)

PB (Privatisation Barometer). (2017). Privatization Cumulative Value.

Piketty, T. (2014) Capital and privatization in the 21st Century. Cambridge, MA: Belknap Press.

Plane, P. (1997), Privatization and economic growth: An empirical investigation from a sample of developing market economies. Applied Economics, 29(2): 161-178.

Rebeka Kebede. (2001). "The impact of privatization on technical efficiency of large

and medium scale manufacturing industries: A Firm Level Analysis, MSc. Thesis, Addis Ababa.

Roland, G. (2008). Privatization: Successes and Failures. Series: Initiative for Policy Dialogue, Columbia University Press.

Rothenberg, P. J. (1987). Privatization of public sector services in theory andpractice. Journal of Policy Analysis and Management, 6(4): 523-540.

Savas, E. S. (2000). Privatization and public private partnerships: New York: ChathamHouse Publishers.

Schipke, A. (2001). The Macroeconomics of Privatization, Berlin: Springer.

Schneider, F. (2003). Privatization in OECD countries: theoretical reasons and results obtained. CESifo DICE Report, ISSN 1613-6373, ifo Institut für Wirtschaftsforschung an der Universität München, München, Vol. 01, Iss. 3, pp. 24-29

Selvam, J. (2007). Privatization program in Ethiopia: is the cause justified? African Renaissance, 4(1): 66–75.

Selvam, J. (2008). The Impact of privatization on fiscal deficit and management Issues, Journal of Management Research, 8(1)

Selvam, J., Meenakshi, S and Iyappan, T. (2006). Ethiopian privatization paradigm and investment: An empirical analysis. Growth and Development, (The Proceedings of the Third International Conference on Ethiopian Economy), Gete Alemu, ed., Vol. 1, Ethiopian Economic Association, June 2006

Shapiro, C and Willig, R. (1994). Economic rationales for the scope of privatization in: Suleiman and Waterbury (eds.), the political economy of privatization, Westview Press.

Sharda, A. (2019). Privatization: Features, Objectives and its economic implications in the world.

Sheshinski, E., and López-calva, L. F. (2003). Privatization and its benefits: Theory and Evidence, 49: 429–459.

Smith, D and Trebilcock, M.J. (2001). State-owned enterprises in less developed countries: privatization and alternative reform strategies', European Journal of Law and Economics, 12: 217-252.

Sobir, S., Maitah M., and Smutka L. (2016). The Impact of privatization on economic growth: The Case of Uzbekistan. International Journal of Economics and Financial Issues, 6: 948-957

Soltani, H and Anis, O. (2012). Foreign direct investment and economic growth: the case of Tunisia, Journal of Applied Finance and Banking, 2 (4).

Starr, P. (2018). The Meaning of Privatization.Yale Law and Policy Review 6: 1–10.

Stiglitz, J. (1999). The privatization process and activities.In Corporate Governance Failures in the Transition. Paris: World Bank.

Suleiman, S. M., Hamad, A. U., and Sulai, M. B. (2017). Governance and management of state-owned enterprises in Zanzibar: A proposed model for effective performance. Mediterranean Journal of SocialSciences, 8(5): 159-169.

Tanzi, V. and Schuknecht, L. (2000). Public Spending in the 20th Century: A Global Perspective. Cambridge University Press.

Tejvan, (2020). Advantages and problems of privatization.Studies of UK Privatization.

Todo, Y. (2016). The effects of privatization on exports and jobs in China, IZA World of Labor 309

Ujkan, Q. B., Armand, K and Podvorica, A. (2021). Privatization of socially owned enterprises, the methods used and the impact on economic growth: Evidence from Kosovo, Economic Research.

UNCTAD. (2019). World Investment Report, Geneva, Switzerland.

Vernon-Wortzel, H. and Wortzel, H.L. (2004). Privatization not the only Answer, World Development 17(5): 633–41.

Vickers, J. and Yarrow, G. (1988). Privatization: an economic analysis, Cambridge: MIT Press

Victor, N. (1989). A Theory of Market Transition: From Redistribution to Markets in State Socialism. AmSociol Rev, 54(5): 663–81.

Vujacic, I and Vujačić, J. P. (2011). Privatization in Serbia results and institutional failures: Economic

Annals, 56(191): 89–105.

Vuksic, G. (2016). Effects of private ownership, trade, and foreign direct investment on labor productivity growth in transition economies: Evidence from the Croatian manufacturing industry. Emerging Markets Finance and Trade, 52(2):322–335.

Wang, S., Haque, M., and Lamb, S. (2016). Does transfer of control rights and private benefits of control increase efficiency? Evidence from China's privatization of the SOE's.Journal of ChineseEconomic and Business Studies, 14(4): 329-346.

William D. E. (1993). Privatization opportunities for advanced countries.The Mackinac Center for Public Policy, US.

Wodajo, T and Senbet, D. (2017).Does privatization improve productivity? Empirical evidence from Ethiopia, International Journal of African Development, 2(1).

Wolde, E. (2010). The social impact of privatization in Ethiopia: Master's thesis, University of South Africa).

World Bank. (2004). World Development Report, Oxford University Press.

World Bank. (2019). creating markets in Ethiopia sustaining progress towards industrialization: country private sector diagnostic.

Wu, Y and Yao, H. (2015). Income inequality, state ownership, and the pattern of economic growth: in case of China since 1978. Atlantic Economic Journal 43: 165–180.

Yarrow, G. (1999). The theory of Privatization. Why Bureaucrats are still in Business? World Development, 27(1):111-132

Young, R.A. (1991). Privatization in Africa: Review of African Political Economy, 51: 50-62

Zelnick, J and Dingerson, L. (2016). How privatization increasesinequality.In the Public Interest (ITPI) report.Washington, DC, US

Progress in e-government and tax revenue mobilization efforts in developing economies: panel data evidence

By

Wondemhunegn Ezezew[1]
Yibeltal Walle[2]

Abstract

In recent years, think tanks, national government entities and civic society organizations accentuate the multi-dimensional benefits from expanding public services and functions electronically. This paper examines whether e-government helps improve state capacity by boosting total tax revenue mobilization efforts in a panel of 62 low income and lower middle income economies over the period from 2008 to 2020. The E-Government Development Index (EGDI) published by the United Nations was considered as the key independent variable. The results from the application of linear fixed effect and system GMM panel econometric techniques confirm the existence of significant positive relationship between e-government progress and tax collection performance. Specifically, these findings suggest that a unit increase in e-government progress induces a 1.5 to 2 unit increase in total tax revenue in the sample of developing economies included in this study. The results were robust to a wide range of sensitivity analyses that considered alternative data transformation and outlier exclusion restrictions, among others.

Keywords: Tax revenue, e-government, system GMM, developing economies.

1 Associate Professor, School of Economics, University of Gondar
2 Assistant Professor, School of Economics, University of Gondar

1. Introduction

Recently considerable attention is being given to strengthen domestic resource raising efforts—particularly in developing economies, which stems from, inter alia, recognition in the increased domestic funding requirement of Sustainable Development Goals and the Addis Tax Initiative, which focuses on promoting more equitable and effective own revenue mobilization (McNabb, 2021). However, domestic revenue mobilization efforts in developing countries have lackluster[1] performance (see Figure 1) and are constrained by numerous bottlenecks. The most common problems include low per capita income dominated by subsistence agriculture (Yohou et al. 2016); institutional hurdles (Piancastelli and Thirlwall, 2015); armed conflict (van den Boogaard, et al., 2018); governance challenges (Prichard et al., 2018); limited financial inclusion (Oz-Yalaman, 2019); and heavy dependence on vulnerable commodity export sector which disproportionately affects least developed and landlocked developing economies (UNCTAD, 2019).

In developing countries where multifaceted problems abound, digital provision of government services and information (e-government) has great potential to enhance domestic revenue mobilization both directly and indirectly. For instance, Uyar et al. (2021) and Nimer et al. (2022) have shown that digitalization of government services has significant effect on reduction of tax evasion. In addition, cross-country cross-firm studies also indicate that reliance on e-filing systems decreases tax compliance costs in terms of time needed to prepare and pay taxes, the frequency of contact with tax officials, and the perception of tax bureaucracy as an impediment to firm performance and operation (Kochanova et al., 2020). Elbahnasawy (2021) relying on panel data analysis has confirmed that digital government leads to marked reduction in the activities of the shadow economy. Countries can also harness e-government to attract foreign capital (Han et al., 2021) and to boost economic growth (Majeed and Malik, 2016; Majeed and Ayub, 2018) by overcoming locational disadvantages that induce information asymmetry for domestic and foreign firms (Dunning, 1981; 1988; von Haldenwang, 2004).

These results imply the essence of e-governance goes well beyond online presence of the bureaucracy. The vital goal of e-government development is to facilitate smooth interactions among concerned agents: households, businesses and all tiers of the administration hierarchy (Basu, 2004). E-government applies e-commerce instruments and innovations to routine government activities. These instruments and innovations seek to benefit the government apparatus as well as its citizens (Howard, 2001). E-government can be harvested to achieve a wide range of social, economic and political objectives. Justice et al. (2006), for instance, emphasize the role of e-government in enhancing fiscal transparency, accountability, and responsiveness while Hopper et al. (2009) suggest that electronic provision of public services retrenches corruption by limiting physical contacts with bureaucrats, reducing time lags in decisions, and minimizing human-induced errors. Digital government can also improve public processes and simplify how individuals, civil society organizations, and firms use services, offer feedback, and interact with government (Ingram and Dooley, 2021).

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1 Out of the 23 African countries for which recent data is available, 17 (about 74% of the sample) have tax-to-GDP ratios significantly lower than 20% which compares starkly, for instance, with the OECD average of about 34% during comparable years.
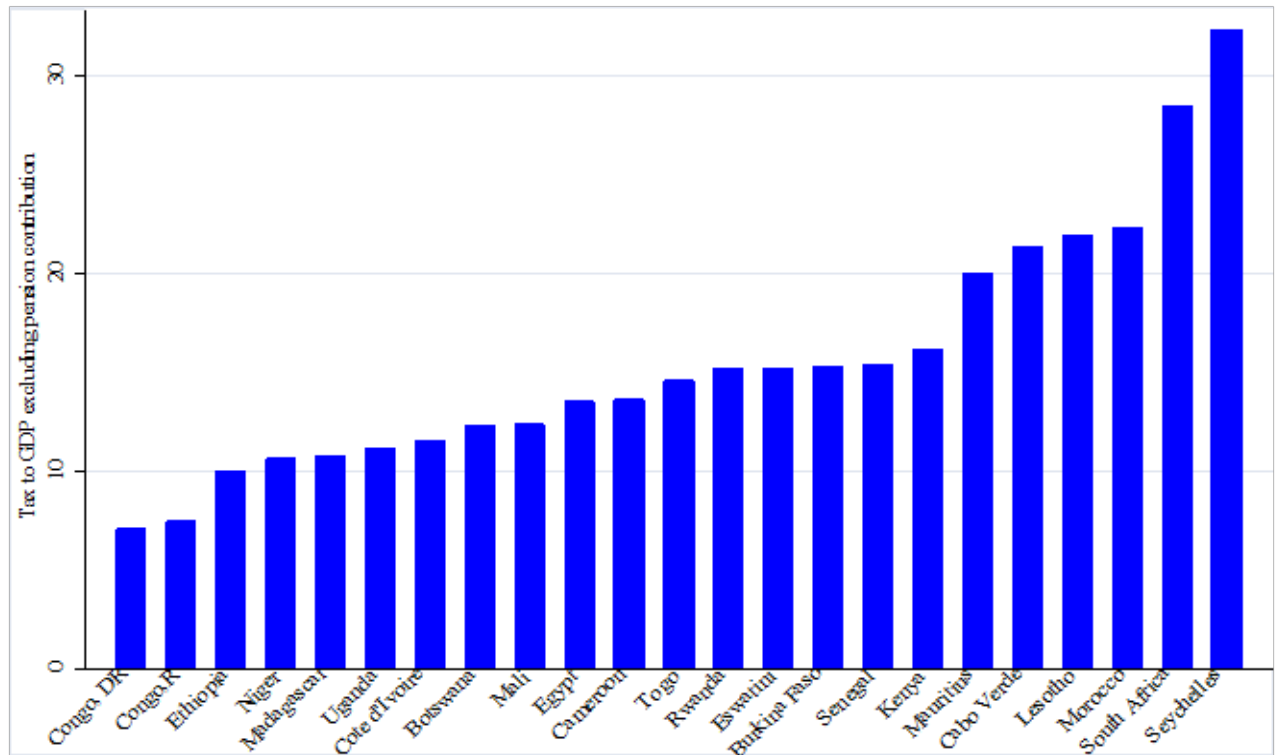
Figure 1: Tax revenue (%GDP) across selected African countries.

Source: Own production using UNU-WIDER dataset (2021).

Note: Data is from 2018 for most of sample countries with the exception of Egypt (2021) as well as Ethiopia, Mauritius, Rwanda and South Africa whose latest data is from 2019.

The extant literature reveals very few previous systematic investigations that try to determine the possible connection between e-government development and national revenue mobilization efforts. One such related endeavor was by Gnangnon and Brun (2019) who studied the possible effect of the Internet on shifting dependence from resource revenue towards non-resource revenue. They relied on a sample of 99 developing and developed economies covering the time period from 1995 to 2015. The GMM estimation results suggest that the Internet leads to a change in the structure of government revenue, in particular from reliance on resource revenue towards progressive reliance on non-resource revenue. In addition, they show that their result was stronger for developing economies than for more advanced nations.

The remaining part of the paper has the following organization. Section 2 summarizes the relevant existing literature to set the stage for the empirical analysis. Data and methodology are treated in section 3. Section 4 will present and discuss the estimation results while section 5 shall offer conclusion and possible policy recommendations.

2. Literature review

Revenue mobilization effort is among the most widely examined issues both in macro and micro settings (see, for instance, Mogues and Benin, 2012; Lien, 2015; Masaki, 2018; Gnangnon and Brun, 2019; and Mawejje, 2019). However, the link between tax revenue and e-government remains underexplored, especially in developing economies. In the following segments we provide review of the relevant existing body of knowledge on the determinants of government tax revenue and highlight the salient gaps that this particular study would strive to fill.

2.1. Economic and demographic determinants

Most previous studies confirm that gross domestic product (GDP)—the common tax base for any economy—has strong positive correlation with tax revenue measures. The intuition is that economic progress induces improvement in tax collection as marked income growth reduces taxpayer resistance towards compliance due to declining marginal utility of money and increasing number of wage earners crossing into taxable income brackets. In addition, robust economic growth and expanding GDP enhance the government's capacity to mobilize resources (Besley and Persson, 2009; Muibi and Sinbo, 2013). Besides the size, the structure of the candidate economy is also very important (Yohou et al.; Elbahnasawy, 2021). In general, economies dominated by agriculture and informality have lower tax collection performance.

The degree of integration with the rest of the world also plays an important role in improving tax revenue as governments can levy and collect tariff, consumption taxes, and other surcharges on imported goods and services. Piancastelli and Thirlwall (2015), Nnyanzi et al. (2016), and Oz-Yalaman (2019) have used variants of economic integration measures among determinants of tax revenue. Apart from economic interdependence, internal macroeconomic stability is expected to enhance tax revenue mobilization across countries. Inflation is the standard choice to control for the role of macroeconomic stability (Yogo and Ngo Njib, 2018; Mawejje, 2019). Historically, low and stable price dynamics help improve tax revenue receipts.

Though results are not conclusive, it has also been argued that access to non-tax revenue sources can influence governments' tax revenue mobilization activities. For example, it is argued that concessional loans have significant positive effect while grants have significant negative effect on revenue mobilization efforts. Empirical results were also confirmed by Thornton (2014) in a study of 93 developing countries over the period from 1984 to 2009 and Benedek et al. (2014) in a study of 118 economies over the period from 1980 to 2009. The effect of aid on tax revenue can also be magnified or diluted by the presence of intermediating factors. In this regard, Yohou et al. (2016) found that aid decreases tax revenues but revenue performance improves in response to aid inflow in the prevalence of higher levels of government stability. In addition, aid impact of tax performance can be sensitive to the institutional qualities of aid dependent economies. The 'resource curse' doctrine has also pointed out the existence of a negative relationship between natural resource abundance and tax revenues (e.g. Mawejje, 2019). The argument often borders on moral hazard problems where governments that enjoy large resource royalty bonanza have less incentive to engage in the often politically unpopular task of imposing and raising tax revenues.

Other common socioeconomic predictors of tax revenue include education and population. Some scholars (e.g. Torgler and Schaltegger, 2005) link education level to tax morale. It is claimed that more educated citizens are quick to appreciate their governments' efforts and are also more likely to comply with their tax obligations as they enjoy higher compensation and more stable employment than their less educated

counterparts. Empirically, Nimer et al. (2022) have found that education magnifies the role of digital infrastructure in minimizing tax evasion while Castro and Camarillo (2014) found no significant effect of education on tax revenue. Regarding population, the extant literature on tax revenue determinants indicates inconclusive results. Rashid et al. (2020) found no systematic association between population and total tax revenue while Gnangnon (2017) found significant positive effect of population growth on tax revenue using system GMM method.

In addition to economic indicators such as GDP, it has also been postulated that the types and intensities of macroeconomic policy practices also influence the level of tax collection across countries and over time. For instance, Amoh and Adom (2017) using time series data for Ghana demonstrated that fiscal policy (approximated by government expenditure) has significant and positive effect on tax revenue while Kalaš et al. (2020) confirmed government expenditure has significant positive effect on tax revenue using panel data for members of the European Union. Zarra-Zezhad et al. (2016) relying on a panel of 83 economies over the period 1990-2012 controlled for an aspect of the monetary policy regime using exchange rate movements. They found a significant negative effect of exchange rate depreciation on tax revenue. The implication is that if central banks embark on loose monetary policy stance, the resulting fall in the domestic currency would make imports more expensive thereby reducing import volumes and tariff revenue opportunities.

2.2. Institutional determinants

Tax revenue performance depends not just on the size and structure of the economy under scrutiny but also on a host of institutional factors that could enhance or impede resource mobilization arrangements. Wu and Tung (2005) have emphasized the importance of non-economic factors in influencing tax efforts. For instance, citizens' perceptions about state legitimacy could be critical in shaping tax collection outcomes (Bird et al., 2008). This suggests that tax compliance responds to enforcement mechanisms (such as detection likelihood and severity of punishment) as well as to socioeconomic conditions that elevate the non-compliance costs for taxpayers when they do not observe established societal mores (Cullis et al., 2012). In other words, democratic and peaceful political systems bring about better legitimacy credentials and allegiance from their voters which lead to improved tax compliance (Zarra-Zezhad et al., 2016).

Empirically, Yogo and Ngo Njib (2018) demonstrate that political competition positively and significantly affect total tax revenue. Moreover, it is also argued that legitimacy enhancing developments including political competition and electoral participation positively affect local government operating expenses, revenue generation, investment and savings (Daniela et al., 2021). By contrast, a system rigged by corruption can retard the optimal generation of tax revenue (Yaru and Raji, 2022). Rashid et al. (2020) also report the counter-intuitive findings that democracy has negative or insignificant effect on tax revenue in developing countries while it has positive significant effect in advanced economies.

2.3. Information and communication technology (ICT) determinants

The prevailing related literature shows that e-government has great potential to enhance domestic revenue mobilization both directly and indirectly. For instance, digitalization of government services has significant effect on reduction of tax evasion (Uyar et al., 2021 and Nimer et al. (2022). In addition, encouraging taxpayers to use e-filing systems retrenches tax compliance costs (Kochanova et al., 2020). Elbahnasawy (2021) relying on panel data analysis has confirmed that digital government leads to

marked reduction in the activities of the shadow economy. National economic architects can also exploit e-government services to promote foreign direct investment receipts (Han et al., 2021) and to support growth (Majeed and Malik, 2016; Majeed and Ayub, 2018) by overcoming locational disadvantages that induce information asymmetry for domestic and foreign firms (Dunning, 1981; 1988; von Haldenwang, 2004).

However, the extant literature reveals very few studies that attempt to establish the nexus between e-government and tax revenue. One such related endeavor was by Gnangnon and Brun (2019) who studied the possible effect of the Internet on shifting dependence from resource revenue towards non-resource revenue. Their findings confirmed that the Internet leads to a shift from reliance on resource revenue towards progressive reliance on non-resource revenue.

The present study introduces at least three important contributions. First, the aforementioned study relies on a narrow proxy for digital innovation--internet penetration--which does not discriminate among digital technologies that are relevant for economic growth and/or tax revenue performance. In this study, a broader measure produced by the United Nations—the e-government development index (EGDI) will be employed. EGDI is a more comprehensive indicator as it reflects a weighted average of telecommunication infrastructure, government online presence, and human capital progress. Second, Gnangnon and Brun (2019) consider only about half of African countries in their analysis which is unlikely to capture the full-picture dynamics for the entire region. Consequently, the present study will focus on 62 low and middle income economies of which more than half of them hail from the Sub Saharan African region. Third, this study attempts to capture the effect of e-government on total tax revenue with special emphasis on developing countries where tax administration capacity teeters behind the rest of the world.

In light of the foregoing discussion, the key hypothesis this study would aim to test is the following:

H0: E-government has no systematic connection with tax mobilization efforts in developing economies.

3. Materials and methods

3.1. Data

Data for the present study were obtained from various sources as it was difficult to collect all the necessary variables from a single publisher due to incompleteness. The focus is on low-income and lower-middle-income economies based on the 2022 World Bank classification of countries. Most Sub Saharan African economies with complete set of observations have been included and other developing countries are also incorporated for comparison (see appendix for the list of sample countries). The time coverage runs from 2008 to 2020 which was carefully chosen to coincide with the availability of the e-government development index (EGDI) which has been released every two[1] years over the past two decades. All independent variables are averaged over two-non-overlapping year period to establish correspondence with the EGDI variable (see appendix for the source and list of model variables).

3.2. Econometric model

One major advantage of longitudinal data is that it helps the researcher accommodate the presence of

[1] The first three reports were released in 2003, 2005, and 2008. Since 2008, the EGDI index has been reported every two years. The study will consider reports from 2008 and onwards since in the dynamic GMM model applying lag operator requires regularity of frequency for each series included in the estimation exercises.

state dependence over time. Since we have observations both across units and over time, we can try to weigh whether past realizations determine current and future path of the specific outcome variable. The key linear dynamic panel data model considered is formulated as:

$$y_{it} = \rho y_{it-1} + x_{it}b + a_i + u_{it};\qquad\qquad (1)$$

with $t = 1, 2, ...T$ and $i = 1, 2, ...N$. As usual b is a K by 1 vector of parameters associated with the time-varying independent variables x_{it}. We observe x_{it} and y_{it} while a_i and u_{it} are both unobservable individual heterogeneity and residual component, respectively. This is the familiar linear panel data model except that the lagged value of the dependent variable now appears as additional explanatory variable on the right hand side of the equation. Dynamic specification is one main source of endogeneity in empirical analysis. That is, with lagged dependent variable used as regressor, we have:

$$\text{cov}(y_{it-1}, u_{it-1}) = \text{cov}(y_{it}, u_{it}) \neq 0$$

Moreover, as the lagged value of y is a function of the unobserved individual error component, we also have:

$$\text{cov}(y_{it-1}, a_i) \neq 0$$

Consequently the parameter estimates ρ and b will be inconsistent even when the unobserved fixed effect component is distributed independent of the time-varying regressors. In fact, Nickell (1981) has shown that the magnitude of this bias can be particularly substantial in short panels.

Thus, including lagged dependent as potential predictor creates endogenous feedback effects that contaminate the consistency of the coefficient estimate for the lagged regressor. As a result, efficient and consistent estimation can be achieved using the 'system' GMM technique suggested by Blundell and Bond (1998). The GMM method applies when we have more instruments than the number of endogenous independent variables—under a situation where our model is over-identified. One major advantage of GMM over other estimation techniques (e.g. Maximum Likelihood approach) is that it does not require specifying the complete probability distribution of the variables under consideration. The GMM method also helps overcome computational difficulties associated with specifications that have non-tractable likelihood functions. Arellano and Bond (1991) as well as Arellano and Bover (1995) proposed a differenced GMM estimation using all possible higher order lags of the level dependent variable as instruments, that is, by exploiting all potential moment conditions based on the specification:

$$\Delta y_{it} = \rho \Delta y_{it-1} + \Delta x_{it}b + \Delta u_{it},\qquad\qquad (2)$$

Blundell and Bond (1998) pointed out that the Arellano-Bond technique faces problems when the auto-regressive parameter in the linear dynamic specification is close to unity and suggested using lagged differences of the dependent variable as additional instrument set would improve efficiency. It is also very important to remember that using so many lags both under the Arellano-Bond or the system GMM approaches leads to the loss of several observations thereby compromising originally promised efficiency gains.

Based on the preceding discussion, the empirical model for analyzing the effect of e-government on

tax revenue is expressed as:

$$tax_{it} = \rho * tax_{it-1} + a_1 * egoernment_{it} + b_k * x_{it,k} + a_i + u_{it}, \qquad (3)$$

The dependent variable is total tax revenue (tax) expressed in terms of its share relative to country GDP. The target independent variable is e-government measured as weighted average of each country's telecommunication infrastructure, human capital progress, and online service facilities. Normally, non-resource tax revenue is used due to the fact that resource royalties are not predictably shaped by economic policy instruments and their exclusion from total tax revenue helps achieve some degree of homogeneity in revenue composition across economies (Gnangnon and Brun, 2019; Gnangnon, 2022). In this study, the attempt to exclude resource tax and social security contributions was not feasible as the vast majority of developing countries would not have complete observations under those circumstances.

The selection of the remaining control variables draws from the extensive existing literature on the determinants of tax revenue. Thornton (2014), Yohou et al. (2016), and Elbahnasawy (2021), among others, have shown that structural factors such as level of economic development and agricultural share in GDP are key predictors of revenue mobilization efforts. It is expected that an expanding economy enhances government capacity to impose and raise more in tax revenue as a result of broader taxable resource base. By contrast, pervasive agricultural share of GDP hinders such capacity because of low value addition and massive costs of tax collection from remote and scattered rural areas with limited awareness and poor infrastructure, which is particularly true for developing countries. Elbahnasawy (2021) has used intensity of informal economy to study its effect on the degree of tax evasion. As a related aspect of overall economic profile, inflation is the standard choice to control for the role of macroeconomic stability (Yogo and Ngo Njib, 2018; Mawejje, 2019).

The degree of integration with the rest of the world also plays an important role in improving tax revenue as governments can levy and collect tariff, consumption taxes, and other surcharges on imported goods and services. Piancastelli and Thirlwall (2015), Nnyanzi et al. (2016), and Oz-Yalaman (2019) have used variants of economic integration measures among determinants of tax revenue. The existing literature has also pondered the possible impact of access to non-tax revenue on tax collection performance. In this regard, speculations involve around the role of external aid (Thornton, 2014; Yohou et al., 2016) or natural resource abundance (Mawejje, 2019). Empirical verdict on the effects of aid and resource abundance remain inconclusive as the transmission mechanisms often depend on the presence or absence of other intermediating factors such as responsive governance and political pluralism.

As a result, institutional quality and governance proxies are commonly included in tax revenue analysis across economies (Gould and Baker, 2002; Lien, 2015; Zarra-Nezhad et al., 2016; Prichard et al., 2018; Yaru and Raji, 2022). This study exploits the Worldwide Governance Indicators published by the World Bank (WB, 2022). These indicators include control of corruption, governance effectiveness, regulatory quality, rule of law, political stability and absence of violence as well as voice and accountability measures. (See table AI in the appendix for definition and sources of variables). Finally, policy relevant variables that capture fiscal policy[1] stances are included as these variables have been found to have significant effect on tax revenue efforts (e.g. Zarra-Zezhad et al., 2016; Amoh and Adom, 2017; Kalaš et al., 2020).

1 Data incompleteness and inconsistency did not permit to control for monetary policy. However, exchange rate variable has been included as strengthening local currency, for example, could imply tight monetary policy stance and vice versa.

4. Results and Discussion

4.1. Descriptive results

Table 4.1 presents the descriptive summary statistics based on 62 low income and lower middle income economies covering the period from 2008 to 2020. Since the e-government development index (EGDI) is published every two years, the remaining variables have also been averaged over a two-year window period to create temporal correspondence between the two. The target dependent variable—total government tax revenue expressed as percentage of GDP—ranges from a dismal minimum value of 2.2 to a maximum value of 52.6 which rivals tax mobilization performance in high income economies. The average tax to GDP ratio during the study period is about 14 percent with moderate level of volatility that amounts to 6.6 standard deviation units. Looking at the target independent variable (EGDI), e-government development varies from 0 to a maximum value of 0.71. The average value of digital government is about 0.34 which is substantially lower than in advanced industrial economies where e-government progress is nearly three times stronger

The remaining variables also exhibit similar patterns. For instance, per capita income (measured in 2015 constant dollar) differs from a minimum of 321 to a maximum of 4831 with average value of 1790. Per capita GDP also reveals the highest recorded volatility with a value of 1139 standard deviation units. Inflation also ranges from as low as -10.5 to about 500 percentage points across the sampled economies during the selected time period. Fiscal activism— proxied by general government consumption spending expressed as percentage of GDP—is generally moderate with average value of 15 percentage points but with marked variability covering the range from 2.6 to 52.4. Low income and lower middle income economies also reveal significant external imbalances with average import and export values relative to GDP bordering 44 and 30 percentage points, respectively.

Table 4.1 Summary of descriptive statistics

Variables	N	Min	Max	Mean	SD
Taxes	434	2.20	52.55	14.20	6.57
E-government	434	0	0.71	0.34	0.13
GDP PC	434	321.13	4831.27	1790.80	1138.94
Inflation	434	-10.52	499.70	8.19	25.00
Government spending	434	2.63	52.39	14.90	7.34
GFCF	434	4.18	80.68	24.00	9.70
Exports	434	0.50	106.50	30.27	16.39
Imports	434	11.26	111.05	43.92	17.84
Agriculture	434	3.08	74.83	21.60	12.33
REER	434	65.46	227.00	110.11	21.00
Population growth	434	-0.87	4.02	2.04	0.924
Corruption control	434	-1.64	1.64	-0.60	0.56
Governance effectiveness	434	-2.10	0.70	-0.67	0.51

Political Stability and absence of violence	434	-2.48	1.25	-0.47	0.80
Regulatory quality	434	-2.07	0.32	-0.63	0.42
Rule of low	434	-1.88	1.09	-0.62	0.53
Voice & accountability	434	-1.85	1.14	-0.42	0.66

Another striking feature of these club of developing economies is that the average institutional quality measures are all negative suggesting the presence of significant dysfunctional bureaucratic inertia in corruption control, good governance, regulatory quality, respect for rule of law, political stability and accountability. In addition, there is little difference in institutional quality scores across these economies as the standard deviation scores are lower than unity across the six indicators.

4.2. Econometric results

The baseline empirical results that pin down the effect of e-government development on total tax revenue are displayed in Table 4.2. Four admissible static specifications[1] are presented, namely, pooled ordinary least square (POLS), within fixed effect (FE), random effect (RE) and panel corrected standard error (PCSE).

Common panel diagnostic tests—not reported in this paper—showed presence of unobserved fixed effects. The relevant Hausman test for endogeneity revealed strong correlation between unobserved heterogeneity and the time varying regressors. Various cross sectional dependence tests also confirmed spillover effects across economies. Thus, FE within and PCSE models with robust test statistics have been found to be the most favored estimations results in static settings.

Both the within FE and PCSE results indicate significant positive effect of e-government on tax mobilization efforts across developing economies. Specifically, a unit increase in digital government services induce about a four unit improvement in total tax collection, results that are statistically significant at 95 percent confidence level in the FE and at 99 percent confidence level in the PCSE models. Though not directly comparable, these results are similar with previous studies that examined the connection between taxation and progress in a variety of communication technologies. For instance, Uyar et al. (2021) and Nimer et al. (2022) found that digitalization of government services has significant effect on reduction of tax evasion while Kochanova et al. (2020) confirmed that encouraging taxpayers to use e-filing systems retrenches tax compliance costs. On a more closely related endeavor, Gnangnon and Brun (2019) found that the increase in internet penetration leads to a shift from reliance on resource revenue towards gradual reliance on non-resource revenue.

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[1] The Hansen (1999) fixed effect panel threshold method was also considered for possible asymmetric or non-linear effects. The results did not show significant presence of threshold relationships and have not been included in this paper. We promise to share the results upon reasonable request.

Table 4.2 Baseline estimates of the effect of e-government on tax revenue

	POLS	FE within	RE	PCSE
E-government	3.746*	4.283**	5.025**	3.824***
	(1.85)	(1.92)	(2.63)	(4.27)
GDP PC	0.001**	2.219	1.410*	1.039***
	(2.01)	(1.50)	(1.65)	(3.06)
Inflation	-0.009	-0.004	-0.006	-0.009*
	(-1.11)	(-0.72)	(-1.21)	(-1.74)
Gov. spending	0.590***	0.355**	0.423***	0.588***
	(13.66)	(5.90)	(8.38)	(9.52)
GFCF	-0.070**	0.109***	0.056**	0.077***
	(-2.85)	(3.51)	(2.06)	(-4.14)
Exports	0.020	0.069**	0.040	0.018
	(0.88)	(2.44)	(1.62)	(0.85)
Imports	0.074***	0.033	0.066**	0.078***
	(3.13)	(1.22)	(2.69)	(3.70)
Agriculture	-0.102***	-0.066	-0.081**	-0.098***
	(-4.83)	(-1.31)	(-2.26)	(-7.02)
REER	-0.008	-0.023**	-0.023**	-0.009
	(-0.74)	(-2.11)	(-2.34)	(-0.79)
Population growth	0.247	0.707	0.415	0.331**
	(0.84)	(1.23)	(0.99)	(2.09)
Corruption	-0.352	1.021	0.791	-0.283
	(-0.41)	(0.92)	(0.87)	(-0.50)
Governance effectiveness	-0.010	2.501**	2.047**	0.073
	(-0.01)	(2.35)	(2.10)	(0.11)
Political stability and absence of violence	0.465	0.604	0.521	0.422**
	(1.24)	(1.42)	(1.34)	(2.80)
Regulatory quality	1.057	-4.137***	-2.647**	1.052
	(1.26)	(-3.64)	(-2.76)	(1.19)
Rule of law	1.068	-1.675	-1.418	1.049
	(1.05)	(-1.46)	(-1.37)	(1.18)
Voice and accountability	-0.415	0.278	0.296	-0.425*
	(-1.00)	(0.37)	(0.49)	(-1.71)
Constant	5.157**	-13.035	-6.054	-1.399
	(2.78)	(-1.23)	(-0.91)	(-0.41)
Observations	434	434	434	434
R^2	0.65	0.47	0.56	0.65

Note: t values are provided in brackets   ***<0.01, **<0.05, *<0.1*

Several explanations can emerge that cement this significant positive effect of e-government on total tax performance across countries and over time. Justice et al. (2006), for example, accentuate the improvement in fiscal transparency, accountability, and responsiveness that occur in tandem with expansion in digital services and functions provided by governments. Hopper et al. (2009) suggest that digital delivery of bureaucratic services retrenches corruption by restricting physical contacts with officials, reducing time lags in decisions, and diminishing human-induced mistakes. Digital government can also improve public processes and simplify how individuals, civil society organizations, and firms use services, offer feedback, and interact with government (Ingram and Dooley, 2021). Using

experimental design, Banerjee et al. (2020) have also shown that e-governance reforms reduce leakages in program expenditures and increase employment, among others—which together have the potential to boost public revenue by increasing spending efficiency and boosting taxable bases for the government. Still another mechanism of action is improvement in quality of infrastructure that has implications for long term productivity growth. In this regard, relying on micro data from India and Indonesia, Lewis-Faupel et al. (2016) confirmed that public e-procurement practices attract high quality infrastructure contractors.

Table 4.2 also reveals that most control variables have marked influences on tax to GDP ratios across economies and over time. For instance, looking at the FE and PCSE results, GDP per capita has positive and significant effect on tax mobilization efforts suggesting expanding income broadens the taxable base for the government which is consistent, for istance, with the findings of Thornton (2014) and Yohou et al. (2016).

By contrast, movements in real effective exchange rate, agricultural share in GDP and inflation have negative significant effects implying appreciating exchange rate, large informality, and volatile macroeconomic environment hinder optimal tax collection by relevant authorities in developing economies. It is well known that stronger local currencies debilitate the external competitiveness of issuing countries by encouraging cheap imports and weakening exports. The resulting worsening of trade balance leads to external debt build up with potential macroeconomic ramifications due to inflated debt service payments, limited fiscal space, and economic stagnation. Similarly, large agricultural share of GDP also impedes tax effort in developing countries because of low value addition and punitive costs of tax administration, especially in distant and sparsely populated rural areas with limited awareness and poor infrastructure. High and volatile price changes and the attendant unpredictable macroeconomic conditions also discourage consumption, investment spending, and production which together weaken growth prospects and tax mobilization efforts.

Finally, among institutional quality indicators, governance effectiveness as well as political stability and absence of violence have strong positive influence on tax mobilization efforts in developing economies. Some predictors—like regulatory quality and voice and accountability—however, have significant negative effects which are at odds with conventional wisdom. This might be due to measurement error in those variables as they try to quantify qualitative aspects of national economies worldwide. Another possibility is misspecification in the static models. This particular problem is explored in the subsequent section by considering dynamic estimation techniques that control for omitted variable bias as well as for possible endogenous feedback effects.

Dynamic estimation results

Table 4.3 Two-step system GMM estimates of the effect of e-government on tax

	All sample-62	SSA-34	Remaining-28
L1. Tax revenue	0.727***	0.713***	0.445
	(33.4)	(33.49)	(1.12)
E-government	1.683**	4.45***	-0.846
	(2.46)	(3.33)	(-0.32)
GDP PC	1.609***	0.009	10.138*
	(4.40)	(0.01)	(1.95)
Inflation	-0.05**	-0.009**	-0.057
	(-2.2)	(-2.45)	(-0.94)
Gov. spending	0.091**	0.010	-0.002
	(2.95)	(0.12)	(-0.02)
GFCF	0.015	-0.019	0.200**
	(1.34)	(-0.35)	(2.66)
Exports	-0.04	-0.075**	-0.017
	(-0.41)	(-1.97)	(-0.44)
Imports	0.036***	0.108**	0.025
	(3.55)	(2.24)	(0.45)
Agriculture	0.029*	-0.039	0.238**
	(1.83)	(-1.53)	(2.22)
REER	-0.045***	-0.002	-0.019
	(-5.43)	(-0.11)	(-0.91)
Population growth	1.375***	-0.049	0.262
	(5.16)	(-0.03))	(0.26)
Corruption	0.583	0.301	-4.244*
	(1.33)	(0.15)	(-1.73)
Governance effectiveness	2.027***	-1.849	-5.491*
	(3.34)	(-0.77)	(-1.80)
Political stability and absence of violence	1.111***	1.205**	0.343
	(3.73)	(2.44)	(0.33)
Regulatory quality	-0.389	2.736	0.022
	(-0.73)	(1.01)	(0.01)
Rule of law	-2.157***	-1.665	1.196
	(-3.10)	(-0.91)	(0.42)
Voice and accountability	0.057	-1.389**	-1.896
	(0.23)	(-2.08)	(-0.93)
Constant	-9.172***	1.329	-81.293**
	(-3.03)	(0.10)	(-2.20)
Arellano-Bond test for AR(1)	0.098	0.168	0.075
Arellano-Bond test for AR(2)	0.655	0.717	0.006
Hansen test of over-identifying restrictions	0.992	1.000	1.000
Observations (net of lagged internal instruments)	354	196	157

*Note: Z values are provided in brackets ***<0.01, **<0.05, *<0.1*

Note: Unless otherwise stated, in the 'gmmstyle' of xtabond2 routine for GMM estimation in Stata 17, the first lags of e-government, GFCF, exports, imports and all institutional variables have been included with symmetric instruments set at 2 for both blocks (lagged e-government and the remaining predictors).

Static specifications are potentially vulnerable to omitted variable bias problem if the empirical relationship reveals strong state dependence. In other words, if lagged value of the dependent variable enters significantly, estimating static models gives misleading results. However, including lagged dependent

as potential predictor also creates endogenous feedback effects that contaminate the consistency of the coefficient estimate for the lagged regressor. As a result efficient and consistent estimation can be achieved using the system GMM technique suggested by Blundell and Bond (1998). Table 4.3 displays three estimation results based on dynamic system GMM approach. The second, third and fourth columns represent outputs for full sample, Sub Saharan African (SSA)[1] economies and the rest.

As reported in Table 4.3 column 2, lagged tax revenue has a coefficient estimate of about 0.73 and is statistically significant at 99 percent confidence level—hence justifying the necessity of applying dynamic estimation framework. The relevant results show that a unit increase in the weighted e-government index is associated with 1.7 unit increase in tax to GDP ratios across economies and overtime. The results are still significant at 95 percent confidence level. However, the magnitude of the coefficient estimate has declined by more than half compared with the FE and PCSE results reported earlier. This confirms the prior suspicion that the static models could be biased when possible persistence is present and is not accommodated. In addition, the sub sample estimation exercises reveal that the positive significant correlation between e-government and tax revenue level is stronger and more precisely identified for economies from SSA—which suggests that the full sample results are mainly driven by developments in SSA. One admissible reason could be the fact that SSA economies have, on average, lower tax collection efforts (about 13 percent relative to GDP) compared with the remaining group (15%). Apparently, starting from a lower base helps better realize the benefits of e-government on tax mobilization endeavors for economies operating below capacity.

Sensitivity checks for system GMM results

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1 Sub Saharan Africa (SSA) versus remaining group comparison can also be taken as indirect way of controlling for impact of outlier income observations. The average per capita GDP values for SSA and the rest are 1191 and 2466, respectively, in 2015 constant USD.

Table 4.4 Alternative data transformation and variable exclusion sensitivity ch on two-step system GMM estimation results

	FOD-Lags (2)	*FOD-Lags(1)*	*Without WGIs*
L1. Tax revenue	0.775***	0.698***	0.681***
	(34.97)	(51.95)	(47.50)
E-government	2.322***	1.345**	3.932***
	(3.69)	(2.19)	(6.63)
GDP PC	1.704***	0.042	-0.306
	(4.64)	(0.14)	(-0.81)
Inflation	-0.006***	-0.016***	-0.010***
	(-3.04)	(-5.17)	(-4.09)
Gov. spending	-0.001	0.043	0.154***
	(-0.04)	(1.68)	(9.73)
GFCF	0.009	0.044**	0.056***
	(0.84)	(2.80)	(4.29)
Exports	-0.014	-0.019	-0.014
	(-1.19)	(-1.41)	(-1.18)
Imports	0.059***	0.038**	0.033***
	(6.71)	(2.32)	(3.38)
Agriculture	0.029	-0.039**	-0.044***
	(1.66)	(-2.68)	(-3.56)
REER	-0.041***	-0.021***	-0.024***
	(-5.46)	(-5.06)	()-4.15
Population growth	1.447***	-0.176	-0.079
	(6.11)	(-0.61)	(-0.44)
Corruption	1.185**	0.464	
	(2.23)	(0.97)	
Governance effectiveness	1.560***	0.753	
	(3.25)	(1.01)	
Political stability and absence of violence	1.005***	0.293**	
	(3.31)	(2.03)	
Regulatory quality	-0.650	-0.726*	
	(-1.62)	(-1.69)	
Rule of law	-3.3250***	-1.296**	
	(-3.91)	(-2.16)	
Voice and accountability	0.471*	0.396	
	(1.80)	(1.08)	
Constant	-10.916***	4.346	
	(-3.29)	(1.55)	
Arellano-Bond test for AR(1)	0.101	0.110	0.111
Arellano-Bond test for AR(2)	0.725	0.730	0.697
Hansen test of over-identifying restrictions	0.999	1.000	0.681

*Note: Z values are provided in brackets ***<0.01, **<0.05, *<*

Table 4.5 Outlier impact sensitivity checks on two-step system GMM results

	Tax<40	*Tax>10*	*Tax ∈ (10,40)*
L1. Tax revenue	0.766***	0.754***	0.721***
	(40.46)	(26.45)	(23.48)
E-government	1.531**	1.865***	2.137***
	(2.78)	(2.88)	(3.04)
GDP PC	0.028	0.141	0.373
	(0.12)	(0.39)	(1.17)
Inflation	-0.009**	-0.006**	-0.005**
	(-2.16)	(-2.52)	(-2.69)
Gov. spending	0.038	0.015	0.0199
	(1.60)	(0.39)	(0.60)
GFCF	-0.008	0.017	0.009
	(-0.74)	(1.16)	(0.81)
Exports	-0.025**	0.019	0.021
	(-2.47)	(1.54)	(1.43)
Imports	0.051***	0.028**	0.024
	(4.71)	(2.24)	(1.60)
Agriculture	-0.006	-0.012	-0.014
	(-0.59)	(-0.90)	(-0.92)
REER	-0.027***	-0.028***	-0.041***
	(-6.11)	(-2.88)	(-5.34)
Population growth	0.193	0.681**	0.695*
	(1.00)	(2.51)	(1.88)
Corruption	-0.123	1.346***	1.087***
	(-0.25)	(3.41)	(3.21)
Governance effectiveness	2.30***	1.355*	1.663***
	(4.08)	(1.85)	(3.14)
Political stability and absence of violence	0.033	0.500	0.707**
	(0.14)	(1.54)	(2.43)
Regulatory quality	-1.482***	-0.496	-0.453
	(-4.69)	(-0.96)	(-0.85)
Rule of law	-0.901	-3.552***	-3.591***
	(-1.65)	(-5.90)	(-5.91)
Voice and accountability	0.377	0.653*	0.878*
	1.31)	(1.76)	(1.72)
Constant	3.962*	1.345	1.955
	(1.96)	(0.51)	(0.58)
Arellano-Bond test for AR(1)	0.098	0.095	0.096
Arellano-Bond test for AR(2)	0.655	0.113	0.144
Hansen test of over-identifying restrictions	0.992	1.000	1.000

*Note: Z values are provided in brackets ***<0.01, **<0.05, *<0.1*

The symmetric lag selection in the "gmmstyle" specification of xtabond2 in Stata 17 is 2 for all specifications except for Tax<40 in Table 4.6. For Tax<40 model, the second lag order was fixed at unity to achieve desirable diagnostic test results.

Table 4.4 and Table 4.5 show various robustness test exercises to see whether the baseline system GMM results hold up in view of changing assumptions and manipulations. First, alternative data transformation is considered via forward orthogonal deviation (FOD) under two different lag choices. In FOD, the group mean for within deviation transformation does not depend on all observations. Instead, average

values based on future data points are used to de-mean current observations. This approach somewhat relaxes the strong exogeneity requirement as applied in standard de-meaning where all observations are included in group mean calculations. In the second sensitivity test exercise, the potential for outsized influence of outlier observations is taken into account. In this case, three scenarios are examined: tax to GDP ratios below 10, above 40 or both are excluded from the original sample. Both Table 4.4 and 4.5 confirm that the economic and statistical significance of e-government remains appreciably unaffected under the candidate alternative estimation exercises. Collectively, these findings suggest that a unit increase in e-government progress induces a 1.5 to 2 unit increase in total tax revenue in the sample of developing economies included in this study.

5. Conclusions and recommendations

In recent years, think tanks, national government entities and civic society organizations accentuate the multi-dimensional benefits from expanding public services and functions electronically. This paper examines whether e-government helps improve state capacity by boosting total tax revenue mobilization efforts in a panel of 62 low income and lower middle income economies over the period from 2008 to 2020. The E-Government Development Index (EGDI) published by the United Nations was considered as the key independent variable. The choice of this target predictor was based on the fact that it is more comprehensive as it encompasses telecommunication infrastructure, human capital progress as well as online services provided by governments. The results from the application of linear fixed effect and system GMM panel econometric techniques confirm the existence of significant positive relationship between e-government progress and tax collection performance. Specifically, these findings suggest that a unit increase in e-government progress induces a 1.5 to 2 unit increase in total tax revenue in the sample of developing economies included in this study. The results were robust to a wide range of sensitivity analyses that considered alternative data transformation and outlier exclusion restrictions, among others. The findings suggest that national governments and concerned regional and global development partners can help bolster state capacity in terms of enhanced tax collection efforts in developing countries by helping improve the quality and quantity of digital public services and functions to businesses and citizens under their jurisdictions. States with improved tax capacity can achieve better social and economic outcomes which in turn set the stage for even better, more responsive fiscal performance.

Limitations and future research directions

Data inconsistency and incompleteness did not permit this paper to realize a number of useful enquiries. Future research can extend the present study in a number of directions if and when such data availability issues are resolved. These include considering the entire club of low income and lower middle income economies; using tax revenue net of pension contributions and resource royalties; examining the effects of e-government on different tax components (e.g. direct, indirect, tariff revenues, etc.), among others.

Availability of data and material

The authors are willing to share the data upon reasonable request.

Conflict of interest

The authors declare no conflicts of interest.

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References

Amoh, J.K. and Amoh, P. K. (2017). The determinants of tax revenue growth of an emerging economy - the case of Ghana. International Journal of Economics and Accounting, Vol. 8 No. 3(4), pp. 337-353.

Arellano, M., and Bond, S. (1991). Some tests of specification for panel data: Monte Carlo evidence and an application to employment equations. The Review of Economic Studies, Vol. 58 No. 2, pp. 277-297.

Arellano, M., and Bover, O. (1995). Another look at the instrumental variable estimation of error components models. Journal of Econometrics, Vol. 68 No. 1, pp. 29-51.

Banerjee, A., Duflo, E., Imbert, C., Mathew, S., and Pande, P. (2020). E-governance, Accountability, and Leakage in Public Programs: Experimental Evidence from a Financial Management Reform in India, American Economic Journal: Applied Economics, Vol. 12 No. 4, pp. 39-72.

Basu, S. (2004). E-government and developing countries: An overview. International Review of Law Computers & Technology, Vol. 18 No. 1, pp. 109-132.

Benedek, D., Crivelli, E., Gupta, A. S., and Muthoora, P. (2014). Foreign aid and revenue: Still a crowding out effect? Public Finance Analysis, Vol. 70 No.1, pp. 67-96.

Besley, T., and Persson, T. (2009). The origins of state capacity: Property rights, taxation, and politics. The American Economic Review, Vol. 99 No. 4, pp. 1218–1244.

Blundell, R. and Bond, S. (1998). Initial conditions and moment restrictions in dynamic panel data models. Journal of Econometrics, Vol. 87 No. 1, pp. 115-143.

Castro, G. Á., and Camarillo, D. B. R. (2014). Determinants of tax revenue in OECD countries over the period 2001– 2011. Contaduría Y Administración, Vol. 59 No.3, pp. 35-59.

Cullis, J., Jones, P., and Savoia, A. (2012). Social norms and tax compliance: Framing the decision to pay tax. The Journal of Socio-Economics, Vol. 41 No. 2, pp. 159-168.

Daniela, A.M., Goda, T., and Pozos, G. T. (2021). Political competition, electoral participation and local fiscal performance. Development Studies Research, Vol. 8 No.1, pp. 24-35.

Dunning, J. (1981). Explaining the international direct investment position of countries: Towards a dynamic or developmental approach. Weltwirtschaftliches Archiv, Vol. 117 No. 1, pp. 30-64.

Dunning, J. (1988). The eclectic paradigm of international production: A restatement and some possible extensions. Journal of International Business Studies, Vol. 19 No. 1, pp. 1-31.

Elbahnasawy, N.G. (2021). Can e-government limit the scope of the informal economy? World Development, Vol. 139 No. 1, pp. 1-24.

Gnangnon, S. K. (2017). Multilateral trade liberalization and government revenue. Journal of Economic Integration, Vol. 32 No. 3, pp. 586-614.

Gnangnon, S.K. (2022). Tax revenue instability and tax revenue in developed and developing countries. Applied Economic Analysis, Vol. 30 No. 88, pp. 18-37.

Gnangnon, S.K., and Brun, J.F. (2019). Internet and the structure of public revenue: resource revenue versus non resource revenue. Journal of Economic Structures, Vol. 8 No. 1, pp. 1-26.

Gould, A.C., and Baker, P.J. (2002). Democracy and taxation. Annual Review of Political Science, Vol. 5 No. 1, pp. 87-110.

Han, Y., Shao, X., and, Sang- Tsai, B. (2021). E-government and foreign direct investment: Evidence from Chinese cities. Journal of Global Information Management, Vol. 29. No. 6, pp. 1-17.

Hansen, B. E. (1999). Threshold effects in non-dynamic panels: estimation, testing, and inference. Journal of Econometrics, Vol. 93 No. 1, pp. 345-368.

Hopper, T., Tsamenyi, M,. Uddin, S., and Wickramasinghe, D. (2009). Management accounting in less developed countries: What is known and needs knowing. Accounting, Auditing and Accountability Journal, Vol. 22 No. 3, pp. 469- 514.

Howard, M. (2001). E-government across the globe: How will "e" change government? Government Finance Review, Vol. 17 No. 4, pp. 6-9.

Ingram, G. and Dooley, M. (2021). Digital government foundations for global development and democracy. Center for Sustainable Development at Brookings, Global Economy and Development working paper No. 163.

Justice, J.B., Melitski, J., and Smith, D.L. (2006). E-government as an instrument of fiscal accountability and responsiveness: Do the best practitioners employ the best practices? American Review of Public Administration, Vol. 36 No. 3, pp. 301-322.

Kalaš, B., Todorović, J. Đ., Marina, Đ. (2020). Panel estimating effects of macroeconomic determinants on tax revenue level in European Union. Industrija, Vol. 48 No.3, pp. 41-57.

Kochanova, A., Hasnain, Z., and Larson, B. (2020). Does e-government improve government capacity? Evidence from tax compliance costs, tax revenue, and public procurement competitiveness. The World Bank Economic Review, Vo. 34 No. 1, pp. 101-120

Lewis-Faupel, S., Neggers, Y., Olken, B.A., and Pande, R. (2016). Can Electronic Procurement Improve Infrastructure Provision? Evidence from Public Works in India and Indonesia, American Economic Journal: Economic Policy, Vol. 8 No. 3, pp. 258-283.

Lien, N.P. (2015). The impact of institutional quality on tax revenue in developing countries. Asian Economic and Social Society, Vol. 5 No. 10, pp. 181-195.

Majeed, M.T. and Malik, A. (2016). E-government, financial development and economic growth, Pakistan Journal of Applied Economics, Vol. 26 No. 2, pp. 107-128.

Majeed, M.T. and Ayub, T. (2018). Information and communication technology (ICT) and economic growth nexus: A comparative global analysis. Pakistan Journal of Commerce and Social Sciences, Vol. 12 No. 2, pp. 443-476.

Masaki, T. (2018). The impact of intergovernmental transfers on local revenue generation in Sub-Saharan Africa: Evidence from Tanzania, World Development, Vol. 106 No. 1, pp. 173-186.

Mawejje, J. (2019). Natural resources governance and tax revenue mobilization in Sub-Saharan Africa: The role of EITI. Resources Policy, Vol. Vol. 62 No. 1, pp. 176-183.

McNabb,K., Danquah, M., and Tagem, A.M.E. (2021). Tax effort revisited: new estimates from the Government Revenue Dataset, UNU-WIDER Working Paper 2021/170.

Mogues, T. and Benin, S. (2012). Do External Grants to District Governments Discourage Own Revenue Generation? A Look at Local Public Finance Dynamics in Ghana, World Development, Vol. 40 No. 5, 1054-1067.

Muibi, S., and Sinbo, O. (2013). Macroeconomic determinants of tax revenue in Nigeria (1970– 2011). World Applied Sciences Journal, Vol. 28 No.1, pp. 27-35.

Nickell, S. (1981). Biases in dynamic models with fixed effects. Econometrica, Vol. 49 No. 6, pp. 1417-1426.

Nimer, K., Uyar , A., Kuzey, C., and Schneider, F. (2022). E-government, education quality, internet access in schools, and tax evasion. Cogent Economics and Finance, Vol. 10 No. 1, 2044587, DOI: 10.1080/23322039.2022.2044587.

Nnyanzi, J.B., Babyenda, P., and Bbale, J.M. (2016). Regional economic integration and tax revenue: East African Community. Journal of Economic Integration, Vol.31 No.4, pp. 932-967.

Oz-Yalaman, G. (2019). Financial inclusion and tax revenue. Central Bank Review, Vol. 19 No. 1, pp. 107-113.

Piancastelli, M. and Thirlwall, A.P. (2015). The determinants of tax revenue and tax effort in developed and developing countries: theory and new evidence 1996-2015. Nova Economia, Vol. 30 No. 3, pp. 871-892.

Prichard, W., Salardi, P., and Segal, P. (2018). Taxation, non-tax revenue and democracy: New evidence using new cross-country data. World Development, Vol. 109 No. 1, pp. 295-312.

Rashid, H., Warsame, H., and Khan, S. (2020). The Differential impact of democracy on tax revenues in developing and developed countries, International Journal of Public Administration, DOI: 10.1080/01900692.2020.1741616

Thornton, J. (2014). Does foreign aid reduce tax revenue? Further evidence. Applied Economics, Vol. 46 No. 4, pp. 359-373.

Torgler, B., and Schaltegger, C. (2005). Tax moral and fiscal policy. Gellertstrasse: CREMA.

United Nations Conference on Trade and Development. (2019). Commodity dependence: A twenty-year perspective, New York, USA.

Uyar, A., Nimer, K., Kuzey, C., Shahbaz, M., and Schneider, F. (2021). Can e-government initiatives alleviate tax evasion? The moderation effect of ICT. Technological Forecasting & Social Change, Vol. 166 No. 1, pp. 1-10. https://doi.org/10.1016/j.techfore.2021.120597.

van den Boogaard, V., Prichard, W., Benson, M.S., and Milicic, N. (2018). Tax revenue mobilization in conflict-affected developing countries. Journal of International Development, Vol. 30 No. 1, pp. 345-364.

von Haldenwang, C. (2004). Electronic government (e-government) and development. The European Journal of Development Research, Vol. 16 No.2, pp.417-432

Wu, S.Y., and Teng, M.J. (2005). Determinants of tax compliance-a cross country analysis. Public Finance Analysis, Vol. 61 No. 3, pp. 393-417.

Yaru, M. A., and Raji, A.S. (2022). Corruption, governance and tax revenue performance in Sub-Saharan Africa. African Journal of Economic Review, Vol. 10 No. 1, pp. 234-253.

Yogo, U.T., and Ngo Nijib, M.M. (2018). Political competition and tax revenues in developing countries. Journal of International Development, Vol. 30 No. 1, pp. 302-322.

Yohou, H.D., Goujon, M., and Ouattara, W. (2016). Heterogeneous aid effects on tax revenue: Accounting for government stability in WAEMU countries. Journal of African Economies, Vol. 25 No. 3, pp. 468-498.

Zarra-Nezhad, M., Ansari, M.S., and Moradi, M. (2016). Determinants of tax revenue: does liberalization boost or decline it? Journal of Economic Cooperation and Development, Vol. 2 No. 1, pp. 103-126.

Annexes

Table AI: Variables sources, definition, and measurement

Variables	Definition and measurement	Sources
Tax	Tax to GDP ratio including natural resource income and social security contributions	UNU-WIDER government revenue database (Central, 2022)
E-government	E-government development index (EGDI)	United Nations Knowledge Base (2021)
GDPPC	Real GDP per capita in 2015 constant USD	World Bank WDI (2022)
Agriculture	Agricultural share of GDP	UNCTAD (2022)
Inflation	Annual GDP deflator change	World Bank WDI (2022)
GFCF	Gross fixed capital formation relative to GDP	UNCTAD (2022)
Trade	Imports and exports expressed relative to GDP	UNCTAD (2022)
Population	The growth of population per annum	World Bank WDI (2022)
Government expenditure	General government consumption expenditure relative to GDP	UNCTAD (2022)
Exchange rate	Real effective exchange rate (where increase would imply appreciation)	Brueghel database (2022)
Corruption control	Score ranges from -2.5 (weak) to 2.5 (strong) performance	World Bank WGI (2022)
Governance effectiveness	Score ranges from -2.5 (weak) to 2.5 (strong) performance	World Bank WGI (2022)
Political stability and absence of violence	Score ranges from -2.5 (weak) to 2.5 (strong) performance	World Bank WGI (2022)
Rule of law	Score ranges from -2.5 (weak) to 2.5 (strong) performance	World Bank WGI (2022)
Regulatory quality	Score ranges from -2.5 (weak) to 2.5 (strong) performance	World Bank WGI (2022)
Voice and accountability	Score ranges from -2.5 (weak) to 2.5 (strong) performance	World Bank WGI (2022)

Table AII: List of 62 sampled developing economies (LICs and LMICs)

Country	Region	Country	Region
Afghanistan	South Asia	Philippines	East Asia & Pacific
Angola	Sub-Saharan Africa	Rwanda	Sub-Saharan Africa
Bangladesh	South Asia	Samoa	East Asia & Pacific
Belize	LAC	São Tomé& Principe	Sub-Saharan Africa
Benin	Sub-Saharan Africa	Senegal	Sub-Saharan Africa
Bhutan	South Asia	Sierra Leone	Sub-Saharan Africa
Bolivia	LAC	Solomon Islands	East Asia & Pacific
Burkina Faso	Sub-Saharan Africa	Sri Lanka	South Asia
Cabo Verde	Sub-Saharan Africa	Sudan	Sub-Saharan Africa
Cambodia	East Asia & Pacific	Tanzania	Sub-Saharan Africa
Cameroon	Sub-Saharan Africa	Togo	Sub-Saharan Africa
Comoros	Sub-Saharan Africa	Tunisia	MENA
Congo, Dem. Rep.	Sub-Saharan Africa	Uganda	Sub-Saharan Africa
Congo, Rep.	Sub-Saharan Africa	Ukraine	Europe-Central Asia
Côte d'Ivoire	Sub-Saharan Africa	Vanuatu	East Asia & Pacific
Egypt, Arab Rep.	MENA	Vietnam	East Asia & Pacific
El Salvador	LAC	Zambia	Sub-Saharan Africa
Eswatini	Sub-Saharan Africa	Zimbabwe	Sub-Saharan Africa
Ethiopia	Sub-Saharan Africa		
Gambia, The	Sub-Saharan Africa		
Ghana	Sub-Saharan Africa		
Guinea	Sub-Saharan Africa		
Guinea-Bissau	Sub-Saharan Africa		
Haiti	LAC		
Honduras	LAC		
India	South Asia		
Indonesia	East Asia & Pacific		
Kenya	Sub-Saharan Africa		
Kyrgyz Republic	EuropeCentral Asia		
Lao PDR	East Asia & Pacific		
Lesotho	Sub-Saharan Africa		
Liberia	Sub-Saharan Africa		
Madagascar	Sub-Saharan Africa		
Malawi	Sub-Saharan Africa		
Mali	Sub-Saharan Africa		
Mauritania	Sub-Saharan Africa		
Micronesia	East Asia & Pacific		
Mongolia	East Asia & Pacific		
Morocco	MENA		
Mozambique	Sub-Saharan Africa		
Nepal	South Asia		
Nicaragua	LAC		
Niger	Sub-Saharan Africa		
Papua New Guinea	East Asia & Pacific		

The Role of Fiscal Policy in Maintaining Macroeconomic Stability in Ethiopia: Evidence from SVAR Model.

By

Yimer Awoke[1]

Abstract

This study examines the responses of output to shocks in government spending and tax revenue in Ethiopia over the period 1975-2015 using Structural Vector Autoregressive (SVAR) approach. The results of impulse response function and variance decomposition show that a positive government spending shock has an immediate positive and significant effect on output. On the other hand, a tax shock has a negative and statistically significant effect on output. Further, the results of long run restriction SVAR approach, indicates the government spending shock has no long run effect on tax revenue. Besides, output and tax have no permanent effect on spending; the effects are temporary and vanish in short period. These results are consistent with economic theories and empirical literatures and also the result is robust to differing Cholesky ordering, alternative data transformation, and inclusion of exogenous variables such as linear time trend and dummy variable which capture the 1991 regime change in the country. Finally, based on this finding the government has to expand tax bases and design appropriate mechanism for a better revenue collection to enhance the economic activities in the country.

Keywords: Fiscal Policy, GDP, Long-Run Restriction, Recursive Ordering, SVAR.

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1 Ph.D. candidate at the University of Gondar, Ethiopia

1. Introduction

Maintaining Macroeconomic Stability is one of the key development challenges facing low-income countries. In fact, this is not only a problem of low-income countries, rather Every Nations in the World wants to have Stable Macroeconomy and struggling for it. Countries, regularly implement one or combinations of Policies like, Fiscal Policy, Monetary and Exchange Rate Policies to bring high and sustainable economic growth, price stability, full employment and Balance of payments equilibrium in particulars and to keep the macroeconomy stable in general. For instance, Blinder and Solow (1974) argued that Fiscal policy can contribute to macroeconomic stability through the automatic reduction in government saving during Economic downturns and increase during upturns, moderating shocks to national expenditure. Compared to monetary policy, fiscal policy has received less attention in empirical literatures so far. However, With the recent economic recession, academics and policymakers around the world gave more attention to fiscal policy as a tool for stabilizing economic fluctuations. For instance, the developed economies implemented fiscal stimulus packages as a measure for the economic recovery immediately after unexpected shocks (Boiciuc, 2015).

Ethiopia, as one of developing economy has been facing many symptoms of an ill economy such as rising debt burden, a shortage of foreign exchange, unemployment rate, inflation, low productivity (Tadele, Cited in Yadene, 2019). The Country has implemented various fiscal policy reforms in the past decade. Most of these reforms center on indirect taxes and pro-poor expenditure patterns (Mengistu, 2013). However, the effects of fiscal policy shocks are still Controversial, as neither theoretical nor empirical studies have reached a consensus (Franta, 2012). Especially, the policy's failure to boost economic growth during the 1970s oil shocks and recent financial crises and the associated increase in budget deficit and public debts, have led a lot of economists to be doubtful about the effectiveness of fiscal policy to smooth cyclical fluctuations (Beetsma and Giuliodori, 2011). This study has employed annual time series data from 1975 to 2015 to re-examine the macroeconomic effects of fiscal policy shocks using SVAR approach and contribute to the existing state of knowledge. The rest of the paper is organized as follows: Section 2 presents very brief literature review. Section 3 discuss methods. section 4 presents the empirical results for the effects of fiscal policy on Ethiopian GDP and compare   results with previous works. Finally, Section 5 concludes the main finding of the paper and provide possible recommendations.

2. Brief Literature Review

2.1. Theoretical Foundation for Fiscal Policy

The need for and the effects of Fiscal policy has been a center of debates in economics literatures since decades, even more in periods of economic downturn (during the 1980s or recently in the 2010s), mainly focusing on the role of expansionary fiscal policy in stimulating economic growth. Theoretically, there are two main views in the economic literature: the New Keynesian and the neoclassical theories. In the New Keynesian model, a positive fiscal policy shock determines a rise in aggregate demand and labour so that both consumption and wages will rise. Conversely, in the neoclassical model a positive fiscal policy shock is regarded as a negative wealth shock because either now or in the future, the increase in government spending will need to be financed by higher taxes. Even theoretical literature suggests diverging positions with respect to the general effectiveness of fiscal policy (and fiscal stimuli packages at the end). For instance, Real business cycle models predict that an increase in government consumption

will be completely offset by the decrease in private consumption, while Keynesian models assume that the same increase will lead to an increase in private consumption.

2.2. Fiscal Policy Shocks and Global Empirical Evidences

In recent time there are plenty of literatures that studies the effect of fiscal policy shock on main macroeconomic variables such as; output, inflation, interest rate, investment, consumption and exchange rate. largely, in advanced nations. However, these literatures lack consistency and found very diversified outcomes even contradicted results over the effects of fiscal policy shocks. For instance, a study by Perotti (2004) shows that the effects of fiscal policy on economic activity in five OECD countries (US, Canada, Australia, Germany and UK) tend to be small and substantially weaker over time. besides, a study by Marcellino (2002) finds heterogeneous responses to fiscal shocks in France, Germany, Italy and Spain, and concludes that government spending shocks is ineffective in boosting the economy and that tax shocks have minor effects on output. Similarly, de Castro and de Cos, (2008) found that a tax shock does not significantly affect output in Spain. Differently, a study by Baxa (2012) shows that the Czech economy behaves in line with Keynesian assumptions and found that the government expenditures positively affect the economic activities. Further, the study finds that the effects of government tax shock on output is very uncertain, negative and close to zero. Contrary, by analyzing fiscal policy shocks in a group of six European transition economies (the Czech Republic, Hungary, Poland, the Slovak Republic, Bulgaria and Romania) Mirdala (2009) finds that output increases after a tax shock in the Czech Republic. some empirical studies find a negative relationship between fiscal spending and aggregate economic activity for instance a study by, Jemec, et al (2011) show that a 1% increase in government revenue makes output fall by 0.38% in Slovenia, though, the effect is only in the first quarter after the shock. Blanchard and Perotti (2002) provide evidence showing that unanticipated tax increases have strongly negative output effects. However, a study by Perotti (2005) suggest that output does not react in the U.S. in the period when the tax shock hits the economy. Therefore, this is an indication of not only theoretical disparity but also there is a strong empirical difference with regard to the effects of fiscal policy shocks on macroeconomic variables. Further, the study by, Pappa (2005) points that, fiscal shocks are difficult to identify in practice due to the "endogeneity of fiscal variables, interactions between fiscal and monetary policy variables, delays between planning, approval and implementation of fiscal policies and scarceness of reasonable zero-identifying restrictions". However, empirical results agree on one fact only, i.e., that a positive government spending shock has a positive effect on output. The effects of a tax shock on output as well as effects of expenditure and tax shocks on other macroeconomic variables (GDP components, employment, interest rate, inflation) provide contradictory evidence.

In Ethiopia Context, there are few empirical literatures done on the macroeconomic effects of fiscal policy shocks. For instance, recently a study by Bekele (2019) examines the dynamic effect of fiscal policy shocks on macroeconomic variables in Ethiopia using SVAR approach and found that a positive spending shock has positive and significant effect on output at the cost of high inflation. Further, (Hanbiso, 2015, Weldu, 2016, Tamiru, 2017,) all found that spending shocks has positive effect on output and the effect of tax shock is mixed and statistically insignificant in most cases. Therefore, this study re-examines the effects of spending and tax shocks on output with an extended annual time series data back from 1975 to 2015 using same methodology.

3. Methods and Materials.

3.1. Data Description

This Study relies on annual time series data, from 1975 to 2015 to examine the effects of exogenous Fiscal Policy Shocks (Government Expenditure and Tax) on output in Ethiopia using Structural VAR approach. The data for GDP, Government Spending and Tax Revenue were drawn from National Bank of Ethiopia (NBE). All variables are in log form.

3.2. Stationarity Test

Before using a time series variable for estimation, it is always essential to make sure that all the variables included in the model are stationary. Otherwise, the use of non-stationary series in econometric analyses generates spurious results, coefficient estimates without empirical support and inferential statistics with non-standard distribution (Wondemhunegn, 2020). Though, the method is criticized for not account structural breaks in the data, this paper applied the Augmented Dickey Fuller, proposed by Dickey and Fuller (1979) to test the null hypothesis that each series contains unit root against the alternative of stationary process

3.3. Lag Selection Criteria

An important step in the estimation of the VAR model is the lag selection. This matters not only for OLS estimates of the autoregressive coefficients but also in impulse-response functions analysis. In this study, the lag selection criterion which provide adequate model will be chosen.

3.4. The Long-Run Relationship

Engle and Granger (1987) demonstrated that if two or more non-stationary series co-move in the long run (i.e., they are co-integrated), there exists a corresponding error-correction mechanism where variation in the dependent variable is influenced by the lagged-level disequilibrium in the co-integrating representation as well as by changes in other predictor variables. Long-run equilibrium relationships exist if all variables are integrated of the same order and their linear combination is stationary. the study will employ Johansen (1991) method to test for possible steady state relationships among the model variables in the long run.

3.5. Post Estimation Tests

3.5.1. Serial Correlation

The presence of autocorrelation shows that the residuals are serially correlated and the model should be adjusted before using it for hypothesis tests. Serial correlation occurs when the error term observations in a regression are correlated. This error term represents a random "shock" to the model, or something that is missing from the model. It actually means the difference between the model results and the result that would have been gotten in the real-world scenario. This study adopts Breusch-Godfrey Serial Correlation LM method to test for the residual's correlation. The null hypothesis is that there is no serial correlation in the residuals up to the specified order.

3.5.2. Heteroscedasticity

Heteroscedasticity is simply the absence of Homoscedasticity; this implies that all its random variables

do not have the same finite variance. In the use of ordinary least square regression analysis the existence of heteroscedasticity is a major concern because one of the requirements of the linear regression model is residual homoscedasticity. The study will use the Breusch-pagan-Godfrey test where the null hypothesis is residual is homoscedastic against the alternatives there is heteroskedasticity in the residual (Breusch, T. S and Pagan, A. R, 1979).

3.6. Structural VAR Identification

Following the literature this study specifies the reduced-form VAR as follow:

$$y_t = \beta_{j0} + \sum_{i=1}^{m} \beta_i y_{t_i} + e_t \qquad (1) \text{ or}$$

In separate equation, VAR specification is given as follow,

$$G_t = \sigma_{10} + \sum_{i=1}^{P} \beta_{11} G_{t-i} + \sum_{i=1}^{P} \mu_{12} RGDP_{t-i} + \sum_{i=1}^{P} \theta_{13} Tax_{t\_i} + e_{1t}{}^{G} \qquad (1A)$$

$$RGDP_t = \sigma_{20} + \sum_{i=1}^{P} \beta_{21} G_{t\_i} + \sum_{i=1}^{P} \mu_{22} RGDP_{t\_i} + \sum_{i=1}^{P} \theta_{23} Tax_{t\_i} + e_{1t}{}^{RGDP} \qquad (1B)$$

$$Tax_t = \sigma_{30} + \sum_{i=1}^{P} \beta_{31} G_{t\_i} + \sum_{i=1}^{P} \mu_{32} RGDP_{t\_i} + \sum_{i=1}^{P} \theta_{33} Tax_{t\_i} + e_{1t}{}^{Tax} \qquad (1C)$$

Where, $y_t (G, RGDP, Tax)$ is three dimensional vector of endogenous or dependent variables consisting of log tax revenue, log government spending and log real GDP; y_{t_i} represents the lagged values of the dependent variables up to lag order of T, which will be determined using information criteria; δ and β_i are an **N** by 1 vector of constant terms and a 3 by 3 matrix of coefficient estimates corresponding to each lag respectively $e_{i\,t} = [e_{1\,t}{}^{G}, e_{2\,t}{}^{RGDP}, e_{3\,t}{}^{Tax}]$ are the corresponding vector of reduced form residuals. these errors are correlated and therefore not purely exogenous.

VAR model shows only lagged effects and it doesn't account contemporaneous relationships among variables. In addition, the innovations/shocks in a reduced form VAR do not have a direct economic interpretation, as a result Structural form of VAR comes in to bridge this gap. The VAR and SVAR, specification here, also includes a constant, a linear time trend and a dummy[1] variable for the crisis, which I omit from the notation for convenience.

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1 In this study the dummy variables are included to account for possible structural break in the data due to the 1991 regime change in Ethiopia.

As sims says structural VAR cannot be directly estimated, it is theoretical constructs, none observable and an interpretation of historical data. starting from reduced form VAR in equation (1) estimation we come up the structural VAR in equation (5) which isolate the exogenous shocks and measure the impact of this shocks on variables included in the model. To do that we need to get or identify matrix 'A'. after getting matrix A, if we multiply the reduced form VAR in equation (1) by this matrix and apply simple algebra, we get the structural model, shocks and contemporaneous relation among the variable, provided in equation (2).

$$Ay_t = \beta_{i0} + \sum_{z=1}^{P} \theta_{ij} y_{t-z} + B\varepsilon_t \qquad (2)$$

A and B matrices are not identified without constraints, the matrix 'A' in equation (2) reflects the contemporaneous relation between Variables in the model. Assume matrix, B is an identity matrix, matrix 'A' also relates the structural shocks, u_t in SVAR and forecast, e_t in reduced form VAR, as follow. $Ae_t = Bu_t$ or

The forecast errors 'e' are linear combination of structural shock "u_t" and given as follow.

$$e_t = A^{-1} Bu_t \qquad (3)$$

3.7. Recursive Ordering (Cholesky Decomposition)

The recursive approach restricts 'B' to a k-dimensional identity matrix and 'A' to a lower triangular matrix with unit diagonal, which implies the decomposition of the variance-covariance matrix, obtained from Cholesky Decomposition. Following Sims (1980), the Cholesky decomposition is one method of identifying the impulse– response functions in a VAR and SVAR models. Assuming again matrix, B as identity, According to Cholesky decomposition the 3th equation becomes:

$$\begin{bmatrix} e_t^G \\ e_t^{GDP} \\ e_t^T \end{bmatrix} = \begin{bmatrix} 1 & 0 & 0 \\ -a_{21} & 1 & 0 \\ -a_{31} & -a_{32} & 1 \end{bmatrix} \begin{bmatrix} u_t^G \\ u_t^{GDP} \\ u_t^T \end{bmatrix} \qquad (4)$$

In Cholesky's restriction we assume that the value of certain coefficient set to zero and variables are ordered based on theories and reasonable assumption. Therefore, we must place restrictions on matrix A^1 in equation (4) in order to make impulse response and forecast error variance decomposition analyses using SVAR framework. Theoretical guidance and empirical judgment could help us to formalize some kind of causal relationships among variables within the system.

following previous studies that investigated the fiscal policy shocks, government spending ordered first that means we assumed spending contemporaneously exogenous variable. Here, changes in government

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1 The off-diagonal elements in matrix 'A' show either no or there is contemporaneous relation among variables included in the model. For instance, the 'a's' reflect certain variables in the model affect each other contemporaneously.

spending are completely predetermined with respect to the current state of the economy and do not reflect any systematic/automatic response of the government. Caldara and Kamps, (2008) states that Movements in government spending, unlike movements in taxes, are largely unrelated to the business cycle., but change in spending assumed to be affect all the other variables. Real GDP ordered second and Government tax ordered last. Here output is assumed to respond to shock in spending contemporaneously and taxes are contemporaneously affected by all other shocks of the variables.

3.8. The Long Run Structural VAR Approach

The structural vector autoregressive (SVAR) approach, is based on decomposing a series into its permanent and temporary components. It imposes long-run restrictions to the reduced-form VAR model. Identification scheme in the SVAR models reflects a long-run neutrality assumption so that the cumulative effect of a certain shock on the certain endogenous variable is zero based on economic theories and assumptions. By imposing certain restrictions, we can rewrite eq (3) to the following long run structural VAR form.

$$
\begin{bmatrix} \mathbf{e}_t{}^G \\ \mathbf{e}_t{}^{GDP} \\ \mathbf{e}_t{}^T \end{bmatrix} = \begin{bmatrix} na & 0 & 0 \\ na & na & na \\ 0 & na & na \end{bmatrix} \begin{bmatrix} u_t{}^G \\ u_t{}^{GDP} \\ u_t{}^T \end{bmatrix} \tag{5}
$$

Following previous works and economic assumptions the long-run restrictions is imposed as follow. Government expenditures do not have a permanent effect on tax revenues. Real output and Tax revenues do not have a permanent effect on government expenditure.

3.9. Impulse Response Function and Forecast Error Variance Decomposition

Impulse response function allows us to trace out the time path (current and future values) of the variable in our model to a one unit increase in the current value of one of the VAR errors. In order to identify the impulse responses, a restriction is applied to the main matrix 'A' which is termed as 'Cholesky Decomposition'. In this process the most challenging issue is the order of the variable which plays key role as the restriction on the matrix implies some shocks have no contemporaneous effect on some of the variables in the system. Economic theory or sensible assumptions are required to order the variables. The variance decomposition displays the percentage of error made forecasting a variable over time due to a specific shock. As in impulse response function the variance decomposition applies the Cholesky decomposition for identification.

4. Results and Discussions

4.1 Results for Unit Root

Before running the VAR or SVAR model here we need to conduct unit root test for each variable by using the standard Augmented Dickey-Fuller (ADF) tests though this method criticized as it fails to account possible structural break in the data, to decide whether variables are stationary at level or at first difference. In VAR model there is an assumption that all variables should be stationary at first difference and no variable is stationary at second difference I(2). The Augmented Dickey-Fuller unit root test result is reported in Table (4.1) below.

Table 4.1. ADF unit root test of variables at level and First Difference.

	at Level		First Difference	
Variables	Constant	Constant and Trend	Constant	Constant and Trend
RGDP	2.4433	-0.5464	-5.7137*	-6.6925*
Spending	1.5868	-0.6403	-6.0015*	-6.3554*
Tax	1.0688	-0.9373	-4.0997*	-4.3764*

Source: Own Computation

*Note: *, **, and *** indicates the level of significance of each variable at 1%, 5% and 10% respectively. The lag length for ADF is selected based on SIC information criteria.*

Table (4.1) presents Augmented Dickey-Fuller unit root test results. As we observe from the table all variables found non stationary at level and changed to stationary at first difference under all scenarios.

4.2. Results for Long-Run Co-integration

After unit root test, the co-integration test is the next step to see if there is long run Co-movement between or among variables included in our model. Since all variables are integrated of the same order, this study tested the possible long run relation among or between variables using Johansen Co-integration test. The results of the Johansen co-integration test presented in table (4.2) below points to one long run relationship among the variables. Such a result suggests that a structural vector error correction model could be estimated to take the cointegration relation into account. However, this would be beyond the scope of this paper. Instead, I proceed with the VAR estimation procedure which will be the basis for the SVAR analysis later on. Even, Blanchard and Perotti (2002) find no significant difference in results when imposing the cointegration relationship among the variables.

Table 4.2: Johansen Co-integration Test.

Hypothesized	Trace	0.05	
No. of CE(s)	Statistic	Critical Value	Probability**.
None *	31.2813	29.7971	0.0335
At most 1	11.8364	15.4947	0.1650
At most 2 *	4.19630	3.84150	0.0405

Source: Own Computation

*Note: Johansen, trace test indicates 1 co-integrating equation at the 0.05 level. * Denotes rejection of the null hypothesis at 5% significance level. ** Mackinnon-Huag-Michelis (1999) P-values*

4.3. Vector Autoregressive (VAR) Model

Once we checked the stationarity and Co-integration issues now our next step is estimating equation (1), with appropriate lag length and check for different model diagnostic tests. In this study the time lag was determined partly based on the information criteria and partly based on the model fit tests. The Akaike info criterion (AIC) recommend 2 period time lags. On the other, Schwarz-Bayesian criteria (SBC)and HQ criteria suggested a 0, time lag, but those models fail to meet the model adequacy tests.

Table 4.3: Results for Model Adequacy tests.   Figure 4.1: VAR Stability Check

Assumptions		Time lag	P value
Serial-Correlation	h-Time Lag	1	0.4435
	1:h Time Lag	1	0.4435
Heteroskedasticity		Joint	0.2629
Normality	Skewness Test	Joint	0.5533
	Kurtosis Test	Joint	0.9836
	Jarque Bera test	Joint	0.8949

Inverse Roots of AR Characteristic Polynomial
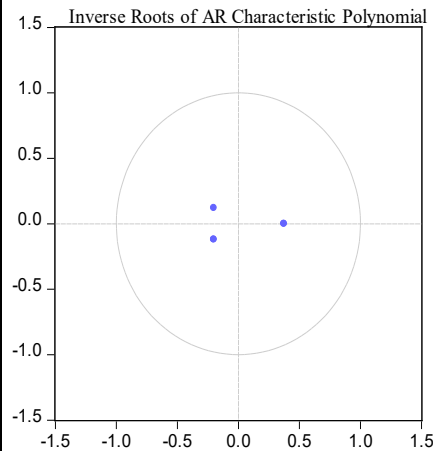
Source: Author's Computation.   Source: Plotted with Eviews10.

Note: the assumptions of normality, homoskedasticity, and absence of serial correlation cannot be rejected as the estimated probability values are greater than the standard probability critical value of 0.05.

Following literatures, 1 period time lag VAR model is adopted, as the model passes all model adequacy tests. as shown in Table 4.3, the LM-test for autocorrelation shows that the error terms of the VAR model are serially uncorrelated at the specified lag order and follows normal distribution based on the Jarque_Bera test of residual normality test as well as has homoscedastic errors. The VAR models is stable because the inverted roots of the model lie inside the unit circle (figure 4.1). Hamilton (1994) and Lutkepohl (2005) show that if the modulus of each eigenvalue of the companion matrix is strictly less than one, the estimated VAR is stable. This is important because when the VAR model is stable, impulse–response functions and forecast error variance decompositions have known interpretations.

4.4. Impulse Response Function and Variance Decomposition

The main motive here is to analyze the impact of a government expenditure and tax revenue shocks to endogenous variables, especially on real output. figure (4.2) and figure (4.3) present the accumulated responses of endogenous variables to a one standard deviation shock in government expenditure and tax revenue using Cholesky and SVAR approaches respectively. Further, figure 4.4 and table 4.4 (Cholesky approach) and figure 4.5 and table 4.5, (SVAR approach) presents the forecast error variance decomposition of real GDP. As we notice from figure 4.2 and 4.3 output initially, increases up to year two and then decrease between period two and three increase again between period three and four, after

the fourth quarter it remain in steady state for the remaining time horizon in response to a one standard deviation shock in government spending. This implies that a positive government spending shock seems to have a significantly positive effect on output, at least in the short-run which is in line with the majority of the literatures see, Blanchard and Perotti (2002), Perotti (2004). On the other hand, by construction tax shock assumed, it has no contemporaneous effect on output, but after the second year, output responds negatively to a one standard deviation shock in tax revenue and the tax impact is significantly small, which is again consistent with economic theories.
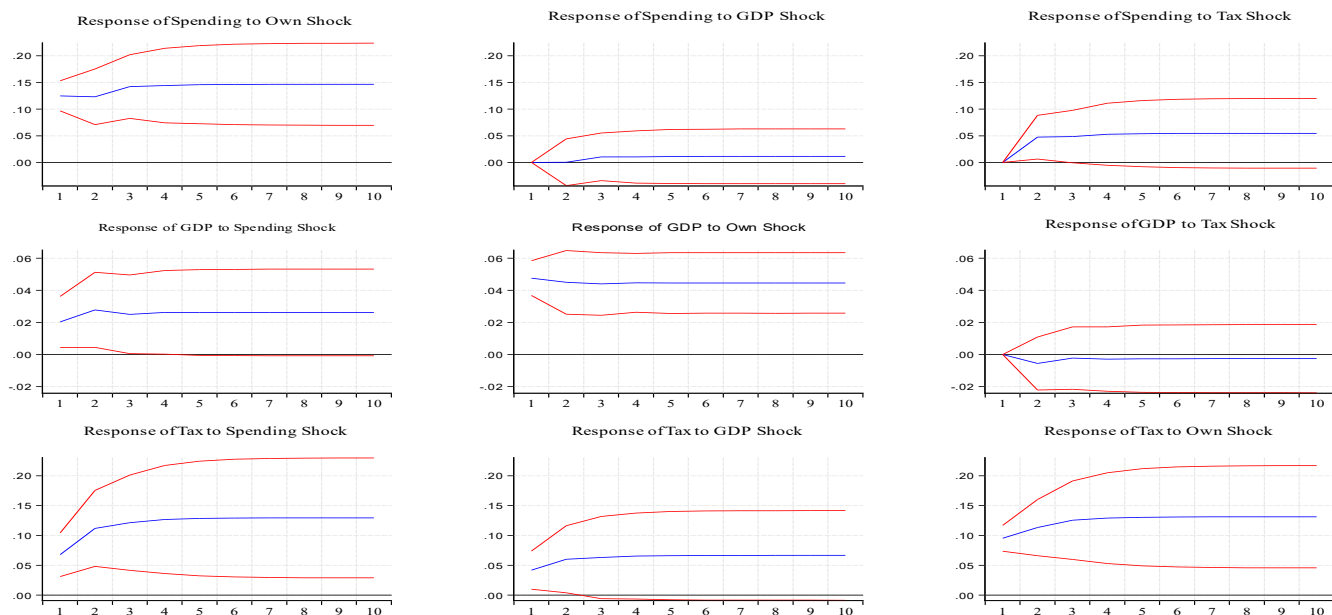
Source: Own Plot with Eviews 10.

Fig.4.2. Accumulated response of endogenous variables to One Standard Deviation Shock in Government Spending and tax revenues (Recursive Cholesky approach).

The results in figure 4.2 and 4.3 above further confirms that, the impulse response output in this study is robust to alternative identifications techniques, as the results from simple Cholesky and SVAR approaches are identical. The results are consistent with previous works by (Hanbiso, 2015, Weldu, 2016, Tamiru, 2017, Bekele, 2019).
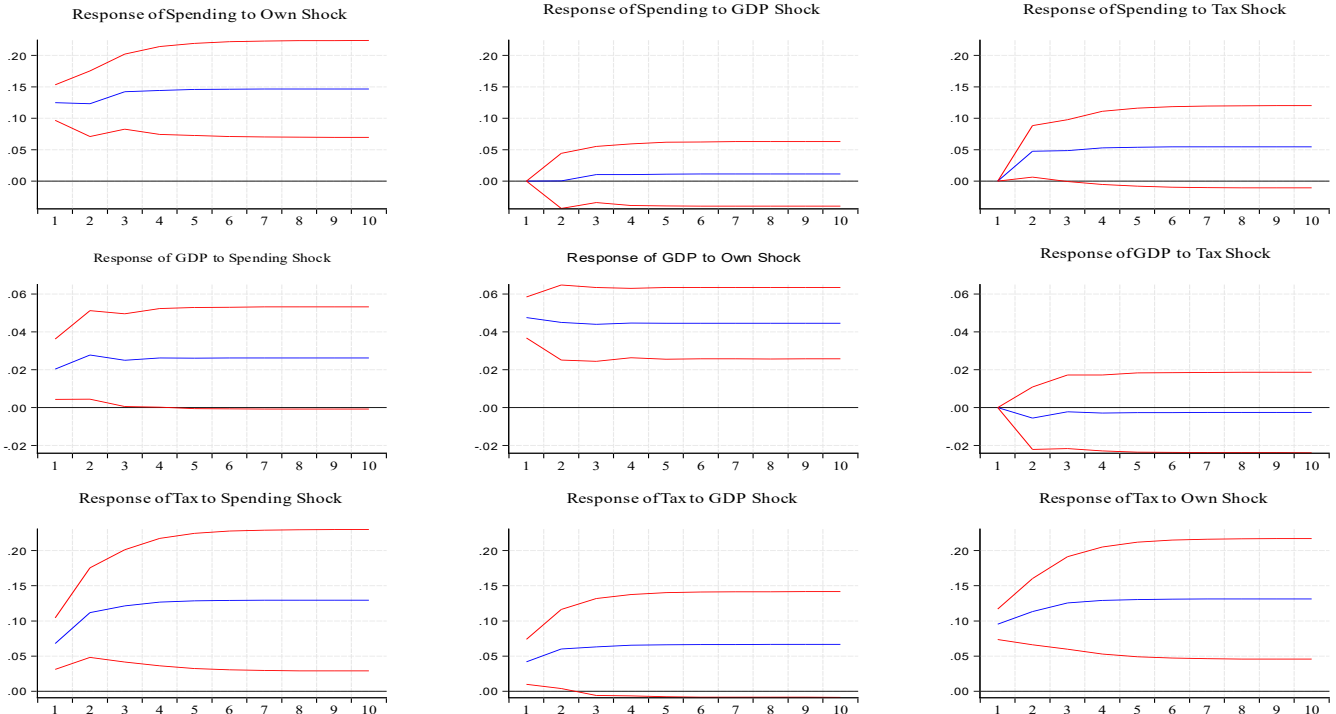
Source: Own Plot with Eviews 10.

Fig.4.3. Accumulated response of endogenous variables to One Standard Deviation shock in Government Spending and tax revenues (SVAR Approach).

The forecast error variance decomposition result for GDP is shown in table 4.4, figure 44. and table 4.5, figure 4.5 using simple Cholesky and SVAR approaches respectively. As one can clearly observe either from the tables or figures, in period one 84.59% of the forecast error variance in real GDP is explained by its own shock and government spending explain about 15.41% of the variability in output in the same year. Here the tax revenue has no immediate effect in real GDP forecasting error by assumption. However, after ten years about 18.6 % of the errors in forecasting real GDP is still attributed to government spending and tax revenue shocks jointly and the remaining 81.4% is explained by real gross domestic product itself. These results hold for structural vector autoregressive approach presented in table and figure 4.5.

Period	S.E.	Spending	RGDP	Tax
1	0.124844	15.40796	84.59204	0.000000
2	0.133556	16.91440	81.97548	1.110114
3	0.135293	17.06634	81.42740	1.506257
4	0.135381	17.10451	81.37635	1.519139
5	0.135399	17.10463	81.37447	1.520893
6	0.135401	17.10473	81.37438	1.520889
7	0.135401	17.10474	81.37437	1.520892
8	0.135401	17.10474	81.37437	1.520892
9	0.135401	17.10474	81.37437	1.520892
10	0.135401	17.10474	81.37437	1.520892

Cholesky Ordering: DLNSPENDING DLNRGDP DLNTAX

Table: 4.4 and Figure: 4.4, Forecast Error Variance Decomposition of GDP (Cholesky Approach).

Period	S.E.	Spending ...	RGDP Shock	Tax Shock
1	0.124844	15.40796	84.59204	0.000000
2	0.133556	16.91440	81.97548	1.110114
3	0.135293	17.06634	81.42740	1.506257
4	0.135381	17.10451	81.37635	1.519139
5	0.135399	17.10463	81.37447	1.520893
6	0.135401	17.10473	81.37438	1.520889
7	0.135401	17.10474	81.37437	1.520892
8	0.135401	17.10474	81.37437	1.520892
9	0.135401	17.10474	81.37437	1.520892
10	0.135401	17.10474	81.37437	1.520892

Factorization: Structural

Source: Own Plot with Eviews-10.

Table: 4.5 and Figure: 4.5, Forecast Error Variance Decomposition of GDP (SVAR Approach).

4.5. Long Run Structural VAR Model
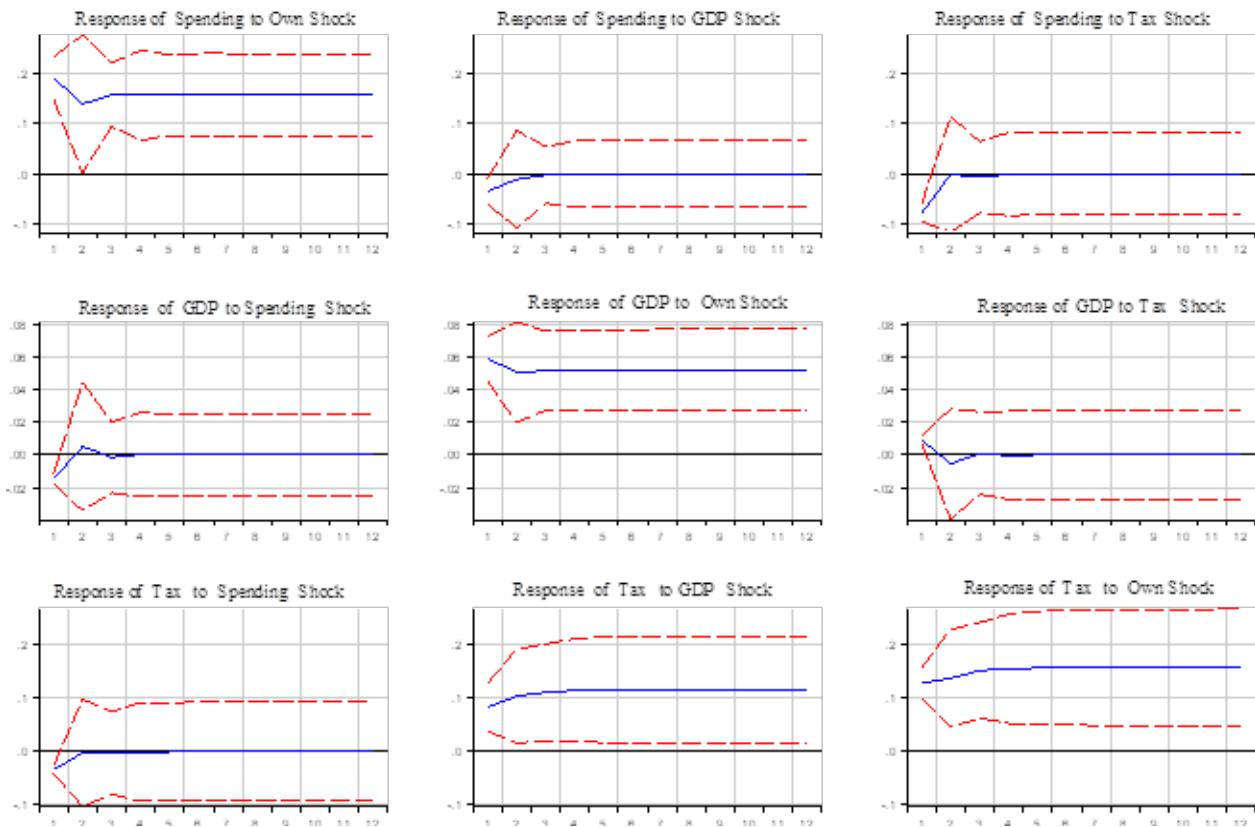
Source: Own Plot with Eviews 10.

Figure 4.6: Cumulated Responses of Variables to a structural shock (Long Run SVAR Approach).

The figure (4.6) displays the cumulative impulse response functions. As we easily notice from the graph

the effect of spending shock on tax revenue is temporary and do not last long, it vanishes after the second year. This implies that government spending has no permanent/long run effect on tax revenue. Further, real GDP and tax has no long run effect on government spending too, as the effects of both shocks vanish in the short run, after 3 and 4 years respectively. On the other hand, the effect of real GDP on tax revenue is immediate and permanent. This indicates that real GDP has long run effect on tax revenue. These results are consistent with the previous work see for example Mirdala (2009). The robustness tests such as different Cholesky ordering were considered found no significant difference in the results.

5. Conclusion and Recommendation

This paper investigates the macroeconomic effects of fiscal policy shocks in Ethiopia over the period 1975 to 2015 using Structural Vector Autoregressive (SVAR) approach. The results of impulse response functions as well as the forecast error variance decomposition, shows that a positive government spending shock in Ethiopia has an immediate positive and significant effect on output while, a tax shock has a negative effect on output. In addition, the results of long run restriction SVAR approach, indicates the government spending shock has no long run effect on tax revenue and output. In addition, tax and output has no permanent effect on spending, the effects are temporary and vanish in short period. These results are consistent with previous empirical works and economic theories and also robust to differing Cholesky ordering, alternative data transformation, and inclusion of exogenous variables such as deterministic linear time trend and dummy variable which capture the effects of the 1991 regime change in Ethiopia.

There are different SVAR identification strategies to analyze the effects of fiscal policy on macro variables in literatures, like the sign- restrictions approach developed by Uhlig (2005), the event-study approach introduced by Ramey and Shapiro (1998), the structural VAR approach proposed by Blanchard and Perotti (2002) later extended by Perotti (2005,2008). However, due to lack of disaggregated data on the variables of interest, this study has employed Sims (1992) Recursive SVAR identification. Therefore, re-examining the model with other SVAR methods of shock identification, with a disaggregated government spending and tax revenues data, are some of the possible extensions of this study left for further research. Finally, based on this finding the government has to expand tax bases and design appropriate mechanism for a better revenue collection to enhance the economic activities in the country.

References.

Barro, R.J. (2009). Government spending is no free lunch. Wall Street Journal, Article available at https://www.wsj.com/articles/SB123258618204604599 and accessed on November 3, 2022.

Baxa, J. (2012). What the Data Say about the Effects of Fiscal Policy in the Czech Republic?.10.13140/ RG.2.2.10429.67043.

Beetsma, R., and Giuliodori, M. (2011). The Changing Macroeconomic Response to Stock Market Volatility Shock, CESifo Working Paper Series No. 3652.

Bekele, M. (2019). The Dynamic Effects of Fiscal Policy Shocks on Macroeconomic Variables in Ethiopia: Evidence from (SVAR) Model, Master's Thesis, Addis Ababa University, Ethiopia.

Blanchard, O. and Perotti, R. (2002). An Empirical Characterization of the Dynamic Effects of Changes in Government Spending and Taxes and Output. Quarterly Journal of Economics, Vol. 117 No. 4,

1329–1368.

Blinder, Alan, and Robert Solow (1974), Analytical Foundations of Fiscal Policy, in The Economics of Public Finance, Washington, D.C: The Brookings Institution.

Boiciuc, Ioana. (2015). The Effects of Fiscal Policy Shocks in Romania. A SVAR Approach. Procedia Economics and Finance, Vol. 32, 1131-1139. 10.1016/S2212-5671(15)01578-6.

Breusch, T S & Pagan, A R, (1979). A Simple Test for Heteroscedasticity and Random Coefficient Variation, Econometrica, Econometric Society, Vol. 47 No. 5, 1287-1294.

Caldara, D. & Kamps, C. (2008). What are the effects of fiscal policy shocks? A VAR-based comparative analysis, Working Paper Series 877, European Central Bank.

de Castro, F. and de Cos, P., (2008). The economic effects of fiscal policy: The case of Spain. Journal of Macroeconomics, Vol. 30 No. 3), 1005-1028.

Dickey, D. A., and W. A. Fuller. (1979). Distribution of the estimators for autoregressive time series with a unit root. Journal of the American Statistical Association, Vol. 74 No. 366, 427–431.

Engle, R.F. and Granger, C.W.J. (1987), Co-integration and error correction: representation, estimation nd testing, Econometrica, Vol. 55 No. 2, 251-276.

Franta, M. (2012). Macroeconomic Effects of Fiscal Policy in the Czech Republic: Evidence Based on Various Identification Approaches in a VAR Framework, CNB working paper13.

Hamilton, J. D. (1994): Time Series Analysis. Princeton University Press, Princeton, New Jersey.

Hanbiso, M (2015). Effects of the Fiscal Policy Shocks under the Debt Feedback Rule in Ethiopia: Evidence from SVAR Model, Master's Thesis, Addis Ababa University, Ethiopia.

Hodrick, R.J. and Prescott, E.C. (1997), Postwar US business cycles: an empirical investigation, Journal of Money, Credit, and Banking, Vol. 29 No. 1, 1-16.

Ivanov, V. & Kilian, L. (2007). A Practitioner's Guide to Lag Order Selection for VAR Impulse Response Analysis. Studies in Nonlinear Dynamics & Econometrics, Vol. 9 No. 1, 1-34.

Jemec, N. Strojan K, A. and Delakorda, A., (2011). How do fiscal shocks affect the macroeconomic dynamics in the Slovenian economy? Banka Slovenije, Ljubljana, Slovenia.

Johansen, S. (1991). Estimation and Hypothesis Testing of Cointegration Vectors in Gaussian Vector Autoregressive Models, Econometric Society, Vol. 59 No. 6, 1551-1580.

Lutkepohl, H. (2005). New Introduction to Multiple Time Series Analysis, Springer Verlag, Berlin

Marcellino, M., (2002). Some Stylized Facts on Non-Systematic Fiscal Policy in the Euro Area. Center for Economic Policy Research, Discussion Papers No. 3635.

Mengistu, DA. (2013). The Impact of Fiscal Policy on Poverty in Ethiopia: A Computable General Equilibrium Microsimulation Analysis, Ethiopian Journal of Economics, Vol. 22 No. 1, 25-70.

Mirdala, R. (2009). Effects of Fiscal Policy Shocks in the European Transition Economies. Journal of

Applied Research in Finance ISSN 2066-5482. Vol. 1. pp. 141-155.

NBE, (May, 2022), National Bank of Ethiopia, 2019/20 Annual Reports on Key Macroeconomic Variables,accessed.https://nbebank.com/wpcontent/uploads/pdf/annualbulletin/Annual%20 Report%202019-2020.pdf.

Pappa, E. (2005). New-Keynesian or RBC Transmission? The Effects of Fiscal Shocks in Labour Markets, CEPR Discussion Papers 5313, C.E.P.R. Discussion Papers.

Perotti, R. (2005). Estimating the effects of fiscal policy in OECD Countries. CEPR Discussion Paper 168. Centre for Economic Policy Research, London.

Perotti, R. (2008). In Search of the Transmission Mechanism of Fiscal Policy. NBER Macroeconomics Annual, 22 University of Chicago Press 169- 226

Perotti, R., (2004). Estimating the effects of fiscal policy in OECD countries," Working Papers 276, IGIER (Innocenzo Gasparini Institute for Economic Research), Bocconi University.

Ramey, V.A. and Shapiro, M.D.(1998). Costly Capital Reallocation and the Effects of Government spending. Carneige-Rochester Conference series on Public Policy, 48 (June), pp. 145-194.

Romer, C. and Bernstein, J. (2009). The Job Impact of the American Recovery and Reinvestment, memo accessible at https://www.economy.com/mark-zandi/documents/The_Job_Impact_of_the_ American_Recovery_and_Reinvestment_Plan.pdf.

Sims, C. (1980). Macroeconomics and Reality, Econometrica, Vol. 48 No. 1 1, 1-48. http://www. ekonometria.wne.uw.edu.pl/uploads/Main/macroeconomics_and_reality.

Tamiru, K. (2017). The Macroeconomic Effects of Fiscal Policy Shock in Ethiopia: Evidence from a Bayesian VAR Approach, Ethiopian Journal of Economics Vol. 26 No 1, 31-66.

Uhlig, H. (2005). What are the effects of monetary policy on output? Results from an agnostic identification procedure. Journal of Monetary Economics 52 (2), 381-419.

Weldu, M. (2016). Fiscal Policy and Economic Growth: Empirical Evidence from Ethiopia, MA Thesis, Addis Ababa University, Addis Ababa, Ethiopia.

Wondemhunegn Ezezew. (2020). Re-Examining Public Debt and Current Account Dynamics in Ethiopia: SVAR Evidence, Journal of Economic and Administrative Sciences, Vol. 38 No. 1, 110-134.

Yadene, N. (2019). Confronting the challenges in transforming Ethiopia's economy https://www.ifpri. org/blog/conference-confronting-challenges-transforming Ethiopia's economy.

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