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ESI PUBLICATIONS
Gurugaon, India

A Revisit of Globalization and Aftermath Socio-Economic Development in India

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Abstract: New economic policy (NEP), defined by liberalization, privatization and globalization (LPG), introduced in the early 1990sin India, had an enormous and long lasting impacts on all the major sectors of the Indian economy making it more market and service oriented and expanding the role of private and foreign investment. This paper revisits the historical events of NEP and aftermath development in India.

Keywords: Globalization India, International Monetary Fund, New Economic Policy, World Bank

1. INTRODUCTION

After the independence of Indiathe managers of the Indian economy took very cautious steps. They found the world sharply divided into two blocks: the one led by the capitalist economies(the US in particular) and other led by the communist economies, primary the then USSR. There was a cold war between these two blocs. Less developed economies is had no option than to join either of the two and invite the ireof the opposite bloc. Especially those economies that were under the British Empire and won freedom in the near past faced a difficult choice. India chose to keep a safe distance from both the blocs by inventing the idea of a mixed economy. In doing so, India invited at favour and suspicion from both the blocs.Some economies hold the opinion that the Indian economy was pro-capitalism in its core that worethe facade of a socialist economy.The state managed economic endeavours facilitated capital formation in the private sector, often at the

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cost of the public sector and resources, preparing for a smooth transition to open capitalism in future when the conditions were ripe such a transition. Bardhan (1984) has given a vivid picture of this possibility.Nevertheless,the officially proclaimed management policy of the national economy of India was modelled on the socialistic pattern primary that of the USSR.

It is relevant to note that since 1970's, the growth rate of the USSR economy had slowed down substantially. Extensive economic development based on vastinputs of materials and labour, was no longer possible;yet the productivity of Soviet assets remained low compared with other major industrial industrialized countries. Product quality needed improvement. Soviet leader faced a fundamental dilemma; the strong central controls of the increasingly conservative bureaucracy that had traditionally guided economic development had failed to respond to the complex demands of industry of a highly developed modern economy.

Conceding the weaknesses of their past approaches in solving new problems, the Russian leaders of the late 1980swere seeking to mold a program of economic reform to galvanize the economy. Mikhail Gorbachev was experimenting with solutions to economic problems with an openness never before seen in the history of the USSR economy. One method for improving productivity appeared to be a strengthening of the role of market forces. Yet reforms in which market forces assumed a greater role would signify a lessening of authority and control by the planning hierarchy, as well as a significant diminution of social services.

India was watching these developments closely. At home, the Indian economy also was facing a difficult time. The efficacy of economic management and socialistic pattern had led to serious malaise. Although we observe high growth rates of the Indian economy during the 1980's, much of this owes a very large amount of foreign borrowing. Joshi and Little (1994) attribute the high growth during 1980's period to the fiscal expansion financed by external and internal barrowings.

This is also the view expressed indirectly by Ahluwalia (2002) that growth in the 1980's was unsustainable,"fuelled by a build-up of external debt" (Panagaria, 2004). Hence, India had no much alternative than to opening of its economy to the international market forces.

The official pronouncement of the New Economic Policy (NEP) on stabilization and structural adjustment programs could have possibly taken longer if the events in the dusk of the said decade and dawn of the subsequent one would have allowed its postponement any further. The dawn of 1990's came with the great debacle of the USSR. This was an ideological disaster to the principles of economic management in India

and one of the decisive events that brought India under the gravitational force of the capitalist bloc.

The agriculture sector performed miserably in 1987-89. Following the assassination of Rajiv Gandhi, PV Narsinmha Rao came to power in June 1991. At that time, India'scondition on foreign exchange reserves was poor in June, 1991.At that time, India's condition onforeign exchange reserves was poor and precarious. India made a proposal for a loan of US$ dollar 2.26 billion from the IMF. In view of the destitution that the country was in, it had no alternative than to succumb to the World Bank-IMF prescriptions in embarking on the so-called stabilization and structural adjustment programs as a precondition to loan. The World Bank was ready with its proposed'strategy for Trade Reform'. As a result,thus, India introduced the new economic policy (NEP) in 1991.

The NEP can be divided into two parts: the *stabilization programs* and the *structural adjustment and reform programmes*. While the former part basically aims at reducing macroeconomic imbalance (such as fiscal and current account deficit) by restraining aggregate demand, the later essentially aims at increasing growth, by eliminating supply bottlenecks that hinder competitiveness, efficiency and dynamism to the economic system.

2. EFFECTS OF GLOBALIZATION ON MACROECONOMIC BALANCES

Analysing the data of preglobalization and post-globalization periods, it has been concluded that Indian government revenue and expenditure data had adhered to the intertemporal budget constraints. This notion provides support for the moves towards fiscal consolidation, which occurred since the early 1990s. However, it is important to note that the reforms are unlikely to have led to a sustainable path for the debt stock. This is despite the fact that the size of the budget deficit as a proportion of GDP has fallen since 1991.Following the reforms, deficits have been financed through borrowings in a relatively less regulated financial market.As domestic markets have been liberalised, the cost of domestic borrowings has increased and concessional external financing has become a smaller proportion of total borrowing.This has led to a major increase in interest liabilities and to an increase in the debt-to-GDP ratio. Further,fiscal consolidation maywell be required if Indian public finances are to be consistent with debt sustainability.

3. EFFECTS OF GLOBALIZATION ON SOME MACROECONOMIC INDICATORS IN THE DOMESTIC SECTOR

The foreign sector is yet a tiny part (about 5-6%) of the national income of India. The growth of gross domestic product, although impressive, did

not take up any significant acceleration. If we measure the logarithm of GDP against time, we observe a linear growth. Thus, the impact of pre-globalization on structural changes so as to accelerate the growth rate of GDP has been meagre. Contribution of agriculture to the GDP continued falling at the pre-globalization rate and thus we find a linear trend in the fall of the percentage contribution of agriculture the percentage contribution of agriculture. The percentage contribution of the secondary sector to the total GDP continued increasing at more or less constant rate, indicating that the post-global globalizationera did notbring any structural change.

The statistical trends in grosssaving and capital formation indicate that the traditional long-linear growth, set in the early sixties of the last century, continued. However, indications are there to structural changes as to the sources of savings. Rate of savings (as percentage to GDP) in the household sector accelerated, while the said rate of savings (as percentage of GDP) in the public sector decreased. Saving in the Private corporate sector has shown an increase. Gross fixed capital formation has laggedbehind the gross domestic savings.

4. AGRICULTURE AFTER GLOBALIZATION

The statistics of area under 12 major crops in India covers about 95% of area under cultivation. The data indicate that after globalization, the area under cultivation has increased. However, the area underfood crops as percent to the total area under cultivation has decreased. More so the area under coarse (food) crops as percentage to total area under cultivation (as well as the total area under food crops) has decreased. This trend indicates a shift of the Indian agriculture to cash crops and in the food grain sector to the finer crops. As pointed out by Swaminathan (2002), such changes have affected the poorer section of the society adversely.

5. COMPONENTS OF AGRICULTURAL GROWTH

We use Minhas-Vaidyanathan decomposition scheme with 1991-92 prices (Wi) of major crops for decomposition analysis of agricultural growth. Among the percentage contributions of different components of Agricultural growth, the contribution of area under cultivation after globalization remains prominent as before globalization.

6. AGRICULTURAL POLICY AND ITS IMPACTS

With India's membership in the WTO, Indian agricultural policies underwent significant changes. Agriculture became more integrated into the world commodity market and conformal to the liberal policy regime advocated by the IMF. The gradual abolition of input subsidies on fertilizers,

irrigation, electricity and credit, removal of trade restrictions on agricultural commodities so that the domestic prices are not out of tune with world prices, unification of prices so that the current system of dual markets in food grains and other agricultural commodities disappears, drastic curtailment of food subsidy confining the Public Distribution System only to the deserving poor, removal of all restrictions on the choice of we what to produce, where to sell etc., freedom of operations for agribusiness and so on, the Indian agriculture began assuming a new structure, markedly in contrast with the pre-1990-91. The structural changes have been observed in the land-use pattern for raising different crops. But fragmented small land holdings and poverty among the farmers severely limit the cultivation of crops for the market. The infrastructure for storage, transport, processing, grading and rating quality-standards are underdeveloped. Farmers are ignorant of the sophistication of global markets, as their experience is limited to primitive operations. The demand for most of the Indian farm products is very low on account of poor quality and quality control system. Therefore, with the poor prospects and scope for the export of Indian agricultural produce, the exporters face difficulties both in the domestic and foreign markets. For instance, Indian tea is a high-cost product. When cheaper tea comes into the market, the country's high cost tea producers lose out. Yet, export oriented agriculture is gradually reducing the area of food cultivation, as more and more land is being used for cash crop production. The growing costs of agricultural inputs and shrinkage of the market for agricultural product are not only causing problems for farmers, but are also affecting rural employment severely.There is widespread migration of agricultural workers to other states and to cities. With the changes, the agro-based industries have not been able to pick up momentum so as to provide a thrust to the industrialisation process.

7. THE RURAL ECONOMY AND THE COMMON MAN AFTER GLOBALIZATION

The Indian agriculture has two main roles to play in the overall economy;first of providing food to the mass within the economy, and the second, to provide the commodities- food grains, fibres, oilseeds and other cash crops that make the inputs to the industries in the economy as well as this stuff that would earn the foreign exchange. In an economy, where no less than the one third of the population is below poverty line, the first role of the Indian agriculture is not to be brushed aside in the dazzle of the flourishing multinationals-led industries and the drizzle of the foreign lucre.

It is estimated that nearly 40% Indians do not have access to regular and adequate quantities of food. Hunger, malnutrition and under-

nourishmentare widespread. In some parts of the country many persons are stalked by death due to starvation, although the quantum of food grains in the stores or even produced annually does not warrant that. Such unusual hunger amidst plenty can be attributed to a host of reasons, many of which are direct or indirect consequences of the structural adjustment and stabilization programs India adopted at the start of the nineties. The government set out to reduce subsidies and fiscal deficit by cutting state expenditure on rural development, cutting food subsidies, reducing priority credit to agriculture and allowing Indian agricultural prices to move closer to world prices,which led to increased food prices. All of these,however meant falling rural employment and real wages for the landless, and more insecure and volatile incomes from cultivation for small farmers. Simultaneously, food prices in the Public Distribution System (PDS) went up because of the reduction in food subsidies. Very few could purchase food grains at high prices. The government was left with huge stocks and it ran up in enormous storage costs. Structural adjustment and stabilization programs failed to reduce subsidies and fiscal deficits. The only effect has been on poverty and its consequences- hunger, malnutrition, infant and neonatal mortality and deaths due to starvation. India now has 360 million people below the poverty line, of which 50 million are the poorest of the poor those living in conditions of extreme deprivation.

In the 1990s, food grain output in India fell below the population growth rates.The last time such a situation occurred was in the 1960s. The opening up of Indian agriculture to trade boosted the demand for non-foodcrops for export. Although total agricultural output stillrose during the 1990s, liberalisation reversed the recovery the country was making in per capita food availability, undermining the food security.

Within the first half of the 1990s, growth of food output had deceleratedto 1.7% compound every year.During the same period population grew at 1.9% compound every year. The thrust on exports of agricultural products has resulted in a significant change in cropping patterns. Indian producers have been diverting more and more cultivable land from food grains and pulses to the production of oilseeds, cotton horticultural crops, prawn culture animal husbandry etc.

In addition the land on which no well-defined property rights exist (for example, the village commons) are being fenced off and export crops are being sown either directly by the agri-business or by farmers they contract. A rapid increase in prawn culture has made many nearby plots saline and inuitable for cultivation, forcing their owners into the ranks of the landless labour. Rapid growth of exports of animal products implies that a greater proportion of the declining grain output is being used as

fodder. Area under food grain cultivation in 1999- 2000 was 4.6 million hectares less than in 1990-91.The most severe decline has been in coarse grains and pulses, which are the main food grains of the poor.Gross area under coarse grains fell by almost 6.8 million hectare between 1990-91 and 1999-2000. For pulses the area fell by 2.4 million hectares. However, area under rice in 1999-2000 was 1.9 million hectares higher than in 1999-91 and area under wheat went up by 4.4 million hectares during the same period.

Table 1: Area and Production of Basic Food Crops in the Post-Globalization Decade

	Coarse Cereal		*Pulses*		*Total*	
Year	*Area (million hectares)*	*Production (million tonnes)*	*Area (million hectares)*	*Production (million tonnes)*	*Area (million hectares)*	*Production (million tonnes)*
1990-91	36.3	32.7	24.7	14.3	61.0	47.0
1991-92	33.4	30.0	22.5	12.0	55.9	42.0
1992-93	34.4	36.6	22.4	12.8	56.8	49.4
1993-94	32.8	30.8	22.3	13.3	55.1	44.1
1994-95	32.2	29.9	23.0	14.0	55.2	43.9
1995-96	30.9	29.0	22.3	12.3	53.2	41.3
1996-97	31.8	34.1	22.3	14.2	54.2	48.3
1997-98	30.8	30.4	22.9	13.0	53.7	43.4
1998-99	29.5	31.5	23.8	14.8	53.3	46.3
1999-2000	29.5	29.4	22.3	13.6	51.8	43.0

Table 2: Per Capita Annual Availability of Food Grains (in kg)

Item	*1989-92*	*1992-95*	*1995-98*	*1998-2001*
Cereals	159.3	156.5	156.6	149.1
Pulses	14.2	13.6	12.7	11.8
Food grains	173.5	170.1	169.3	159.9

Per capita availability of food grains decreased drastically during the 1990s. Rising population, decline in output of coarsecereals, stagnation in pulses production, rising use ofcereals for animal feed purposes, rising stocks in FCI storage etc. are some of the most prominent reasons that led to the said decline.Besides, poverty it became more widespread and intensified.During 1989-90 to 1991-92, the annual average adjusted per capita food grains availability was 173.5 kg.It fell to 159.9 kgduring the period 1998-99 to 2000-01 while cereals availability fell 11.2 kg per head, pulses fell by 2.4 kg (Swaminathan, 2002).

In India food security for the poor is closely linked with the PDS. After globalization, the issue prices for the PDShaverisenvery sharply. In 1997, while the targeted PDS (TPDS) was introduced, the government reduced the off-take from the PDS, quite substantially. Consumers were divided into *below poverty line* (BPL) and *above poverty line* (APL). The government calculated the economic cost as the sum of the procurement cast (Minimum Support Priceor MSP) and storage, transportation and administrative costs. The economic cost thus calculated worked out to be more than the market prices in most areas.The MSP has been rising continuously and since 1998 it has exceeded the prices recommended by the CACP.The government has also to protect the interest of the farmers as well as respond to the pressure generated by the farmers and their sympathizers in the political circles. This compulsion on the part of the government led to a rise in the economic cost of the public stocks.Under the 1997 policy APL consumers were to purchase grain from the PDS at a price equal to the economic cost, while the BPL consumerswere expected to pay half the APL price. No wonder if the prices that fully cover the said economic cost are higher than the free market prices.This led to the total withdrawal of the APL consumers from the PDS, while for the BPL consumers the issue prices too high, making the purchase from the PDS beyond their means. The off-take of rice and wheat taken together fell by about 10 million tonnes in 2000-2001,adding further to the already burgeoning grains stockpiled with the Food Corporation of India (FCI). We witness this paradox in our country- about 70 million tonnes of wheat and rice in Government stocks and over 200 millions children, women and men chronically undernourished (Dev, 1996).

Under the prevailing circumstances one cannot suggest to scrap the Public Distribution System (PDS), it should rather be further extended to the rural areas. It requires creating more employment opportunities for the rural people. There is a need to ensure that the cultivators get stable prices. More Strategies for water harvesting should be involved for cultivation in rain-fed areas and agricultural research should be directed towards providing food for the messes, and not towards generating profits for the agrimultinationals. To survive, India has to look at agriculture differently as it is the very backbone of livelihood and ecological security systems, as well as our national sovereignty (Patnaik, 2001).

Globalization of the Indian economy in general and the rural economy in particular will necessarily be modified in view of the forces and structures mentioned above. It is true that the globalizationforces will also modify these structures in due course, but it is unlikely that it will occur in the short run. What is most likely in the short run is the reinforcement and streamlining of the dualistic structure and further deepening of the hiatus

between the rich and the poor and between the rural and the urban. Today, in the post globalization era, one is not surprised if an employee (in the top rung) of a private concern (or a privatized organisation) in which the government has 51% stake) gets rupees 3 lakh per month or more as salary plus hefty perks, but the agricultural labourers' minimum wage ratesfixed by the government lie in the range of rupees 50-100 per day, well below three subsistencewages as per the ILO criteria (ILO, 1996).

8. IMPACTS OF GLOBALIZATION ON THE URBAN SECTOR

Mathur (2003) was of the: Reviews of the post-1991 city-level changes show interesting results. **One**: expansion in trade, capital flows, and consistently higheconomic growth as embodied in GDP,has not led to any acceleration in the overall urban growth or large cities. Two: globalization has not resulted in any expansion of overall employment opportunities. It has selectively led to expansion of opportunities in retail trade, communications, and financial, banking, and real estate services. **Third**: globalization has meant an increased demand for residential, office and commercial space. On a limited scale, residential space has been converted into commercial malls; new shopping plazas have sprung up, and townships with quality infrastructure have been developed around major cities to accommodate the branch offices of multinational and domestic companies. **Four**: globalization has influenced city-level policies wherein new institutional and financial arrangements are being forged to improve service delivery and management and enhance city-level productivity. An overall assessment of city-level change is that these are few and limited. City transformation has not occurred. With the exception of new physical development and some special restructuring, no landmark shifts have occurred in urban form. Moreover, the changes appear to be isolated and 'add on' rather than signalling a structuralshift in the economy of cities.The basic postulate that major improvements in infrastructure services can occur only if they are undertaken within the context of city economies is still in an infant stage.' Business process outsourcing and Call Centres that flourished in Indian Metro policies in Hindi last few years run in the nights to one side with the daytime office hours in the West. This working at nights requires adjusting the biological clock and social practices to a different time, which is turning out to be a major cause for health related and social problems.

Noticeable changes are occurring in family structure, especially in the urban centres, and fertility is falling due to a weakening of additional family controls and declining value given to procreation.Marriage is being considered as economic transaction, leading to serious threat to young

women.The declining value of their procreative power puts women at the mercy of impersonal, market-driven economic forces with which they are ill-equipped to deal.

9. CONCLUSION

Globalization means the opening of local markets for the world and vice versa without any restrictions.This has created more opportunities for Indian industries to tap into more and larger markets worldwide. Thus, India has greater access to capital flows, technology, human capital, cheaper imports, and larger export markets. India needs to adapt its production capacity, prices and the quality of products to compete internationally.

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ESI PUBLICATIONS
Gurugaon, India

Does Diaspora Remittances Enhance Productive Asset Purchase in Host Country? Evidence from Nigeria

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Abstract: It is no longer a debate that international remittance have a positive influence on economic growth as it goes into individuals to meet family needs, but what has not been settled empirically (at least in the case of Nigeria) is the end-use allocation of this resources. This study assesses the expenditure pattern of international remittances on productive assets purchase using a micro cross sectional data obtained from 2009 World Bank's Migration and Remittances Survey in Nigeria. The model estimated was based on a new approach, using the bivariate probit regression equation which saw remittances and productive assets as endogenous variables determined by some observed variables. The main result is the insignificant positive effect of migrant remittances on propensity to acquire productive assets among Nigeria's households.

Key words: Remittances, Diaspora, Productive Assets, Economic growth

JEL Classification: D13, O15

1. INTRODUCTION

Remittances of international migrants to developing countries are attracting great attention in the contemporary times because of the quantum of transaction which is estimated to have risen considerably over the years. Recent estimates show an increase from US$432 billion in 2015 to US$516

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billion in 2016, World Bank[1][2] Remittances to Nigeria rose every year over the last decade, from $16.93 billion in 2006 to $20.83 billion in 2014, making Nigeria the sixth largest recipient of remittances in the world. It is no longer a debate that remittance goes into individuals to meet family needs, but what has not been settled empirically (at least in Nigeria) is the specific thing the money is used for. Some studies argue that remittances are mainly spent on immediate consumption goods such as food and utilities (Sharaf, M.F., Simiyu , and Urama *et al*, [3][4] [5] while an alternative view in the literature asserts that households consider remittances to be a form of transitory income which will be spent more at the margin on human and physical capital investments than on consumption goods, Udah,Ajefu, and Adams and Cuecuecha[6][7] [8].

A lot of research has gone into the impact of remittances on the growth of an economy and as an agent for poverty reduction. However, the issue of productive asserts acquisition seems a recent phenomenon, especially in Nigeria. The term "remittances" basically refers to the transfers, in cash or in kind, from a migrant to household residents in the country of origin. Remittances are referred to as unrequited transfer sent by migrant workers back to relatives in their countries of origin, Agwu *et al*[9]. Remittances are person-to person flows, well targeted to the needs of the recipients, and these gifts and or money, do not typically suffer from unnecessary international monetary regulations often associated with official aid flows.

Fundamentally, remittances are personal flows from migrants to their families and friends, Abbas *et al*, Jean Christophe Fotso, *et al*, [10][11]. Ratha[12] portrays remittances as the most tangible and least controversial link between migration and development because of its stability and counter cyclicality over time compared to other private flows.

That remittances are agents of growth is incontrovertible. As Bang et al. [13] observed there is more agreement than disagreement with regard to the impact of remittances on growth and poverty; most of the evidence in the literature suggests that remittances enhance growth and reduce poverty. Studies such as Catrinescu et al., [14] and Feeny et al. [15] support the poverty reduction hypothesis by emphasizing that remittances stimulate financial development. Meanwhile, Giuliano and Ruiz Arranz, Mundaca, Aggarwal et al., and Chowdhury[16] [17] [18] [19] focused on human capital formation and found that remittances enhance development through increasing educational expenditure at the household level. But, that remittances are used for consumption alone or purchase of productive assets is omnibus and the boundaries of that argument is fluid.

This paper seeks to contribute to the long-standing debates in the literature concerning the use of remittances by households. Do Nigerian

households utilize remittances in a productive manner through acquiring productive assets or purely for consumption? What is the composition of remittances on productive assets acquisition among households in Nigeria; and do remittances alleviate receiving household's financial constraint? These are some of the questions we will attempt to answer. The objectives of this study are;

- To examine whether remittances impact significantly on productive assets acquisition in Nigeria.
- To examine the type of remittances that contributes to the acquisition of productive assets in Nigeria.
- Do remittances significantly alleviate household financial constraint?

3. LITERATURE REVIEW AND THEORETICAL FRAMEWORK

Theories associated with the impact of remittances on development are hinged on three underpinning points: Again, one of the arguments that favoured this research is the classification of remittance end-use into three, Udah[6]. Much of the empirical works we have cited early seems to suggest that in all, remittances are beneficial to the host country. Developmental Optimistic School which sprang out of the neoclassical school of thought on migration hypothesis holds the view that remittances are beneficial to development of the host country. The second is the Developmental Pessimistic School that is largely influenced by the structuralism dependency school. They anchor their view on the negative effects of remittances. The third is a combined position of the two earlier ones inspired by the Remittances Development Pluralists, Adenutsi, de Haas, Taylor, [20] [21] [22] [23]. We shall attempt to highlight these three positions briefly.

The Developmental Optimistic View

The Developmental Optimistic view became prominent in 1950s and 1960s. it assumed that those who move to the western world in what we call North-South migration transfer money to their loved ones at home. And this "North-South" transfers of investment capital also come with it enhancement of labour of the exporting countries due to their exposure to "liberal, rational and democratic ideas, modern knowledge and education" Acosta *et al*[20] . The general assumption the followers of this theory portend is that flows of remittances as well as experience, skills and knowledge that migrants acquire abroad will enhance development in the recipient countries, Acosta *et al*,de Haas, Azam M. *et al*,[20] [21] [22]. In the Neoclassical model of balanced growth, migration is a process contributing to optimal

allocation of production factors, which benefit all equally, both the countries of origin and the recipients de Haas, [21]. In an unconstrained market environment, free labour mobility will lead to scarcity of labour, and hence the marginal productivity of labour will increase and lead to higher wages in the migrant sending countries (de Haas, Azam M,.Haseeb M., shamzaeffa, and Samsudin, Amuedo-Dorantes, C., & Pozo, S. [21] [22] [23]

The Developmental Pessimistic View

In the late 1960s a new viewpoint regarding remittances, migration and development emerged; referred to as the pessimistic view. The theory arose from a shift in social science towards more structural views de Haas, [21]. This theory suggests that the net effect of migration and remittances does not foster sustainable development, Acosta *et al*, [20]. The brain drain is one of the aspects considered, where emigration of the educated leads to a loss that is not offset by the benefits associated with remittances, Acosta *et al*, Amy Hagopian, *Denis N. Yuni, et al,* Jena FeraiJibril Haji and Penninx R.[21] [24] [25] [26] [27] [28]. The developing countries are drained of their human capital resources when educated inhabitants emigrate.

They argue that the recipients are not as enlightened to make investment decisions therefore, the recipient might not be as skilled as domestic financial intermediaries; therefore the investment is less likely to be successful, Castaldo, A., and B. Reilley, Chami *et al*, [29] [30]. Money would rather be spent on consumption or non-productive investments such as real estate and rarely in productive enterprises. If the money received is spent mainly on consumption, rather than investment, this could encourage more rapid inflation in the remittance receiving developing countries, Woodruff, C., &Zenteno, R.,Osili, U. O,Agwu *et al*; Acosta *et al*[31][32] [9][20]. Diaspora income is a largess and could lead to crowding out effect. Increased wealth, generated by remittances, could challenge the receiver'

The Developmental Pluralistic View

The third variant often referred to as Developmental Pluralistic View is not so much a theory but rather an anti-thesis of both the positive and pessimistic view that arose in the 1980s and 1990s. The pluralistic view aims to link causes and consequences of migration more explicitly, in which both positive and negative effects on development are possible, de Haas, [21]. They argue that because of the complexity of remittances and development, there is a need of more dynamic understanding of the relationship between them. Neither the optimistic nor the pessimistic view provides this, Acosta *et al* [20]. According to this theory the fundamental question is not whether migration has a strictly negative or positive impact

on development, the effects of remittances are thus context-dependent, de Haas, [21].

Skepticism about the use of migrant remittances for productive investments has become the common thread of the migration and development debate. In this research, we stand by the proposition that a significant proportion of remittances are spent on savings and investment while a small fraction is spent on consumption. Notwithstanding, a cursory look at empirical findings of the pessimistic view of remittance expenditure among household will be worthwhile.

Empirical findings has made it no longer a debate that migration can generate output growth either by increasing consumption or increasing investment -through multipliers, Adams, R. H., & Cuecuecha, A. Iheke, Rubenstein, Agwu *et al*,[33][34][35][9]. Beginning with the pessimistic view, World Bank [36], investigated the impact of remittances on the expenditure pattern of rural households with data from Ethiopia Rural Household Survey (ERHS), using the Two- part model or (Hurdle model) within Engel's Curve framework. Their findings show absence of any strong link between remittance income and investment expenditure on the first model, and in the second part it found a positive and robust link with consumption expenditure.

Amel S. Omer *et al*. [44] explored the effects on health of both household asset inequality and political armed conflict in Sudan; with data drawn from 2010 Sudan Household survey to evaluate the role of household distribution and conflict status. They should variables such life expectancy, infant mortality, height-for-age (stunting), adequacy of food consumption, teenage birth rates and vaccination coverage for young children. Their findings show that states with unequal distribution of wealth suffer more in conflict and significantly worse-off in health.

Yameogo[37], for Burkina Faso analyzed the impact of remittance on household expenditure with data from the 2010 Cross-Sectional Survey using a Latent Class Model (LCM). Its result shows that remittance is significantly and positively related with expenditure on food and other utilities. It went further to investigate remittance inflow and household expenditure pattern in Kenya, using a Fixed Effect (FE) model on a panel of 295 households. In their findings, remittance is significant and positively related to consumption of food and public utilities.

A recent survey by Urama *et al* [5] who used panel data from Indonesian Family Life Survey conducted during the period 2000-2007 also found that household spent more of their margin on food compared to what they would have spent without the receipt of remittances. Urama *et al* [5] also

took a study of Tajikistan, using a Propensity Score matching Method, and found that neither internal nor external remittances have a positive effect on investment expenditure. These studies lend support to the pessimistic view that households spend more of their remittances on food and barely on productive investment.

Conversely, authors of optimistic view say remittances could be more investment prone than consumption; beginning with Quartey[38], who used data from Malawi Integrated Household Survey - November 1997-October 1998 and undertook responses from 2,046 households to investigate how remittances are spent in Malawi. They used the Ordinary Least Squares (OLS) method to estimate income elasticity and the Inverse Mill's Ratio (IMR) to control for selection bias. Their findings show that households in Malawi choose to allocate income from remittance differently from other forms of income.

Further, Simon *et al* [39] used a panel data obtained from 115 developing countries in 2007 to investigate how households spend their remittances. They found that households allocate less on food and more of their income on investment good like housing, education as well as other entrepreneurial activities. In another related research during the same period Soraya[40] used a cross-country analysis to investigate how households spend their remittances and their findings indicates that households used more of their remittance income on savings and investment than other consumption.

In another empirical work Udah[6] used two approaches to examine the impact of remittances on expenditure pattern of house-holds in Kyrgyz Republic. The researchers employed the use of Seemingly Unrelated Regression (SUR) and Propensity Score Matching (PSM) model. Result from their findings using the two methods show that remittances increase the share of expenditure on durable goods such as human capital investment and construction.

Jena F. [26] used instrumental variable and recursive probability model to investigate the migrant remittances and physical investment purchases in Kenya and found that remittances have a positive effect on household purchases of physical investment. In another related work, Agwu *et al* [9] employing quantile regression method using household expenditure as a proxy for household income to examine the impact of remittances on income inequality where they posit that remittances are used in productive ways by households which invariably improve the household welfare. That remittance enhance household expenditure at all quantiles of expenditure distribution but the impact is not uniformly distributed along income levels. The standard quantile regression suggests that the impact of remittances graduates from the lowest to the topmost quantile of income distribution.

In a recent work by Denis *et al* [25], the study assesses the expenditure patterns of international remittances; comparing between remittance recipient households and non-recipient households in Nigeria. Household data was sourced from Anambra and Enugu states of Nigeria in November 2011 for the study. Using the working lesser model, this study finds that remittance into Nigeria has a stabilizing effect on its expenditure, as the marginal difference between remittance recipient households and non-recipient households is not significant for most of the expenditure types. However, remittance expenditures on shares/stock market investments are relatively lower than in non-recipient households. Meanwhile remittance expenditures on buildings, funerals and family subsistence are relatively higher than non-recipient household's expenditure.

In summary, it is obvious that the debate on household expenditure pattern skewed towards food consumption, while others are heavily skewed towards investment and asset purchase. It will be too bogus to use panel results from other countries to determine the outcome of another country in this regard. This is because the dynamics of end-use differs from country to country depending on its peculiarities. Denis *et al* [25], gives us a lead to follow in our analysis though we have deliberately chosen to use different model to analyze the impact. Nevertheless, there are relatively few works of this kind in Nigeria. This therefore stands out as our point of departure in this paper.

4. DATA AND METHODS

In this research, a single-round cross-sectional survey with information on household characteristics, household assets and expenditures, households with migrants, returning migrants and remittances received was obtained from the 2009 World Bank's Migration and Remittances Survey in Nigeria. The survey was commissioned in September 2009. The survey was nationally representative and it followed a stratified random sampling with 18 out of the 36 states and the Federal Capital in Nigeria selected, in which 2251 households were successfully interviewed.(please see Appendix A and B for variables and raw regressions).

In analyzing and presenting data, the research work is conducted using an econometric methodology of probit regression model. A probit regression model is best suited for capturing binary indicator dependent variables. The data obtained is fitted by the recursive probit and instrumental variable analysis. This technique is used because it facilitates model specification, parameter estimation and aids in formulation of good policies. However, recursive bivariate probit was used to cater for endogeneity problem.

The model specification of this study is therefore as follows:

The functional form of the model is specified as;

$$P(Y = 1/X) = G(X\beta) \equiv P(X) \quad (1)$$

'X' is the vector that captures the covariates used in the regression.

'G' is the normal cumulative function (cdf).

The specific form of *G* can be derived from an underlying latent variable model given as;

$$y^* = X\beta + \varepsilon$$

Where; $y = 1[y^* > 0].$

The Evaluation is based on Econometric Criteria

The recursive bivariate probit model is presented below:

$$prod_{it} = \alpha_1 remit_{it} + \pi_1 \beta_{1it} + \mu_{1it}. \quad (2)$$

$$Remit_{it} = \pi_2 \beta_{2it} + \mu_{2it}. \quad (3)$$

"prod and remit" are latent variables reflecting household's propensity to acquire productive assets and remittances.

'π_1' includes covariance aiding household's incentive to acquire productive assets.

While π_2' represents covariance aiding remittance.

$$prod_{it} = \begin{cases} 1 if\ prodit > 0 \\ 0 if\ prodit\ y \leq 0 \end{cases} \quad (4)$$

$$Remit_{it} = \begin{cases} 1 if\ remitit > 0 \\ 0 if\ remitit \leq 0 \end{cases} \quad (5)$$

Where;

$Prod_{it}$ And $Remit_i$represent whether the household received remittances and the actual decision of whether to spend on productive assets as included in equation (2).

The survey of 2251 households show that total of 724 households receives remittance within the last 1 year making a total of 32.16% from the total household survey, while only 421 households have acquired productive assets making 18.70% of the total household survey(see table 1and table 2 below)

5. RESULTS AND INTERPRETATION

Table 1: Households and receipts of remittance

Remittance	*Freq.*	*Percent*	*cum.*
0	1,527	67.84	67.84
	724	32.16	100.00
Total	2,251	100.00	

Table 2: Households and acquisition of productive assets.

Asset	*Freq.*	*Percent*	*Cum.*
0	1,830	81.30	81.30
1	421	18.70	100.00
Total	2, 251	100.00	
asset	Freq.	Percent	Cum.
0	1,830	81.30	81.30
1	421	18.70	100.00
Total	**2,251**	**100.00**	

Source: researcher's computation; stata 14

From the table 1 above, a total of 1527 Households did not receives remittance, while from table 2 a total of 1830 households did not acquire productive assets.

Table 3: Households that receive remittance without purchase of productive asset.

Remittance	*Asset*		
0	0	1	Total
0	1,272	225	1,527
1	558	166	724
Total	1830	421	2,251

Source: researcher's computation; stata 14

From table 3 above, households that received remittance and not acquiring productive assets is estimated to be 558 out of 724 households, while a total of 255 households acquired productive assets but did not receive remittance. We proceed to conduct Analysis Of Variance (ANOVA) which is used to test and define the significance of the mean of the two groups.

Table 4: ANOVA Result

Analysis of Variance

Source	*ss*	*Df*	*MS*	*F*	*Prob>F*
Between groups	1.90548777	2249	1,90548777	12.59	0.0004
within groups	340.355729		.151336474		
Total	342.261217	2250	.152116097		

Barlett's test for equal variance: chi2(1) = 14.5019 Prob> chi2 = 0.00

The result on the ANOVA table 4 above, shows that the variables are significantly different. The prob> F being below 0.05, and the F-stat being above 1.96 using a 10% level of significance, we reject the null hypothesis of no difference. This implies that we have accepted the alternative hypothesis of statistically significant difference between the remittances and productive assets data collected by the survey, making the data suitable for further analysis.

Estimation of Household characteristics

The estimation takes into account household characteristics such as total household expenditure, household size, and other characteristics of the household head such as age, gender, marital status, employment status, and education. The survey does not provide information on household wealth, however, the study controlled for household wealth with proxies such as household ownership of computer, ownership of car truck and ownership household fridge, also the regressions also take into account urban and regional dummies respectively as shown in Table 5

Table 5: Estimation of Household characteristics

Marginal effects after biprobit
y=pr(asset- 1, remittance = 1) (predict)
= 0.05853467

Variable	*dy/dx*	*std. Err*	*z*	*p > [z]*	*[95% C. I]*		*X*
intoth~p	0.0398555	.00426	9.36	0.000	.031513	.048198	11.5615
hheadsex*	-.0204167	.01235	-1.65	0.098	-.044616	.003783	.859128
hhloca~n*	-.0323123	.00787	-4.10	0.000	-.047745	-.016879	.507427
hhfridge*	-.0114721	.00869	-1.32	0.187	-.028498	.005554	.49976
hhcar*	-.0190486	.00943	-0.77	0.442	-.025735	.011233	.240537
hhcomp~r*	-0.190486	.00934	-2.04	0.041	-.037356	-.000741	.163872
educat~s	-.6212194	.60571	-3.72	0.000	-.032406	-.010032	1.77432
hhfule~y*	-.0263203	.01212	-2.17	0.030	-.050077	-.002564	.837566
hhhead~s*	.0923274	.01112	8.30	0.000	.070536	.114119	.355055
hhhead~e	.0002263	.0003	0.76	0.446	-.000355	.000808	49.5644
Hhsize	-.0005856	.00117	-0.50	0.618	-.002884	.001713	5.78965

(*)dy/dx is for discrete change of dummy variable 0 to 1
Source: researcher's computation; stata 14

The result in table 5, show that all things being equal, household expenditure (lntothexp), household location (hhlocation), education status (education status), household full emploment (hhfulemployment), and household marital status (hhheadmarital status), are all statistically

significant as a propensity to acquire productive assets and receive remittance, while, hheadage, hheadsize, hhcar, hhfridge, and hhsex are not statistically significant determinants of productive assets acquisition and remittance. Hence, the significant variables will be used for further analysis. The simple probit regression is used to run productive assets on remittances received by households. The variable $x_1\beta_{1i}$ represents other latent variable aiding productive assets. See details in appendix A (Bivariate probitregression)

Objective 1

To examine whether remittances impact significantly on productive assets acquisition in Nigeria. The probit regression equation in 2 is used. That is

$$prod_{it} = \alpha_1 remit_{it} + \pi_1\beta_{1it} + \mu_{1it}$$

The variable $x_1\ \beta_{1i}$ represents other latent variable aiding productive assets.

Table 6: Estimates of the probit model

Marginal effects after biprobit
y=pr(asset) (predict)
= 0.17251402

Variable	*dy/dx*	*std. Err*	*Z*	*p > [z]*	*[95% C.I]*		*X*
remitt~e*	0.238869	0.02973	1.15	0.249	-.016139	.064513	.334603
hhhead~s*	.0069443	.0199	0.35	0.727	-.032063	.045951	.356497
hhfule~y*	-,0129488	.02321	-.56	0.577	-.658437	.032539	.836744
educat~s	-.0499728	.01269	-3.94	0.000	-.074838	-.025108	1.7763
hhcomp~r*	-.0716628	.02118	-3.38	0.001	-.113177	-.030148	.164683
hhloca~n*	-.0926117	.01789	-5.18	0.000	-.127684	-.05754	.509757
Intoth~p	.0683051	.00793	8.61	0.000	.05276	.083851	11.5684

(*)dy/dx is for discrete change of dummy variable 0 to 1
Source: researcher's computation; stata 14

The result from the table 6 above, show that remittances do not impact significantly on productive assets acquisition. From the result, it shows all other variables held constant, households that receive remittances have an increased probability of acquiring productive assets by 0.0238869 compared to non-remittances receiving households. Also the results obtained show a positive and insignificant impact of remittances and acquisition of productive assets due to p-value > 0.05

The significance of remittance do not in this paper conform to empirical conclusion on our a priori expectation. This could be explained that

remittances received by households are being utilized by households for consumption purposes. Thus, remittances received are channeled into immediate consumption. Prior to the research, it was expected that remittances play significant impact on productive assets accumulation; as households receive remittances, they tend to acquire productive assets. From the result we reject the alternative hypothesis.

Objective 2

To examine the type of remittances that contributes to the acquisition of productive assets in Nigeria.

To achieve this objective, we considered the research question: "what type of remittances impacted on productive assets acquisition in Nigeria?" In order to test this hypothesis, we would use equation 2 also, ($prod_{it} = \alpha_1 remit_{it} + \pi_1\beta_{1it} + \mu_{1it}$) and type remittances (local and international) and the significant variables used in achieving the broad objectives. Following dummy specification the regression was made in the natural log of odds and presented below. The result as interpreted is titled Table 7 indicating the marginal effect estimates.

Table 7 result below shows that all other variables held constant, local remittances (loc_remit) significantly impact on productive assets. From the result, it shows that households that receive local remittances have an increased probability of acquiring productive assets by 0.0591433 compared to non-remittance receiving households. While international remittance (int_remit) has a negative and insignificant impact on the propensity to acquire productive assets thus reduce households' probability of acquiring

Table 7: Marginal effects after probit

Marginal effects after biprobit
y=pr(asset) (predict)
= 0.17166872

Variable	*dy/dx*	*std. Err*	*z*	*p > [z]*	*[95% C.I*		*X*
Int_re~t*	-.022517	.02491	-0.90	0.366	-.071344	.02631	.149453
Loc_re~t*	.0591433	0.2593	2.28	0.23	.008318	.109968	.18515
Intoth~p	.070496	.00796	8.85	0.000	.054885	.086107	11.5684
hhloca~n*	-.0913718	.01788	-5.11	0.000	-.126424	-.05632	.509757
hh.comp~r*	-0.0703229	.02123	-3.31	0.001	-.111941	-.028705	.164683
educat~s	-.0483147	.01269	-3.81	0.000	-.073184	-.023445	1.7763
hhfule~y*	-.0132302	0.232	-0.57	0.568	-.058697	.032236	.836744
hhhead~s*	.0061997	.01987	0.31	0.755	-.032739	.045138	.356497

(*)dy/dx is for discrete change of dummy variable 0 to 1

Source: researcher's computation; stata 14

productive assets by 0.022517 compare to non-remittances receiving households. Local remittances have a positive and significant impact on the propensity to acquire productive asset due to p-value < 0.05. International remittances not being significant could be (perhaps) as a result of high interest rate charged by commercial banks and other formal channels through which remittances are sent to households. Interest rates charged on remittances sent internationally are estimated to be about 10%. Local remittance is utilized for productive assets acquisition due to little or small interest rate charged on remittances inflow to households. From the result we reject the null hypothesis and accept the alternative.

Objective 3

To determine if, remittances significantly alleviate financial constraint of household.

To achieve this objective, we would consider the research question: "Do remittances significantly alleviate household financial constraint?"

$Remit_{it} = \pi_2\beta_{2it} + \mu_{2it}$

H_o: Remittances do not significantly alleviate household financial constraints.

H_1: Remittances significantly alleviate household financial constraints.

In order to test this hypothesis, we used equation 3($Remit_{it} = \pi_2\beta_{2it} + \mu_{2it}$)

$\pi_2\beta_{2i}$ represents other latent variable aiding remittance. These variables are the significant variable in Appendix A and shown in table 8

Table 8: Remittances and household financial constraint

Marginal effects after biprobit
y=pr(remittance) (predict)
= 0.30054091

Variables	*dy/dx*	*std. Err*	*Z*	*P>[z]*	*[95% C. I.]*		*X*
Intoth~p	0.0740474	0.01028	7.20	0.000	.53904	.094191	11.5684
hhloca~n*	-.0338292	.02333	-1.45	0.147	-.079552	.011893	.509757
hhcomp~r*	.0152493	.03248	0.47	0.639	-.048505	.078904	.164683
educat~s	-.0354957	.01621	-2.19	0.029	-.06726	-.003732	1.7763
hhfule~y*	-.1245503	.03149	-3.96	0.000	-.186263	-.062837	.836744
hhead~s*	.4575978	.02099	21.80	0.000	.416452	.498744	.356497

(*)dy/dx is for discrete change of dummy variable 0 to 1

Source: researcher's computation; stata 14

The result from table 8, show that all other variables held constant, lntothexp is positive and statistically significant on remittance received by households. From the result, it also shows that households with an

increased total household expenditure have a probability of receiving remittance by 0.074074 compared to non-remittance receiving households. lntothexp is positive and statistically significant due to p-value < 0.05. From the result we reject the null hypothesis. Household location is not significant could be as a result of households location being urban and the remittances received international are small since the inflow of remittances are expected to be vertical, hence urban dwellers are expected to receive remittances abroad.

6. DISCUSSION OF RESULT

This study analyzed the impact of remittances on productive assets acquisition from a household survey in 2009. The result shows those households that receive remittances within the last one year are more likely to utilize the remittances received for consumptive purpose and payment of utilities such as food, health care, electricity bills etc. which is in line with the view that remittances cause household members to reduce their labour supply and spend remittance income on consumption substituting for labour income. Studies that support this perception include Adams & Cuecuecha[8], Chami *et al*. [41], and Durand *et al*. [42] contrary to the view that remittances are transitory and as such channeled into productive investment that spurs economic growth and development, Jena,[11] Osili[43], Woodruff & Zenteno[31]. Usefulness of remittances is assumed to be mainly for consumption purpose. The null hypothesis is not rejected while the alternative hypothesis is rejected.

The result also depict that local remittances significantly impact more on acquiring productive assets by households while international remittances are not significant and are channeled towards consumption goods.

Remittances from the result obtained, increased household expenditure, thus alleviates financial constraint of household thereby smoothing their expenditure pattern. The research showed that remittances reduces households members' labour supply making them to spend remittance income on consumption substituting for labour income as opined by Chami *et al* [30] and Adams and Cuecuecha[8].

7. CONCLUSION

The main objective of this study is to examine the impact of remittances on productive assets acquisition and a micro cross sectional data was used in the estimation of the model. Specifically, the study is aimed at examining whether remittances impact significantly on productive assets acquisition, examining the type of remittances that contributes to the acquisition of

productive assets and to determine if remittances significantly alleviate financial constraint of households in Nigeria. We concluded that there is a positive and insignificant effect of migrant remittances on propensity to acquire productive assets among Nigeria's households. Thus, remittances alleviate financial constraint. The model estimated was based on bivariate probit regression equation which saw remittances and productive assets as endogenous variables determined by some observed variables.

Diaspora incomes are fluid and require a targeted system by a well-meaning strategy to harness. Government must not allow remittances to diffuse in the economy or else its intended result will be hindered. Idea through Non-Governmental Organizations (NGOs) or a ministry to mobilize and galvanize the various groups in different countries to educate them on the usefulness of their remittances and also how it could be put to proper use. Nigerian government cannot sit back home at the destination to guide how the remittances could be used but can enhance usefulness by synergies at the country of origin. By so doing recipients of remittances could be guided on how best to allocate their income to productive purchases.

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APPENDIX A

VARIABLES SPECIFICATION

1. assets: if household acquire productive assets within the last one year (1), otherwise (0).
2. Remittances: total amount sent by migrant
3. hhsize: total household size
4. lntothexp: total household expenditure
5. hheadage: age at last birthday
6. hhhmaritalstatu: 1 if married, 0 otherwise.
7. hhfulemploy:1 if full employed, 0 otherwise.

8 educationstatus:(1)primary,(2)secondary,(3)tertiary

9. hhcomputer: 1yes, 0 otherwise.
10. hhcar:1yes, 0 otherwise.
11. hhfridge:1 yes, 0 otherwise.
12. hhlocation:1 urban, 0 otherwise.
13. hheadsex:total household size
14. int_remit: international remittances received
15. loc_remit: local remittances received

APPENDIX B

Table 1

Bivariate probit regression — Number of obs = 2,087; Wald chi2(22) = 692.46; Log likelihood = -1925.7118 — Prob > chi2 = 0.0000

	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
asset						
lntothhexp	.3478303	.0360415	9.65	0.000	.2771902	.4184705
hheadsex	-.0478344	.09978	-0.48	0.632	-.2433997	.1477308
hhlocation	-.3664155	.0723618	-5.06	0.000	-.508242	-.2245891
hhfridge	-.1915999	.0827127	-2.32	0.021	-.3537138	-.029486
hhcar	-.2144386	.0961139	-2.23	0.026	-.4028183	-.0260589
hhcomputer	-.1990347	.1099177	-1.81	0.070	-.4144693	.0164
educationstatus	-.2040495	.0540422	-3.78	0.000	-.3099704	-.0981287
hhfulemploy	-.195459	.09438	-2.07	0.038	-.3804403	-.0104776
hhheadmaritalstatus	.1344115	.0724114	1.86	0.063	-.0075123	.2763353
hhheadage	-.0110496	.0027959	-3.95	0.000	-.0165295	-.0055697
hhsize	.0144312	.0110255	1.31	0.191	-.0071784	.0360407
_cons	-3.636233	.4009042	-9.07	0.000	-4.421991	-2.850475
remittance						
lntothhexp	.1795725	.0337313	5.32	0.000	.1134603	.2456846
hheadsex	-.2436686	.0931718	-2.62	0.009	-.426282	-.0610553
hhlocation	-.0325293	.0699192	-0.47	0.642	-.1695684	.1045098
hhfridge	.0689233	.0803784	0.86	0.391	-.0886155	.226462
hhcar	.1783106	.088474	2.02	0.044	.0049048	.3517164
hhcomputer	-.0708611	.0987105	-0.72	0.473	-.2643301	.1226079
educationstatus	-.0706443	.0511191	-1.38	0.167	-.1708359	.0295473
hhfulemploy	-.1220232	.0902955	-1.35	0.177	-.2989991	.0549527
hhheadmaritalstatus	1.222708	.0660244	18.52	0.000	1.093303	1.352114
hhheadage	.0182558	.002676	6.82	0.000	.013011	.0235006
hhsize	-.0284997	.0111149	-2.56	0.010	-.0502846	-.0067148
_cons	-3.403758	.3923296	-8.68	0.000	-4.17271	-2.634806
/athrho	.1046699	.0479513	2.18	0.029	.0106872	.1986527
rho	.1042894	.0474297			.0106868	.1960801

Likelihood-ratio test of rho=0: chi2(1) = 4.78493 Prob > chi2 = 0.0287

Source: researcher's computation; stata 14

Table 2

```
Marginal effects after probit
      y  = Pr(asset) (predict)
         =  .17166872
```

variable	dy/dx	Std. Err.	z	P>|z|	[	95% C.I.	]	X
int_re~t*	-.022517	.02491	-0.90	0.366	-.071344		.02631	.149453
loc_re~t*	.0591433	.02593	2.28	0.023	.008318		.109968	.18515
lntoth~p	.070496	.00796	8.85	0.000	.054885		.086107	11.5684
hhloca~n*	-.0913718	.01788	-5.11	0.000	-.126424		-.05632	.509757
hhcomp~r*	-.0703229	.02123	-3.31	0.001	-.111941		-.028705	.164683
educat~s	-.0483147	.01269	-3.81	0.000	-.073184		-.023445	1.7763
hhfule~y*	-.0132302	.0232	-0.57	0.568	-.058697		.032236	.836744
hhhead~s*	.0061997	.01987	0.31	0.755	-.032739		.045138	.356497

(*) dy/dx is for discrete change of dummy variable from 0 to 1

Source: researcher's computation; stata 14

Table 3

```
Probit regression                               Number of obs     =      2,087
                                                LR chi2(12)       =     157.50
                                                Prob > chi2       =     0.0000
Log likelihood = -923.51582                     Pseudo R2         =     0.0786
```

asset	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
remittance	.1788893	.0819363	2.18	0.029	.0182971	.3394815
lntothhexp	.3397249	.0362885	9.36	0.000	.2686007	.4108491
hhheadmaritalstatus	.0591488	.080167	0.74	0.461	-.0979757	.2162732
hhfulemploy	-.1884765	.0945992	-1.99	0.046	-.3738875	-.0030655
educationstatus	-.2002557	.0541739	-3.70	0.000	-.3064346	-.0940768
hhcomputer	-.1973613	.1101011	-1.79	0.073	-.4131555	.018433
hhlocation	-.3648421	.0724681	-5.03	0.000	-.506877	-.2228072
hhsize	.0160926	.0110668	1.45	0.146	-.005598	.0377833
hheadsex	-.0355867	.1001052	-0.36	0.722	-.2317894	.1606159
hhfridge	-.1953691	.0828877	-2.36	0.018	-.3578259	-.0329122
hhheadage	-.0120005	.0028343	-4.23	0.000	-.0175555	-.0064455
hhcar	-.2248028	.0963347	-2.33	0.020	-.4136153	-.0359903
_cons	-3.560421	.4027933	-8.84	0.000	-4.349881	-2.77096

Source: researcher's computation; stata 14

Table 4

Probit regression — Number of obs = 2,101; LR chi2(7) = 120.86; Prob > chi2 = 0.0000; Log likelihood = -950.61627; Pseudo R2 = 0.0598

asset	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
remittance	.0921912	.0788901	1.17	0.243	-.0624305	.2468129
lntothhexp	.2674018	.0314186	8.51	0.000	.2058226	.3289811
hhlocation	-.3615856	.0700122	-5.16	0.000	-.4988069	-.2243643
hhcomputer	-.3111633	.1032557	-3.01	0.003	-.5135408	-.1087858
educationstatus	-.1956343	.049806	-3.93	0.000	-.2932522	-.0980164
hhfulemploy	-.049902	.0880755	-0.57	0.571	-.2225267	.1227228
hhheadmaritalstatus	.0270862	.0773521	0.35	0.726	-.1245211	.1786935
_cons	-3.45337	.3473636	-9.94	0.000	-4.13419	-2.772549

Source: researcher's computation; stata 14

Table 5

Marginal effects after probit
y = Pr(asset) (predict)
= .17251402

variable	dy/dx	Std. Err.	z	P>|z|	[95% C.I.]		X
remitt~e*	.0238869	.02073	1.15	0.249	-.016739	.064513	.334603
hhhead~s*	.0069443	.0199	0.35	0.727	-.032063	.045951	.356497
hhfule~y*	-.0129488	.02321	-0.56	0.577	-.058437	.032539	.836744
educat~s	-.0499728	.01269	-3.94	0.000	-.074838	-.025108	1.7763
hhcomp~r*	-.0716628	.02118	-3.38	0.001	-.113177	-.030148	.164683
hhloca~n*	-.0926117	.01789	-5.18	0.000	-.127684	-.05754	.509757
lntoth~p	.0683051	.00793	8.61	0.000	.05276	.083851	11.5684

(*) dy/dx is for discrete change of dummy variable from 0 to 1

Source: researcher's computation; stata 14

Table 6

Probit regression — Number of obs = 2,101; LR chi2(8) = 128.62; Prob > chi2 = 0.0000; Log likelihood = -946.73867; Pseudo R2 = 0.0636

asset	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
int_remit	-.091194	.1041869	-0.88	0.381	-.2953966	.1130085
loc_remit	.2182344	.0903638	2.42	0.016	.0411247	.3953441
lntothhexp	.2768455	.0316842	8.74	0.000	.2147456	.3389454
hhlocation	-.3578561	.0701793	-5.10	0.000	-.495405	-.2203071
hhcomputer	-.3058353	.1034885	-2.96	0.003	-.508669	-.1030016
educationstatus	-.1897369	.0499579	-3.80	0.000	-.2876526	-.0918213
hhfulemploy	-.0511239	.088237	-0.58	0.562	-.2240651	.1218174
hhheadmaritalstatus	.0242668	.0775135	0.31	0.754	-.1276568	.1761903
_cons	-3.573088	.3508774	-10.18	0.000	-4.260795	-2.885381

Source: researcher's computation; stata 14

Table 7

Marginal effects after probit
y = Pr(asset) (predict)
= .17166872

variable	dy/dx	Std. Err.	z	P>|z|	[	95% C.I.	]	X
int_re~t*	-.022517	.02491	-0.90	0.366	-.071344		.02631	.149453
loc_re~t*	.0591433	.02593	2.28	0.023	.008318		.109968	.18515
lntoth~p	.070496	.00796	8.85	0.000	.054885		.086107	11.5684
hhloca~n*	-.0913718	.01788	-5.11	0.000	-.126424		-.05632	.509757
hhcomp~r*	-.0703229	.02123	-3.31	0.001	-.111941		-.028705	.164683
educat~s	-.0483147	.01269	-3.81	0.000	-.073184		-.023445	1.7763
hhfule~y*	-.0132302	.0232	-0.57	0.568	-.058697		.032236	.836744
hhhead~s*	.0061997	.01987	0.31	0.755	-.032739		.045138	.356497

(*) dy/dx is for discrete change of dummy variable from 0 to 1

Source: researcher's computation; stata 14

```
Probit regression                               Number of obs     =      2,101
                                                LR chi2(6)        =     582.39
                                                Prob > chi2       =     0.0000
Log likelihood = -1047.9624                     Pseudo R2         =     0.2174
```

remittance	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
lntothhexp	.2127947	.0297018	7.16	0.000	.1545802	.2710092
hhlocation	-.0971967	.067042	-1.45	0.147	-.2285967	.0342032
hhcomputer	.043497	.0919639	0.47	0.636	-.1367489	.2237429
educationstatus	-.1020062	.046577	-2.19	0.029	-.1932954	-.0107169
hhfulemploy	-.3406838	.0829312	-4.11	0.000	-.5032259	-.1781416
hhheadmaritalstatus	1.289358	.0637634	20.22	0.000	1.164384	1.414332
_cons	-2.935551	.3315796	-8.85	0.000	-3.585436	-2.285667

Source: researcher's computation; stata 14

Table 8

```
Marginal effects after probit
      y  = Pr(remittance) (predict)
         =  .30054091
```

variable	dy/dx	Std. Err.	z	P>|z|	[95% C.I.]		X
lntoth~p	.0740474	.01028	7.20	0.000	.053904	.094191	11.5684
hhloca~n*	-.0338292	.02333	-1.45	0.147	-.079552	.011893	.509757
hhcomp~r*	.0152493	.03248	0.47	0.639	-.048405	.078904	.164683
educat~s	-.0354957	.01621	-2.19	0.029	-.06726	-.003732	1.7763
hhfule~y*	-.1245503	.03149	-3.96	0.000	-.186263	-.062837	.836744
hhhead~s*	.4575978	.02099	21.80	0.000	.416452	.498744	.356497

(*) dy/dx is for discrete change of dummy variable from 0 to 1

Source: researcher's computation; stata 14

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Economic Diversification and International Trade: A Focus on Oil and Non-oil Export in Nigeria

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Abstract: The study assesses economic diversification and international trade focusing on oil and non-oil export in Nigeria. It suggests that for a country to diversify its economy, the country has to diversify its export base since export has been considered as an engine of growth of any economy. Nigeria as a developing country, should not depend majorly on one export commodity at a time but should integrate other sectors, thereby, diversifying the economy. The study uses the Stock-Watson dynamic Ordinary Least Square (DOLS) over the period of 1981-2018. The results from the model therefore, encourages the Nigerian government to develop interest in the non-oil sector of the economy by strengthen its legislation and supervisory framework, so as to ensure maximum contributions from all sectors of the economy. This measure will help reduce over dependence on petroleum export, expand and diversify the Nigeria's export base and therefore, protect the economy from being extremely vulnerable to external shocks.

Keywords: Economic Diversification, Stock-Watson, International Trade, Export, DOLS, Nigeria.

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1. INTRODUCTION

Owing to the poor economic performances of a number of developing economics in the world, economic diversification in recent times has gained much attention. These developing economies are characterized by primary-

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product export and mono product export, so they tend to specialize in exporting these primary products instead of secondary and tertiary activities. They failed to observe that primary-product exports have been characterized by relatively low income elasticity of demand and inelastic price elasticity (Todaro & Smith in Mejia, 2011).A country's degree of diversification is usually considered as dependent upon the number of commodities within its export mix as well as on the distribution of their individual share (Ali & Siegel in Mejia, 2011). Therefore, a broader export base coupled with special promotion of these commodities with positive price trends should be beneficial for growth.

Before the discovery of oil, agricultural sector used to be the leading sector of the economy providing both food and cash crops for the entire economy, but the discovery of crude oil in commercial quantity in Nigeria, changed the structure of the economy thereby, neglecting the agricultural sector and making the economyheavily dependent on the production of crude oil. In 2000, oil and gas export accounted for more than 98% of export and about 83% of federal governmentrevenue (Odularu in Afolabi, 2011). The growth of the Nigeria's non-oil export has been sluggish in the post-independence period. It averaged about 2.3% during 1960 to 1990 but in relative terms, declined systematically as proportion of total exports fell from 40% in 1970 to about 5% in 2010 (Abogan, Akinola and Baruna, 2013), thus from dependence in agricultural products to over dependence on oil product. This condition has not allowed for even growth in the economy of Nigeria since some sectors have been allowed to grow while growth has been impended in other sectors (Adesoji & Sotubo, 2013).Nigeria has failed to allow the non-oil sectors to thrive alongside the oil sector, leading to imbalance the economy.

The introduction of the structural Adjustment program (SAP) in 1986 with its major aim as diversification of the Nigeria's economy, made no significant progress in the achievement of this aim rather the economy is still excessively dependent on petroleum exports while the degree of openness of the economy has been increased (Iyoha, 2002).

It has been argued that the reasons for the Africa's dismal economic performance among other things are export enclavismand dependence on one primary commodity export. In the light of this poor economic performance, diversifying export remains major concern for policy makers in many countries (Collier & Gunning, 1999). Nigeria is a natural resources abundant country, revenue from oil production increased from ₦166.6.00 million in 1970 to ₦1, 591,675.00 million and ₦ 6,530,430.00 million in 2000 and 2008 respectively. The huge revenue from oil presented net wealth and thus provided opportunity for increased expenditure and investment;

however, the huge revenue complicated macroeconomic management and also made the economy highly oil dependent (Akinlo, 2012). Inspite of the huge rent from oil, the economy still grapples with many problems; including high and rising level of unemployment rate,declining manufacturing production, high and rising level of poverty and poor infrastructural development (Akinlo, 2012). Since oil alone cannot give Nigeria as a country the expected growth and development inspite of its high price and income elasticity, it is high time other areas are considered to ensure economic diversification.

Therefore, the objectives of this study are to examine the contributions of oil and non-oil exports to the growth of total export in Nigeria and how diversifying the Nigeria's export base can help attain economic diversification, considering the present economic situation in Nigeria.

2. CONCEPTUALIZATION

For the purpose of this study, *export* is defined as surplus goods and services of a country that are sent to other countries in world for sale (Afolabi, 2011) it is a catalyst necessary for overall development of an economy (Abou-Strait in Adesoji *et al*., 2013). It creates avenue for foreign capital to flow into a country (Ricardo in Adesoji *et al* 2013). **Oil export** is crude oil Export and can be defined as surplus from (crude) oil of a country that are sold to other countries in the world, oil export is part of visible export that includes; bonny light oil, farcodo crude oil, Quaibo crude oil, Brass river crude oil (Afolabi, 2011) it would be measured as a ratio of the total export.**Non-oil export** can be defined as those visible and invisible exports which do not form part of oil export but contributes to the growth of the total export, it includes; manufactured products, agricultural products, services, solid mineralslike tin; coal, columbite etc. This would also be taken as a ratio of the total export.

Economic Diversification refers to the development of other sectors of the economy in order to make them of stronger and more successful. It means harnessing the potentials of other sectors of the economy (Ekene, 2018). Economic diversification demands active participation in wide range of sectors, firmly integrated into different reforms, which are better able to generate robust growth potentials (Uzonwanne, 2015). Economic diversification can also refer to as process of expanding the range of economic activities both in the production and distribution of goods and services.It is the widening of the economy to create opportunities for diverse economic activities to create a broad-based economy (Anyaehie & Areji, 2015). It provides job for wide spectrum of people and stabilized the economy against economic fluctuations.For instance, a diversified economy

will stabilize the Nigeria's economy against the vagaries of oil market and provide opportunities for the satisfaction of needs and aspirations of her population (Anyaehie & Areji, 2015).

International Trade also known as foreign trade refers to trade between two or more countries that is; trade between nations and it involves exchange of goods and services among different nations. Since no country can produce all commodities required by its citizens, it is necessary for that country to import commodity which it cannot product or those it can only produce at higher cost. International trade can be bi-lateral or multi-lateral. Bi-lateral trade happened when one country agrees to exchange a particular quantity of goods and services in exchange for a particular amount from another country, that is to say that the trade involves only two countries, but in multi-lateral trade each country buys and sells which ever other countries chooses. Suffice to say is that multi-lateral trade leads to greater volume of trade than that which is guided by series of bi-lateral agreements.

2.1. Argument for and against natural resource abundance beneficial to growth

The conventional idea prior to 1980 was that natural resources had positive impact on the development of a country. This view was shared by many development and neoliberal economists and a resurgence of new view in the 80s that claimed that nature of resources abundant was not a blessing to developing economies (Akinlo, 2012).

Those in favour of natural resources abundant as a blessing argued that natural resources endowments would assist developing countries to transit from the stage of under development to that of developed countries like Britain, United States and Australia. Their view was that huge foreign exchange earnings from oil exports, apart from being used for exporting raw materials, intermediate and capital goods for production in the non-oil sectors could equally assist in boosting the foreign resources of the oil exporting countries. The accumulation of foreign resources can be seen as collateral which the oil producing economies can use in attracting foreign investment (Dooley, Folkerts-Landu & Garberin Akinlo, 2012).They further argued that the huge revenue from oil enables the government of the oil producing countries to spend and invest massively without recourse to taxation and that if properly utilized, could serve as a "big push" for development.

Owing to the dismal performances of most oil-rich countries in the 80s, the idea that natural resource abundance was a blessing to development was questioned by scholars. They argued that natural resource abundance

is not beneficial to growth, that an exogenous unexpected increase in foreign exchange revenues from natural resources, arising from increase prices or output, will precipitate a real exchange rateappreciation and, thus a drop in output and unemployment in the non-resource traded good sector, often manufacturing (Esfahani, Mohaddes& Pesaran in Akinlo, 2012), a situation referred to as "Dutch Disease". They further argued that the revenue from natural resources especially oil is very volatile, as they are driven by sharp and significant fluctuations in prices over relatively short periods of times, and that the resource-rich countries may suffer "resource curse" due to reduced returns to human investment, precipitated by natural resource exploitation (Gylfason in Akinlo, 2012).

2.2. Theories of International Trade

The Classical Theory of International Trade based on the concept of absolute advantage was proposed by Adam Smith in 1976, he state thatstock of human, man-made and natural resources rather than stock of precious metals were the true wealth of a nation and he further argued that the wealth of nation can be expanded if the government would abandon mercantilist control, and he showed that trade can make a nation better off without making another worse-off (Debel in Afolabi, 2011).

The Theory of Comparative Advantage was articulated by David Ricardo in 1817 to replace the principle of absolute advantage. He stated that a country should specialize in the production of commodities that it can produce at the lowest relative cost; it should export those commodities which it has in abundance. This theory focuses more on relative productively differential rather than absolute productively differential. The theoryof comparative advantage emphasizes that greater output level is obtainable when countries specialized in accordance with their relative comparative advantage (Thirlwall, 2003).

The Factor Endowment Theory of external trade was propounded by Eli Hecksher and Berti Ohlin, this theory stated that in different relative proportion, countries have different endowment of factors of production; some are capital abundant while some are labour abundant. This theory argued that Cash country has a comparative advantage in that commodity which uses the country's abundant factor. Capital abundant countries should specialize in the production and export of capital intensive commodities while labour abundant countries should specialize in the production and export of labour intensive commodities. It therefore, encourages third world countries to focus on their labour and land intensive primary product exports. However, it also argued that by exchangingthese primary products for manufacturing goods of the developed countries,

third world nations could realize enormous benefits obtained from trade with rich nation (Debel in Afolabi, 2011).

The prebisch-singer hypothesis was introduced by Prebisch in 1950 and singer in 1949, these hypothesis was based on the assumption that in the long-run, less developed economies relying on primary commodity exports would have the tendency of facing decline in the terms of trade relative to the industrialized economy that rely on manufacturing exports. This theory further argued that the ratio of primary commodities prices compared to manufactured goods would experience a decline over time due to the reduced elasticity of incomeand low total factor productivity for primary productsrelative to manufactured commodities (Cashin and McDermott, 2002). Due to the difference in elasticity, the hypothesis suggested that instead of over dependence on natural resources, the developing economies should take advantages of their transitory improvement in their terms of trade.

2.3. Empirical Literature

Afolabi (2011) investigated the impact of oil export on economic growth in Nigeria from 1970-2006 using sample size of 36years, the ordinary least squares regression adopted, hefound a positive relationship between domestic consumption, negative relationship between labour total productions and real GDP, therefore oil export has significant impact on economic grow in Nigeria.

Adesoji and Sotubo (2013) examined the performance of non-oil export in Nigeria from 1981-2010using OLS and the study revealed that non-oil exports have performed below expectations and that the Nigerian economy is still far from diversifying from crude oil export.

Uzonanne (2015) assessed how diversification of the economy would enhance stable and viable economic growth in Nigeria, using the Neo-classical Growth Model, secondary data and descriptive statistical method in 2015. It was found that the Nigerian economy needs to diversifyinto various sectors of the economy so as to attain solid economic growth.

Agosin (2007) investigated whether export diversification has any explanatory power in a standard empirical model of growth.Cross-sectional data in 1980-2003 periods considered for a sample of Asian and Latin American countries was employed.It suggested that export growth by itself does not appear to be relevant for growth while export growth together with diversification appear to be relevant.

Imbs and Wacziarg (2003) analyzed the evolution sectoral concentration over time and in relation to the developmental level in a wide set of

developed and developing countries using sectoral data. The evidence provides support to the hypothesis that "poor countries tends to diversify and it is not until they have grown to relatively high level of per capita income that incentive to specialize takesover as the dominant force, thus their sectoral concentration followed a U-shaped pattern in relation to per capita income.

Abogan *et al.* (2013) examined the significant role of non-oil export on economic growth in Nigeria from 1980-2010 using an ordinary least squares method involving error correction mechanism and over-paramentization. Their analysisrevealed that the variables are cointegrated, also that the impact of non-oil exports on economic growth was moderate and not all that heartening as a unit increase in non-oil export impacted positively by 26% on the productive capacity of goods and services in Nigeria.

3. DATA AND METHODOLOGY

3.1. Data

In this paper we intend to investigate the contributions of oil and non-oil export to growth of total export in Nigeria. Given our desire to capture this relationship, we sourced our data from the Central Bank Statistical bulletin 2018 using yearly data from 1981 to 2018. The variables we believe could measure the relationship of our study were adopted and will be discussed in subsequent sections of this work.

3.2. Model Specification

In order for us to really capture the objective of this study, we adopted the dynamic Ordinary Least Square proposed by (Stock and Watson, 1993). This approach has certain advantages over both the OLS and the maximum likelihood procedures, and it is an improvement of the OLS by coping with small sample and dynamic sources of bias. The Johansen method, being a full information technique, is exposed to the problem that parameter estimates in one equation are affected by any misspecification in other equations. According to (Ahmed Al-Azzam and David Hawdon 2000), the Stock Watson method is, by contrast, a robust single equation approach which corrects for regressor endogeneity by the inclusion of leads and lags of first differences of the regressors, and for serially correlated errors by a GLS procedure. In addition, it has the same asymptotic optimality properties as the Johansen distribution. This same method was applied by (Masih and Masih, 1996a) in their study of the estimation of Chinese Coal demand, and we are adapting and extending their approach here.

The Stock Watson Dynamic OLS is therefore specified below as thus;

$$RGDP_t = X_t M' + \sum_{i=-m}^{i=m} \phi_i \, \Delta OILEXP_{t-i} + \sum_{i=-n}^{i=n} \omega_i \Delta NONOILEXP_{t-i} + \sum_{i=-j}^{i=j} \delta_i \Delta CURACBAL_{t-i} + \sum_{i=-i}^{i=l} \theta_i \, \Delta EXCHR_{t-i} + \varepsilon_t$$

Where

$M = [C, \alpha, \beta, \gamma]$, $X = [1, OILEXP_t \; NONOILEXP_t \; CURACBAL_t \; EXCHR_t]$

And M, n, j, L are the lengths of leads and lags of the regressors.

RGDP is the real gross domestic product, EXCHR is the exchange rate, OILEXP is the oil export revenue, NONOILEXP is the non-oil export revenue and CURACBA is the current account balance.

4. EMPIRICAL FINDINGS AND DISCUSSION

In adopting the Stock Watson Dynamic OLS model, there are necessary pre-test estimation that needs to be done so we can be very sure that all conditions are satisfied and these tests are discussed in this section of the paper.

4.1. Stationarityand Cointegration Test

By determining the order of integration of the variables and to be sure that the series are integrated of order I(0) and I(1) but not I(2), a unit root test was carried out using the Augmented Dickey Fuller test (ADF) on these variables.The decision rule for no unit root is that the ADF test statistic must be greater than the Mackinnon critical value for the series to be stationary. The result of these tests is discussed based on the results below;

Table 4.1: Unit Root Test

Variables	*ADF Test Stat*	*Mackinnon Critical Value @5%*	*P-value*	*Order of Integration*	*Assessment*
OILEXP	-6.034240	-2.945842	0.0000	I(1)	Stationary
NONOILEXP	-6.408415	-2.945842	0.0000	I(1)	Stationary
EXCHR	-4.216145	-2.945842	0.0021	I(1)	Stationary
CURACBA	-5.176297	-2.943427	0.0001	I(0)	Stationary
RGDP	-6.050438	-2.945842	0.0000	I(1)	Stationary

Source: Eviews Computation

The result in table 4.1 shows the unit root test carried out for all the variables in the model using the augmented dickey fuller test statistic. The

result in the above table reveals that all the variables (OIL EXP, NONOILEXP, EXCHR, and CURACBA) were all integrated of order I(1), that is they were all stationary at first difference. The only exception to this is current account balance (CURACBA) which is stationary at level, meaning it is integrated of order I(0).

Table 4.2: Cointegration Test

Hypothesized No of CE(s)	*Eigenvalue*	*Trace Stat*	*0.05 Critical val*	*Prob***
None*	0.508791	78.60412	69.81889	0.0084
Atmost 1*	0.480846	53.72309	47.85613	0.0127
Atmost 2*	0.378126	30.77866	29.79707	0.0384
At most 3	0.298045	14.15302	15.49471	0.0788
At most 4	0.049232	1.766990	3.841466	0.1838

Source: Eviews Computation

There is evidence of Cointegration found among variables in the model from applying the johansen Cointegration test and this can be seen in table 4.2 above. The decision rule for Cointegration is based on the trace statistics being greater than the critical value at the 5% level of significance. This shows that there are at least 2 co-integrating equations present and hence there exist a long run relationship between the variables in the model.

4.2. The Stock Watson Dynamic OLS Results and Interpretation

The stock Watson estimates for oil export and non-oil export contributions to gross domestic product appears on table 4.2.1. The model was estimated using up to 2 lags and 2 leads and the insignificant lags and leads were dropped. From the result, we found evidence to suggest that both oil export revenue and non-oil export revenue both had positive and significant contributions to economic growth in Nigeria during the study period. An increase in oil export revenue by 1% led to about 6.88% increases in economic growth in Nigeria at the 5% level of significance. This result is in line with that of (Afolabi 2011) who also found a positive and significant relationship between economic growth in Nigeria despite adopting a different model (OLS) from the DOLS used in this study. Also an increase in Non-oil export by 1% led to about 0.052% increases in economic growth in Nigeria. Though the increase in growth is small it is also statistically significant at the 5% level of significance. This result is in line to that of Adesoji and Sotubo (2013) who found positive contributions to growth.

Current account balance was found to be contributing to growth positively and statistically significant at the 5% level with a t-stat of 3.27.

From the result, a 1% increase in the current account balance will lead to about 0.0049% increases in economic growth for Nigeria.

Exchange rate was found to have a positive sign which could be said to be contrary to the expected sign, but in general it was statistically significant at the 5% level with a t-statistic of 7.3. This means that an increase in the exchange rate by 1%, it will lead to an increase in economic growth by 0.33%.

Table 4.2.1: The Stock Watson Dynamic OLS Result Estimates (Depend.Var=LRGDP)

Variables	*Coefficient*	*Standard errors*	*t-statistic*	*Prob*
CURACBAL	4.90E-06	1.50E-06	3.274415	0.0113
NONOILEXP	0.000523	4.51E-05	11.58435	0.0000
OILEXP	0.068861	0.011015	6.251428	0.0002
EXCHR	0.003357	0.000459	7.320193	0.0001
C	9.398522	0.038002	247.3196	0.0000
R-SQUARE	0.998790			

5. CONCLUSION AND POLICY RECOMMENDATION

The purpose of this study was to investigate international trade and how we can advise on economic diversification based on the result with focus on oil export and non-oil export revenue. This was analyzed using yearly data for all the variables from 1981 to 2018 and we adopted the Dynamic OLS when it was discovered that Ordinary Least Squares suffered from serial correlation in our model.

Non-oil export was found to contribute positively to growth in the study and its contribution was minimal suggesting its negligence over the years as a result of the concentration in oil revenue. The variable was significant at the 5% level of significance, implying that we recommend the government of Nigeria should diversify in non-oil produce such as agricultural products since it was found that revenues from this sector could actually improve growth in Nigeria. We therefore recommend that the government increase resources and concentration towards non-oil products so as to diversify the economy.

Improving export and imports will indirectly improve the country's current account balance and this in this study was found to contribute positively and significantly to growth. This implies that more should be done by the government through encouraging more exports from the agricultural sector and other non-oil sectors in order to improve the current account balance. They could encourage and give out more export license to exporters, reduce export duties and taxes so as to improve exports more than imports in Nigeria.

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The Impact of Corporate Social Responsibility Disclosure and Financial Performance on Tax Avoidance: Iranian Angle

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Abstract: This study aimed at examine the association between Corporate Social Responsibility Disclosure (CSRD) and financial performance with the level of tax avoidance of listed companies on the Tehran Stock Exchange (TSE). The study population consisted of 91 listed companies on the Tehran Stock Exchange during the years 2009-2014. The content analysis used to measure social responsibility disclosure level, and hypotheses aretestedby multiple regression analysis. The results of this paper show that there is no a significant connection between level of CSR disclosure and tax avoidance. The moderating effects of high earnings performance also have no impact on the relation between CSR and tax avoidance. Furthermore, the results demonstrate that there is not significant relationship between corporate financial performance (ROA, Tobin's Q, and EVA) and tax avoidance.In general, Iranian companies with good financial performance, as well as companies that sought to tax avoidance activities, did not believe much in disclosing social responsibility to achieve their goals.

Keywords: Corporate Social Responsibility Disclosure (CSRD), financial performance, tax avoidance, TSE.

1. INTRODUCTION

The governments need financial funds such as tax revenue in order to exercise their responsibilities. On the one hand, Companies are looking

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for ways to reduce their tax obligations in order for earning more profits.And on the other hand,they need to the correct fulfillment of social responsibilitiesto achieve long-term success.Corporate Social Responsibility (CSR) means that organizations should be able toimprove social welfareby doing various activities. This view arises from the idea that a business is closely relatedto its surroundings and the fact that its success depends on the society health (Boesso and Michelon, 2010). In general, we can say that accurate and timely payment of taxis one of the main characteristics of social responsibility. Moser and Martin (2012) argued thatCSR activities contain all the organization's actions and in this regard, pay tax is the most important point of social responsibility. Therefore, organizations by means of exercising social responsibility are trying to protect themselves against the legal and regulatory risk as well as political penalties, because tax avoidance activities can result in consequences such as an increase in political and media pressure,damage to corporate reputation, and financial penalties (Wilson, 2009). On the whole, organizations must act warily with respect to CSR disclosure; or that they have to reduce the costs associated with tax avoidance activities through proper management of social responsibility (Godfrey, 2005).Furthermore, Hoi *et al.* (2013) suggest that if social responsibility is a risk management strategy, then there should be a correlation between tax avoidance and socially irresponsible activities. Because one of the most important components of CSR is related to legal actions,and organizations should pay taxes according to domestic or multinationalregulations. It is worth bearing in mind that firms need to have both two aspects of social responsibility for being accountable to all the stakeholders.The first aspect is the proper exercise of social responsibility and next aspect is the preparation of CSR reports, in a way that is beneficial to society and the companies.In developing countries like Iran, The importance of CSR disclosure and its impact on tax avoidance activities is higher than other countries, because the current economic situation in these countries is so that companies have an important role in the development of the country and society.Obviously, this will not be possible if they do not pay taxes and disclose their CSR.On the other hand, incomes have an important role in enterprise resource.Evidence suggests that the Supply of the social responsibility costs needs to get more resources and this has led researchers to conclude thatengaging in CSR activities as well as thefull and timely payment of taxes is allocated to the companies with high earnings performance.As far as we know, taking CSR and havinga favorable financial performance areeffective in tax planning, because if the position of the earnings yield is weak, managers will not pay attention to take their CSR activities and most of all they will avoid paying taxes.

Generally, firms with low earnings performance, rarely pay attention to the demands of non-shareholderand they may get involved in tax avoidance scheme. Hence, the landscape of this study isinvestigating the effect of CSR disclosureand financial performance on tax avoidance.

The reminder of the present research is organized as follows: Next section frames the study into a theoretical framework, hypotheses development, and literature. Section 3 presents the research methodology and outlines where data is obtained and the sample selection procedure. Section 4 then presents the main results and implications drawn from statistical analyses and finally, Section 5 presents the conclusion.

2. THEORETICAL FRAMEWORK, LITERATURE AND HYPOTHESES DEVELOPMENT

Bowen (1953)presented the concept of social responsibility for the first time. He suggested that social responsibility (SR)has aCommitment to pursue the policies, decisions, and actions that are in line with the social values. While other scientists argue that SR is a social effort of the company to promote goods and products that will be offered to society,which may not have many financial benefits for the company (Turker, 2009; Turban and Greening, 1997). Henriques and Sadorsky (1999) state that corporate social responsibility is focused on meeting the expectations of society. It is clear that the importance of social responsibility for improving the welfare of society is beyond economic and financial interests (McWilliams and Siegel, 2001). And Social obligations also are more important than legal requirements and mandatory regulations. Several studies have shown that tax avoidance could be a tax-saving tool that decreases costs and increases stockholders' wealth (Robinson *et al.*, 2010; Hanlon and Heitzman, 2010).In general, some people believe that social responsibility is the equivalent of the humanitarian gifts and charitable contributions, and others think it means social consciousness, also some researchers know it means legitimation and acceptability, and few scholars consider it as a task assigned to companies in order to apply codes of conduct (Wallace, 2003). The concept of social accountability is presented by Weihrich and Koontz (1993), which is a relatively new concept and is largely similar to the concept of social responsibility. This concept means the ability of a company to report its actions and operations to the social environment, so that is beneficial to society and the company. Apparently, social responsibility disclosure is a bridge between business units and stakeholders (Epstein and Freedman, 1994). Since one of the main dimensions of accountability is reporting and disclosure, accountability to stakeholders regarding the fulfillment of social responsibilities would not be possible without reporting

and disclosure of what the company has done in order to exercise its social responsibility. Two brief and wide definition of tax avoidance have presented. In the event of brief definition of tax avoidance, Khan, Srinivasan and Tan (2016) defined tax avoidance in this way "investment in tax-exempt assets". Also, Agrawal (2007) believes that tax avoidance is a kind of tax evasion without breaking the rules. The second definition of tax avoidance is much broaderso that it considers performing a wide range of tax-reducing activities aimed at reducing the level of tax payments to the government and ultimately decreasing tax liabilities (Annuar, Salihu and Obid, 2014). In this broad definition, any decreasing activity relevanceprofit before tax which reduces the level of tax payment is considered as tax avoidance activities (Hanlon and Heitzman, 2010). Freedman (2003), Landolf (2006), and Freise, Link & Mayer (2008) state that tax payment by firms has significant social consequences in society. Because tax income spends on things such as the provision of public goods, education, national defense, and health Cares. In this regard, several studies have been conducted regarding social responsibility and its relationship with corporate tax policies.

In an interesting study in the Iranian market, Salehi *et al.* (2017) found that ownership structure and board of directors' structure did not have a significant effect on the disclosure level of corporate social responsibility. Moreover, Salehi *et al.* (2019) realized there is a positive significant relationship between firm size, firm age and level of CSRD, while there is a negative association between financial leverage and profitability with level of CSRD.Amalia and Suprapti (2020) indicate there is no difference between the Indonesian firms with high CSR disclosures and those with the low ones towards tax avoidance.Similarly, Luxmawati and Prihantini (2020) concluded CSR had no effect on tax avoidance, but gender is able to moderate the effect of Corporate Social Responsibility (CSR) on tax avoidance. Preuss (2010) concluded that companies that have a high social responsibility pay their taxes and act in accordance with the norms of social responsibility. He also realized that firms with their headquarter in a tax haven do not design fewer codes of conduct, representing that these firms are not less responsible in comparison with the firms in the control group. Fisher (2014) argued that tax avoidance damaging not only to shareholders but also damaging to the government and companies.In the same vein, Watson (2011) showed that socially irresponsible firms are more tax aggressive and have larger unrecognized tax benefits in comparison with other firms. Hoi *et al.* (2013) surveyed the association between CSR and tax avoidance. In short, they showed that companies with too much irresponsible CSR activities have a higher possibility of participating in

tax-sheltering activities and greater discretionary/permanent book-tax differences. Using a sample of Egyptian firms for the period 2007–2016, Abdelfattah and Aboud (2020) show corporate tax avoidance is positively associated with CSR disclosure.Huseynov & Klamm (2012)found evidence that when firms divide into portfolios based on CSR levels, CSR could affect tax avoidance. Sikka (2010) inferred that some companies participate in CSR actions and tax avoidance activities. But in a recent study from a developed country, Lanis and Richardson (2012) investigated the relationship between CSR and corporate tax aggressiveness in Australia market for the period of 2008 to 2009.They discovered there is a negative significant association between CSR disclosure and tax aggressiveness. Their findings also indicated that social investment commitment and corporate and CSR policy of a firm are key determinants of CSR activities that have a negative impact on tax aggressiveness. At the opposite side, some studies have shown opposite results.For example, among Canadian firms, there is not any significant association between the tax behavior of a company and its CSR actions (Landry et al, 2013). Collectively, according to the theoretical framework and research background, the first hypothesis of this study has been developed:

H1: *There is a significant association between CSR and tax avoidance.*

Efficiency means using the least resourcesin order to achieve maximum productivity. With such a view, must have constantly thought tocost savings in all sectors in order to achieve the best performance, and should be prevented from leaving the company's liquidity even for paying tax. Because managers' motivation for tax avoidance is to better show the profitability and efficiency, which leads toincrease shareholder value or receive credit from creditors. Accordingly, firms probably engage in Tax-Avoidance activities to achieve higher performance. Because the motivation for increasing profits can causeTax-Avoidance actions (Desai and Dharmapala, 2006). From another perspective, it can be argued that Companies with high efficiency are not reluctant to do Tax-Avoidance activities. Watson (2015) demonstrates that when the company is faced with scarce resources, paying attention to the demands of non-shareholder stakeholdersis omitted. Hence, when the financial performance of a company is good, this limitation will not exist as well as tax avoidance will be less. Desai and Dharmapala (2006) showed that despite the benefit of tax avoidance for managers, these actions impose considerable agency costs on shareholders. Based on data collected from China stock market over a ten-year period between 1998 and 2007, Zeng (2010) proved that there is a negative relationship between effective tax rates and profitability, firm size, capital structure, and capital intensity. Which suggestslarge and profitable

companies are less interested in paying tax. Ayers *et al.* (2011) examined the effect of Tax Deferral on firm value. They understood that there is a positive association between current year tax deferral and both the change in next period profitability and stock returns. The most important point is that these relations increase for corporations with greater investment opportunities, financial limitations, and strong corporate governance. The paper of Watson (2015) shows that a lack of social responsibility is positively linked to tax avoidance in companies with low current or future earnings performance, but this effect is weakened when current or future earnings performance is better. The findings of his study indicate CSR is positively related to tax avoidance when current or future earnings performance is low but, again, the effect vanishes when current or future earnings performance is better.

H2: *There is a significant relationship between the level of pre-tax return on assets and tax avoidance.*

H3: *Earnings performance moderates the relation between tax avoidance and CSR.*

H4: *There is a significant relationship between high-level financial performance based on Tobin's Q and tax avoidance.*

H5: *There is a significant relationship between high-level financial performance based on EVAand tax avoidance.*

3. METHODOLOGY

This paper is considered correlational in terms of examining the relationship between variables.After collecting the required data from reliable and available resources, multiple regression analysis panels was used to investigate the relationship between the independent variables and the dependent variable and test research hypotheses using R software.

Population and statistical samples

Based on the elimination method, companies that had the following criteria were selected as samples:

- According to the research time period (2009-2014), the company is listed on the Tehran Stock Exchange before the year 2009 and its name is not removed from the companies mentioned by the end of 2014.
- Investment companies, leasing, credit and financial institutions and banks are not included in the sample because of their different natures.
- The activity of selected companies has not stopped and their financial period during 2009 to 2014 has not changed.

- Financial information required especially notes accompanying financial statements and annual reports of the board of directors to the General Assembly are available for the years 2009 to 2014 in full in order to extract the required data.

According to these criteria, 91 companies were selected for evaluation in this study. In this regard, there were a number of 546 fiscal years whose information was completely extracted and reviewed.

The definition of variables

The dependent variable

The dependent variable is tax avoidance which is calculated through the following model:

RETRit = ETRit / ATRit

RETRit: tax avoidance,

ETRit: effective tax rate which equals tax expense to taxable income,

ATRit: applicable (legal) tax rate

Corporate's effective tax rate is obtained by dividing income tax expense by income before tax (taxable income) and shows that corporate tax is a percentage of income before taxes. Because all business income may not be taxable, this rate is affected by tax avoidance activities. The legal tax rate is determined according to Article 6 of the Law for Development of New Financial Instruments and Institutions when related guidelines were adopted and notified in 2010. 22.5% tax rate (with 10% tax exemption for stock companies under Article 143 of Direct Tax Act) in 2009, 20% tax rate for stock companies with free floating shares above 20% in 2010 and later and 22.5% tax rate for stock companies with free floating shares below 20% (20% tax exemption for free floating shares above 20% under Article 6 of the Law for Development of New Financial Instruments and Institutions). In this regard, the variable company's floating shares percentage was also extracted through TSE site to determine the legal rate of corporate tax. Dividing the effective tax rate by the legal tax rate reflects the rate of corporate tax avoidance. When this index is less, the tax avoidance is higher.

Independent variables

Corporate social responsibility disclosure: The content analysis method was used to evaluate the level of social responsibility disclosure. After an extensive review of the relevant literature, the checklist includes 39 items that this information is adapted from the studies of Aribi and Gao (2010), and Gao *et al.* (2005).The information includes environmental items,

products and services, human resources, customers, community responsibility and energy, Which is expected to disclose voluntary or mandatory in the company's annual report.Total number of items disclosedis an expression of social responsibility disclosure level.

Table 1: Social responsibility disclosure checklist

Index	*Sub-index (subset)*
Environmental issues	1. Pollution and pollutants control (greenhouse gases)
	2. Prevention of environmental damage
	3. Prevention or treatment of waste material / waste water / waste
	4. Conservation and optimal use of farmland
	5. Research and development in environmental affairs
	6. Compliance with environmental policies (ISO14000)
	7. Investing in environmental projects
	8. Other environmental issues
Products and services	9. Product development / market share
	10. Product Quality / ISO14000
	11. Product safety and health
	12. Stop production or services for a negative effect on public health
	13. Other products and services
Human resources	14. Number of employees (jobs)
	15. Monthly salary / cash bonus and benefits
	16. Shares owned by employees
	17. Employees' retirement and end-of-service benefits
	18. Health and safety in the workplace
	19. Training and development of staff
	20. Sports and recreation
	21. Loans or staff insurance
	22. Employees' morale and communications (support for marriage, housing, etc.)
	23. Other human resources
Clientele	24. Clients' health
	25. Resolve complaints and customer satisfaction
	26. The policy of late payments and installments for specific customers
	27. Provision of facilities and after-sales service
	28. Meet the needs of customers
	29. Other clients
Social responsibility	30. Social investment (development of science and technology, etc.)
	31. Support for social activities
	32. Support for charities and rehabilitation centers
	33. Legal proceedings / litigation
	34. Cultural activities (conferences, seminars, etc.)
	35. Other social responsibilities
Energy	36. Energy protection and saving
	37. Development and exploration of new resources
	38. Use of alternative and new sources
	39. Other energies

Three indicators are used to measure the financial performance:

Return onAssets (ROA): This is an indicator variable that is equal to zero if the pretax return on assets is less than % 10 and one otherwise.

Tobin's Q index: This is an indicator variable that is equal to one if Tobin's Q ratio is higher than the average and zero otherwise. Tobin's Q index is calculated by this way: (Book Value of Assets + Market Value of Equity – Book Value of Equity – Deferred Taxes) / Book Value of Assets (Moutinho et al, 2012).

Economic value added (EVA): In order to create value for shareholders, a company's operating profit must exceed its cost of capital.EVA is an indicator variable that is equal to one if EVA is higher than the average and zero otherwise. Therefore, EVA is calculated as follows:

EVA = NOPAT – (Capital × WACC)

NOPAT: Net operating profit after tax.

Capital: Book value of total capital at the beginning of the period.

WACC: The weighted average cost of capital is the rate that a firm is expected to pay on average to all its security holders to finance its assets. The WACC is commonly referred to as the firm's cost of capital. The following formula is used to calculate the WACC (Brealey et al, 2001).

$$WACC = [W_d \times K_d(1-t)] + [W_e \times K_e]$$

Wd : the weight of debt

Kd (1-t) : after-tax cost of debt rate.

Kd : the cost of debt rate is calculated by dividing interest expense on total debt.

We : the weight of equity.

Ke : Rate of cost of common stock. The Gordon model (1995) was used to calculate the expected rate of return relevance cost of common stock. If the stock price and expected dividends are specified, expected rate of return will be obtained from the following models: $K_e = \frac{DPS}{P_0} + g$

Ke : Return on common stock P0: stock price at the beginning of the period DPS: dividend per share

G : growth rate. A mathematical model is usedto calculate the growth rate: $g = (\frac{DPS_t}{DPS_0})^{\frac{1}{t}} - 1$

Control variables

The variables of firm size (natural logarithm of total assets), financial leverage (long-term debt divided by total assets), firm age (the number of years since the company has been listed on the Tehran Stock Exchange) and audit firm size (this variable is equal to one if the auditor is from the Iranian audit organization and zero otherwise) were controlled.

4. RESULTS

Descriptive Statistics : in order to analyze the data, the descriptive statistics including minimum, maximum, mean, and standard deviation were calculated and presented in Table (2).

Table 2: Descriptive statistics for quantitative variables

variable	*Year-observation*	*minimum*	*maximum*	*mean*	*Std Deviation*
Tax avoidance	546	0	1.466	0.469	0.425
CSR	546	1	25	9.808	4.222
Firm size	546	10.104	18.775	13.325	1.481
leverage	546	0	1.372	0.096	0.135
Firm age	546	6	47	16.264	7.154

Looking at the details, as regards CSR,average corporate social responsibility disclosure index which is equal to 9.808 shows that of sample companies are reluctant to disclose their social responsibility and disclosure level in selected companies is at a low level.

Table 3: The frequency distribution of qualitative variables

variable	*situation*	*frequency*	*relative abundance*
Performance (Return on Assets)	ROA of more than 10%	294	54%
	ROA of less than 10%	252	46%
Performance (Tobin's Q)	Tobin's Q higher than the average	200	37%
	Tobin's Q index below the average	346	63%
Performance (Economic value added)	EVA index higher than the average	440	81%
	EVA index below the average	106	19%
Audit firm size	company is audited by Iranian Audit organization	132	24%
	company is audited by other audit firms	414	76%

Overall, what stands out from the table above is that 132-year observations related to 22 firms are audited by Iranian audit organization, while the rest of the firms are audited by other audit firms. Also, the EVA relevance 440 year-observations is higher than the average as well as the EVA relevance 106-year observations are below the average. The ROA ratio of 294-year observation is more than %10. Finally, it can be seen that Tobin's Q index has been below the average in most companies.

Hypotheses testing

The First hypothesis: There is a significant relationship between corporate social responsibility disclosure and tax avoidance.

The second hypothesis: There is a significant connection between the level of pre-tax return on assets and tax avoidance.

The third hypothesis: Earnings performance moderates the relation between tax avoidance and corporate social responsibility.

In order to test the research hypotheses, a suitable model was chosen for each hypothesis. Model related to the first, second and third hypotheses is as follows:

$$RETR_{it} = \beta_0 + \beta_1 CSR_{it} + \beta_2 Hiprofit_{it} + \beta_3 CSR_{it} * Hiprofit_{it} + \beta_4 Firm\ Size_{it} + \beta_5 LEV_{it} + \beta_6 Age_{it} + \beta_7 SizeAudit_{it} + \varepsilon_{it.}$$

RETRit: tax avoidance index

CSR$_{it}$: the level of corporate social responsibility

Hiprofit$_{it}$: this is a binary variable indicating high earnings performance, equal to one when the pretax return on assets is at least 10 percent and zero otherwise. In other words, Companies with ROA of less than 10 percent fall into the low-profit group and companies with ROA of 10 percent or greater into the high-profit group.

CSR$_{it}$ *** Hiprofit** : It shows the interactive effects of CSR level and high earnings performance.

Firm Size$_{it}$: this is equal to the natural logarithm of total assets.

LEV$_{it:}$ This variable is called financial leverage, which is equal to long-term debt divided by total assets.

Age$_{it}$: it demonstrates the number of years since the company has been listed in the Tehran Stock Exchange.

Size Audit$_{it}$: this variable is equal to one if the auditor is from the Iranian audit organization and zero otherwise.

Table 4: F-Limer test result to select the appropriate method for OLS regression and a panel regression

Null hypothesis (H_0)	*F statistic*	*P-value*	*Test result*
OLS method is preferred to panel model	9.0507	0.001 >	H_0 is failed to accept

It is worth bearing in mind that the first step is to choose the right model using F-Limer test. As seen in the table, at the level of 5%, H_0 hypothesis is failed to accept and therefore F-Limer test result confirms the fact that the OLS regression method is preferred to panel method.

Table 5: Hausman test result

Null hypothesis (H_0)	*Chi-square statistic*	*P-value*	*Test result*
Random effects model is more appropriate	64.96	0.001 >	H_0 is failed to accept

Hausman test is used to determine which method is better, panel method with fixed effects or panel method with random effects. If the probability of the test statistic is more than 0.05 in Hausman test, a random effects model is analyzed at the confidence level of 95 percent.But if the probability of the test statistic is less than 0.05, fixed effects method will be used. Hence, the results indicate that the panel method with fixed effects is preferred to random effects.

Table 6: Integration capabilities test result

Null hypothesis (H_0)	*Chi-square statistic*	*P-value*	*Test result*
The integrated data model is appropriate	0.96115	0.5411	H_0 is not rejected

After determining the panel model with fixed effects, integration capabilities test is used to evaluate the need for integration of the effect of time and place versus bidirectional fixed effects. The results of the test are presented in table 6. According to the table results, the p-value is 0.5411 and more than 0.05, so the null hypothesis on using the integrated data is not rejected and integrated data panel model was selected for regression analysis.

Table 7: Breusch–Godfrey test results

Null hypothesis (H_0)	*Chi-square statistic*	*P-value*	*Test result*
Absence of serial correlation	171.8	0.001 >	H_0 is rejected

After selecting the appropriate model to fit the data, Breusch–Godfrey test was used to check the infrastructure acceptance for the lack of serial correlation in the model residues. If we look at the amount of P-value, it is less than 5%. H_0 hypothesis is failed to accept and therefore the test results show that there is no serial correlation in the model residues. To fit the model, the generalized panel method of integrated data should be used. Thus, the results of the model fit through the generalized panel method of integrated data for the first, second and thirdhypothesis are as follows:

Table 8: Results of model parameter estimation and significance testing of the hypothesis 1, 2, 3

Index	*Symbol*	*Coefficient*	*SD*	*t-test statistic*	*P-value*
y-intercept	β_0	0.4139	0.2527	1.673	0.1015
The level of corporate social responsibility	CSR	0.0123-	0.0068	1.797-	0.0724
High earnings performance	Hiprofit	0.1154	0.07428	1.554	0.1201
The interaction between CSR & Hiprofit	CSR * Hiprofit	0.01352	0.0070	1.92	0.0549
Firm size	SIZE	0.0089	0.0210	0.426	0.6705
Financial leverage	LEV	0.1148-	0.1111	1.033-	0.3016
Firm age	Age	0.0046-	0.0043	1.061-	0.2888
Audit firm size	SizeAudit	0.0206	0.0481	0.429	0.6682

According to the results in Table 8, the significance statistic of the variables of CSR,Hiprofit, and (CSR * Hiprofit) is 0.0724, 0.1201, and0.0549 respectively, which are higher than %5. Therefore, there is not any significant association between three independent variables and tax avoidance (dependent variable). We can conclude that the first, second and send hypothesisis not confirmed.

The fourth hypothesis test

The fourth hypothesis: there is a significant association between the high level of financial performance in terms of Tobin's Q and tax avoidance.

$$RETR_{it} = \beta_0 + \beta_1 \text{ Tobin-}Q_{it} + \beta_2 \text{ Size}_{it} + \beta_3 \text{ LEV}_{it} + \beta_4 \text{ Age}_{it} + \beta_5 \text{ SizeAudit}_{it} + \varepsilon_{it}$$

According to a full explanation of choosing the right model for prior hypothesis,only the test results will be presented.

Table 9: F-Limer test result to select the appropriate method for OLS regression and a panel regression

Null hypothesis (H_0)	*F statistic*	*P-value*	*Test result*
OLS method is preferred to panel model	10.685	0.001 >	H_0 is failed to accept

As seen in table 9, at the level of 5%, H_0 hypothesis is rejected and consequently, F-Limer test result confirms the fact that the OLS regression method is preferred to panel method. Hausman test is used to determine which method is better, panel method with fixed effects or panel method with random effects.

Table 10: Hausman test result

Null hypothesis (H_0)	*Chi-square statistic*	*P-value*	*Test result*
Random effects model is more appropriate	59.417	0.001 >	H_0 is rejected

The results indicate that the panel method with fixed effects is preferred to random effects. After determining the panel model with fixed effects, integration capabilities test is used to evaluate the need for integration of the effect of time and place versus bidirectional fixed effects.

Table 11: Integration capabilities test result

Null hypothesis (H_0)	*Chi-square statistic*	*P-value*	*Test result*
The integrated data model is appropriate	1.1877	0.2292	H_0 is not rejected

According to the table results, the p-value is 0.2292and more than 0.05, so the null hypothesis on using the integrated data is not rejected and integrated data panel model was selected for regression analysis. After selecting the appropriate model to fit the data, Breusch–Godfrey test was used to check the infrastructure acceptance for the lack of serial correlation in the model residues. Breusch–Godfrey test results are presented below.

Table 12: Breusch–Godfrey test results

Null hypothesis (H_0)	*Chi-square statistic*	*P-value*	*Test result*
Absence of serial correlation	220.22	0.001 >	H_0 is rejected

P-value is less than 5%. H_0 hypothesis is rejected and therefore the test results show that there is no serial correlation in the model residues. To fit the model, the generalized panel method of integrated data should be used. The results of the model fit through the generalized panel method of integrated data for the fourth hypothesis is as follows:

Table 13: Results of model parameter estimation and significance testing of the fourth hypothesis

Index	*Symbol*	*Coefficient*	*SD*	*t-test statistic*	*P-value*
y-intercept	β_0	0.4632	0.2735	1.693	0.0904
High earnings performance (Tobin's Q)	Tobin-Q	0.0465	0.03434	1.354	0.1758
Firm size	Size	0.0079	0.02198	0.361	0.7184
Financial leverage	Lev	0.1472-	0.1165	1.264-	0.2064
Firm age	Age	0.0065-	0.0048	1.351-	0.1767
Audit firm size	SizeAudit	0.01195	0.05099	0.234	0.8147

Based on the results in Table 13, the significance statistic of the high level of financial performance (Tobin's Q) is equal to0.1758 which is more than 5%. So at the level of 5%, no significant relationship was observed between the high level of financial performance in terms of Tobin's Q index and tax avoidance. Therefore, the fourth hypothesis is not confirmed.

The second hypothesis test

The fifth hypothesis: there is a significant association between the high level of financial performance in terms of EVA and avoidance tax.

$$RETR_{it} = \beta_0 + \beta_1 Eva_{it} + \beta_2 Size_{it} + \beta_3 LEV_{it} + \beta_4 Age_{it} + \beta_5 SizeAudit_{it} + \varepsilon_{it}$$

Table 14: F-Limer test result to select the appropriate method for OLS regression and a panel regression

Null hypothesis (H_0)	*F statistic*	*P-value*	*Test result*
OLS method is preferred to panel model	11.008	0.001 >	H_0 is failed to accept

As seen in table 9, at the level of 5%, H_0 hypothesis is rejected and consequently, F-Limer test result confirms the fact that the OLS regression method is preferred to panel method.

Table 15: Hausman test result

Null hypothesis (H_0)	*Chi-square statistic*	*P-value*	*Test result*
Random effects model is more appropriate	40.804	0.001 >	H_0 is rejected

The results indicate that the panel method with fixed effects is preferred to random effects.

Table 16: Integration capabilities test result

Null hypothesis (H_0)	*Chi-square statistic*	*P-value*	*Test result*
The integrated data model is appropriate	1.1479	0.2717	H_0 is not rejected

According to the table results, the p-value is 0.2717 and more than 0.05, so the null hypothesis on using the integrated data is not rejected and integrated data panel model was selected for regression analysis.

Table 17: Breusch–Godfrey test results

Null hypothesis (H_0)	*Chi-square statistic*	*P-value*	*Test result*
Absence of serial correlation	222.58	0.001 >	H_0 is rejected

P-value is less than 5%. H_0 hypothesis is rejected and therefore the test results show that there is no serial correlation in the model residues. To fit the model, the generalized panel method of integrated data should be used. The results of the model fit through the generalized panel method of integrated data for the fifth hypothesis is as follows:

Table 18: Results of model parameter estimation and significance testing of the fifth hypothesis

Index	*Symbol*	*Coefficient*	*SD*	*t-test statistic*	*P-value*
y-intercept	β_0	0.4064	0.2849	1.428	0.153
Economic value added	EVA	0.0284	0.0376	0.754	0.451
Firm size	Size	0.01069	0.02239	0.477	0.633
Financial leverage	Lev	0.1434-	0.1167	1.229-	0.219
Firm age	Age	0.0057-	0.0047	1.189-	0.234
Audit firm size	SizeAudit	0.0130	0.0511	0.255	0.799

Based on the results in Table 18, the significance statistic of the high level of financial performance (EVA) is equal to 0.451which is more than 5%. So at the level of 5%, no specific conclusion can be reached regarding the effect of the high level of financial performance on tax avoidance.

5. CONCLUSION

Based on the evidence and results, we can conclude that CSR disclosure has no effect on tax avoidance. This finding is inconsistent with the results of Preuss (2010) and Watson (2015). They concluded that there is a

significant relationship between corporate social responsibility and tax avoidance but this study is not the case. In addition to different spatial and temporal conditions, failure to comply the result could be because of Iranian companies still do not care about the principles of social responsibility and do not consider the lack of tax avoidance actions as the basic principle of social responsibility.

In this study, we consider the moderating effects of high earnings performance on the relation between CSR and tax avoidance. The outcomes show that high earnings performance cannot influence companies' commitments to act responsibly in the field of taxation, which is not consistent with the paper of Watson (2015). He observed that when the corporate financial performance is low, there is a significant positive association between the lack of social responsibility and tax avoidance. But when the corporate financial performance is high, there is not such relationship. In other words, the findings of his research confirm that the high level of corporate financial performance can attract U.S. firms' attention to pay tax.As a result, the reason for the different result of this study with watson (2015) is that Iranian firms do not have special attention to non-shareholder stakeholders, even when the financial performance of a firm is good. In addition, the evidence showed thatthere is no significant relationship between corporate performance in terms of (ROA, Tobin's Q index, and EVA) and tax avoidance.

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Economic Growth and Unemployment Rate in SADC: An Empirical Study

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Abstract: One major challenge facing developing countries include intolerable unemployment rate and lower economic growth. This high unemployment rate directly means that available labour resources are not being utilized efficiently to their most productive use. Nonetheless, achieving the macroeconomic goals of any country involves maintaining price stability, achieving full employment and reaching the high level of economic growth. Therefore, for a nation to achieve high economic growth it must aim at lowering unemployment. Unemployment is a crucial factor which ascertains a countries economic growth and development which it can attain. Most of the studies conducted in the context of developed countries or panel of developed studies have validated the relationship between unemployment rate and economic growth. The main purpose of this study is based on the period of 1991-2014 the Okun's law is validated for a panel of South African Development Community comprising of only for some countries.

Keywords: Okun's law, unemployment, GDP growth
JEL-codes: J64, C2, E2

INTRODUCTION

Economic growth and unemployment rate nexus first proposed by Okun (1962) subsequently known as Okun's law has been endorsed for both developed and developing economies using data for individual countries

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and for panel of countries. In a macroeconomic framework, the Okun's law is a key popular relationship which posits that there exists a negative relationship between the unemployment rate and Gross Domestic Product (GDP) (Noor *et al.*, 2007). In its statistical original form, the relationship implies that GDP growth by 3% leads to a 1% decline in unemployment (Elshamy, 2013). Barring a few exceptions, the Okun's law has been universally accepted as an empirical regularity in macroeconomics (Huang & Chang, 2005). As noted it is generally accepted that the growth rate of the GDP reduces unemployment and result in an increase in employment. Therefore, the aforementioned relationship implies that to reduce unemployment GDP growth must be kept above the potential output, because unemployment can be viewed as the cause of poverty and income dispersion (Elshamy, 2013; Dritsaki & Dritsakis, 2009).

An organisation of the countries in southern Africa that aim to further the socio-economic, political and security cooperation to achieve peace, stability and wealth; the Southern African Development Community (SADC) comprises of Angola, Botswana, Union of Comoros, the Democratic Republic of Congo, Eswatini, Lesotho, Madagascar, Malawi, Mauritius, Mozambique, Namibia, Seychelles, South Africa, United Republic of Tanzania, Zambia and Zimbabwe. The main aim of this paper is to examine the relationship between economic growth and the unemployment rate known as the Okun's law in the Southern African Development Community (SADC). The Okun's law has a practical ability to be used as a forecasting tool (Knotek, 2007). The Okun's law coefficient (OLC) is helpful for the policy-makers in quantifying the causal relationship between economic growth and unemployment and consequently devise specific regional policies that are targeted at reducing unemployment rates in the region.

The structure of the paper is organized as follows: Section two provides a brief literature overview regarding empirical evidence of the applicability of the Okun's law. Section three describes the methodology. Section four includes data set description. Section five focuses on the discussions of empirical results. Then section six concludes the paper and offer recommendations.

SOUTHERN AFRICAN DEVELOPMENT COMMUNITY

This section mainly focuses on the overview of SADC and examination of unemployment and economic growth trends for thirteen out of the sixteen member states. The crux of the study is to determine OLC for SADC member states and offer recommendations that will enable the member states to incorporate inclusive and cohesive regional policies that will perpetuate economic growth while simultaneously curbing unemployment rate. The

unification of policies is apt in order to reduce economic dispersions caused by unemployment in the region. There has been a recent trend of persistently increasing unemployment levels in developing countries which aggravate poverty levels, it is therefore pertinent to try and model the relationship between growth and unemployment for efficient regional integration outlook.

Overview of SADC: As the successor to the Southern African Development Coordination Conference (SADCC), was initiated by the then front runner states namely Angola, Botswana, Mozambique, Tanzania and Zambia (Mupimpila & Funjika, 2010). The SADCC organ had an initiative of embarking more on political liberation in the region. The main purpose of transforming SADCC to SADC was to promote deeper economic collaboration and integration with the ultimate hope for sustained economic growth and socio-economic development(SADC, 2004). The successor is now an inter-governmental organization with a vision to further socio-economic cooperation and integration not forgetting political and security cooperation among the 16 member states which are a follows; Angola, Botswana, Comoros, Democratic Republic of Congo, Eswatini, Lesotho, Malawi, Madagascar, Mauritius, Mozambique, Namibia, Seychelles, South Africa, Tanzania, Zambia, and Zimbabwe.

Economic characteristics: The Southern African region is characterized by intolerable high levels of unemployment, poverty, and inequality (SADC, 2004). SADC comprises of member states at different stages of development, mostly underdeveloped. Thus, this is attributable to heterogeneous social and economic growth and development across the region. The macroeconomic convergence target for real GDP for this community growth is 7%. Nonetheless, economic growth in the region was slow owing to the 2008/09 financial crunches which have globally affected many countries. This slow economic growth was mainly influenced by the slow and fragile recovery of the global economy, which adversely affected the global demand.

However, South Africa, Namibia, and Angola have been able to reduce wealth gaps and rates of poverty as well as unemployment as it shall be noted later on. Figure 1 shows that almost 25% of SADC member states have an unemployment rate which is above an average of 15% on an annual basis. Thus, the range of unemployment in the region is 34.4 % which indicates a need to develop more resourceful policies and programs targeted to curbing unemployment in the region. A closer inspection on the figure shows that Lesotho is adversely affected by unemployment (average of 30%), which is largely on the youth as it is a regional and global problem. On contradistinction, Madagascar and Tanzania are amongst the

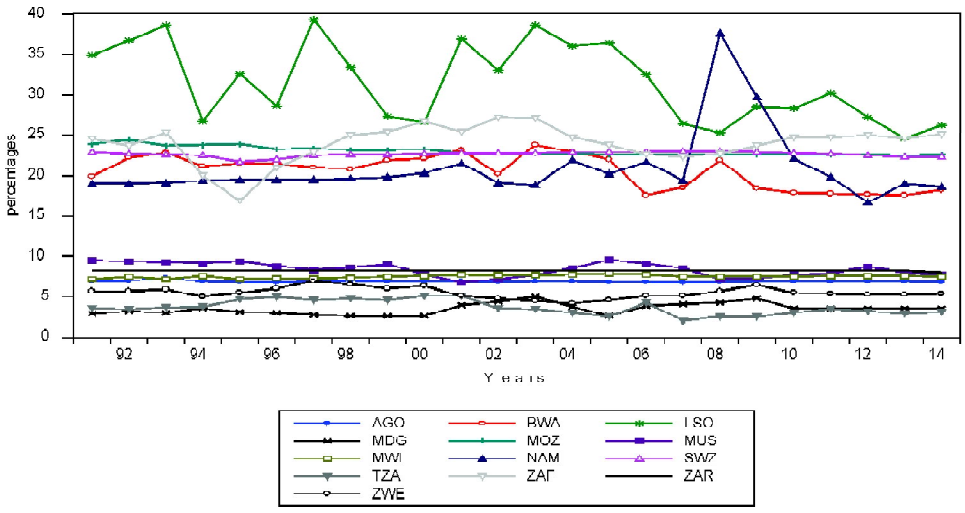
countries that relish more benefits of reduced unemployment level. As noted before, the economic environment pertaining to each country is likely to influence its growth and labour market.

Unemployment Rate and Economic Growth in SADC: Trends in unemployment rate for SADC members' states are shown in figure 1. Almost seven countries have unemployment rate above 15 %, whereas six countries have below 10%.These countries are Angola, Zimbabwe, Mauritius, Malawi, Tanzania, and Madagascar.

Trends in economic growth along with unemployment rate for individual countries in SADC are is given in A.1 (appendix A). Except for Tanzanian, the unemployment rate for SADC member states has been higher than their respective economic growth for the period under consideration. Tanzania experiences an average of 3.7% unemployment rate which is lower than the average of 5.2% growth in GDP over the period except from 2000 to 2014 when the GDP growth has been significantly above the unemployment rate. Due to the global economic crisis, Tanzania's economic growth fell from 8.5% to 5.4% in 2009 while unemployment remained at 3.5% in 2008/09.

Angola, Malawi, and Madagascar also depicted similar trend however, for these countries there is no significant variation between the variables.

Figure 1: Unemployment rate amongst SADC member states, 1991 – 2014



Source: author's computation.

*Angola (AGO), Botswana (BWA), Lesotho (LSO), Madagascar (MDG), Mozambique (MOZ), Mauritius (MUS), Malawi (MWI), Namibia (NAM), Eswatini (SWZ), Tanzania (TZA), South Africa (ZAF), Zambia (ZAR), and Zimbabwe (ZWE)

*DRC and Seychelles had no data reported from World Bank Development Indicators sources.

Botswana has on several occasions been labelled as an African model for economic growth which peaked at almost 10 % rate of growth. The country, however, experiences notoriously high unemployment that averaged 21% as seen from the graph. The economy was greatly affected due to recession as shown by a sharp decline in its growth which bred a negative (-7.6%) growth in 2009. Namibia was hard hit during the period of recession as it experienced an unemployment rate of 37.6% and 29.7% in 2008/09 respectively. Lesotho experiences the highest unemployment in the region averaged at 31.5% while the economic growth at 4.1%. South Africa as an economic powerhouse of SADC has problems similar to Botswana, experiencing impressive but jobless economic growth. Despite these facts, the region is faced with serious challenges, emanating from both external and internal factors such as abject poverty, misappropriation of government funds, HIV/AIDS and political issues among others. The macroeconomic variables show a fluctuating trend over the years.

However, for the case of Zimbabwe, the situation on the ground may not be as promising as reflected in the graph above and due to the introduction of the multicurrency system in 2009 unemployment rocketed to figures above 80%. This may question data credibility for that country since the country is exposed to unfavourable social and political environments which adversely led to massive disinvestments especially on the private sector. Therefore, the data may be under-reported. There is a general consensus that unemployment amongst member states is driven by structural rigidity in the labour market matched with unresponsive institutional systems which fail to connect the supply of vacancies to the demand for labour. For this reason, youth and graduate unemployment persistently take a larger share of total unemployment in the region.

Sector's Contribution to GDP: Agriculture sector contributes a higher percentage to GDP in Mozambique (29.25%), Madagascar (29.11%), Tanzania (27.00%), and Malawi (26.96%) as compared to other SADC member states. Angola shows an impressive dominance of 56.98% in the industry sector. In the service sector, Mauritius dominates followed by South Africa by recording 73.66%, 70.03% respectively as revealed in Table 1. It can be observed that for countries that perform better in the agriculture sector has also a balanced effect on the service sector. Since these sectors are labour intensive in nature they advance chances of curbing unemployment (Malawi, Madagascar, Tanzania, Mozambique, and Mauritius). Angola (47.9%) and Botswana's sectorial dominance is felt on mining and quarrying as compared to other member states.

Table 1: Sector's contribution to GDP (%) - 2013

Country	*Agriculture*	*Industry*	*Services*	*Mining & Quarrying*	*Unemployment rate*	*Growth rate*
Angola	10.8	56.98	32.18	47.9	6.9	5.4
Botswana	2.54	36.91	60.55	32.7	21.0	10.0
Lesotho	7.83*	36.57*	55.60*	12.6*	31.5	4.1
Madagascar	29.11*	16.00*	54.89*	0.1	3.5	2.3
Mauritius	3.27	23.07	73.66	0.04	8.4	4.6
Malawi	26.96	18.79	54.25	N/A	7.5	4.3
Namibia	7.07	29.64	63.29	10.4	21.0	4.5
Eswatini	7.48*	47.69*	44.83*	0.3	22.6	3.3
Tanzania	27.00	25.18	47.82	3.6	3.7	5.2
South Africa	2.39	27.58	70.03	9.8	23.0	2.6
Zambia	17.68	37.25	45.07	10.25	15.2	4.8
Zimbabwe	12.38	31.29	56.33	11.7	5.5	0.3
Mozambique	29.25	23.66	47.09	1.16*	23.0	7.8
Average	13.93	31.03	55.03	12.68	15.64	6.43

Source: (South African Institute of International Affairs, 2015) with additions

*data based on most recent data which is not 2013, Lesotho (2012), Madagascar (2009), Eswatini (2011).

Data on mining and quarrying (2011) is from SADC database.N/A-not applicable

LITERATURE REVIEW

This section presents a review about the estimation of the Okun's law and some empirical studies that have been undertaken for other countries distinctly from developed nations and developing nations in order to trace out the existence of the law (Prachowny, 1993). A negative relationship between changes in the unemployment rate and real output has been established by Okun using data from the American economy. A statistical relationship between the unemployment rate and gross national product (GNP) showed that for every year is results showed that for every per unit decrease of GNP, the unemployment rate is increasing more than the natural percentage (Dritsaki & Dritsakis, 2009). Furthermore, 1% increase in economic growth (GDP) above the growth in potential output will lead to 3% reduction of unemployment reversing the causality; this implies that 1% increase in unemployment will lead to a 3% decline in GDP growth. "Simply, this implies that GDP growth must be equal to its possible growth just to keep the level of unemployment rate in parity" (Moroke *et al.* 2014).Changes in the unemployment rate cannot be regarded as the basis of change of the real production which is the result of other intermediary factors which link the unemployment rate and real production(Dritsaki & Dritsakis, 2009).

Empirical literature review: After Okun (1962) traced out the statistical relationship between GDP growth and unemployment rate (now Okun's law), many economists, scholars, and policymakers are much interested in finding the applicability of this lawfor developed countries, developing countries, regional analysis, and cross country analysis (Attifield & Silverstone , 1997).In the United States of America since 1948 and 20 advanced economies since 1985, Ball *et al.*(2017), assessed that the Okun's Law fits well to short term unemployment movements. The Okun's law was observed for other advanced economies (Dritsaki & Dritsakis, 2009; Wang & Huang, 2017). For Spanish provinces Cháfer (2015) utilized both time series data and panel data spanning form 1985-2011 found noticeable differences in the unemployment sensitivity to GDP shocks owing to the concentration of economic activity in individual geographical location. Similarly, Soylu *et al.* (2018) used panel data spanning from 1992-2014 for the Eastern European countries and found Okun's law to be valid.In another study, Arshad (2011) adopted the gap version approach of the Okun's law and supported its validity in the Swedish economy. Similarly, Okun's law was valid for Malaysian economy(Noor, Nor, & Ghani, 2007) and Pakistan(Khan, Saboor, & Anwar, 2013). Some studies confirm the validity of Okun's law in the United Kingdom, Pakistan and Canada respectively (Stober, 2015; Huang & Chang, 2005). The Okun's law was valid for a panel of 66 countries for countries under investigation (Huang *et al.*, 2019).

Among the African countries, several studies especially for Nigeria indicated that Okun's law is not valid (Arewa & Nwakanma, 2012; Sodipe & Ogunrinola, 2011; Bankole & Fatai, 2013; Akeju & Olanipekun, 2014). Although, some later studies using annual time series found Okun's law to be valid in Nigeria (Oluyomi, Stephen, & Adeyemi, 2016; Michael, Emeka, & Emmanuel, 2016). Using the quarterly data, Moroke *et al.* (2014), found Okun's law to be invalid, but Madito and Khumalo (2014), using the Vector Error Correction model (VECM) got opposite result and supported the its validity in South Africa. Considering the cyclical unemployment in Kenya using annual time series data indicated that Okun's law partially holds (Mose, 2014). The gross domestic product (GDP) growth has a reducing but insignificant effect on unemployment rate in the Economic Community of West African States (ECOWAS), which indicates low employment elasticity of growth in the region suggesting a 'jobless growth' situation in the region in which employment does not really grow as the economy is growing (Folawewo & Adeboje, 2017). Based on 39 countries in Africa for the period 1995-2000 the Okun's law was found to be valid (Kamgnia, 2009). Using annual time series data of real GDP and unemployment rate the Okun's law is valid for the Egyptian economy (Elshamy, 2013). Using

cointegration and error correction model (ECM) on quarterly data ,Okun's law was valid for Tunisia (Andari & Bouaziz, 2015), but Sinha and Tseladikae (2018) do not support Okun's law for the economy of Botswana. Considering a panel of Middle East and North African (MENA) region for the sample of countries in Africa,for inividual countries the Okun' s law is valid only for six out of seventeen countries namely; Algeria, Egypt, Iran, Jordan, Lebanon, and Turkey (Hamia, 2016). For quarterly data from 1991q1 to 2016q1 using the error correction model and the Okun's law was valid in Congo (Okombi, 2019).

To sum up, numerous studies used different versions of the Okun's law to determine the short run and long run relationship adopted for different time period yielded sometimes contradicting conclusions (Khan, *et al.*, 2013; Akram, *et al.*, 2014). The contradiction tends to be influenced by the specification of the model, frequency of the data and time period. The Okun's law seems to be applicable for developed countries like Sweden and Canada (Arshad, 2011; Huang & Chang, 2005), but in developing countries the results are grossly contradicting (Sodipe & Ogunrinola, 2011; Babalola, Saka, & Adenuga, 2013; Bankole & Fatai, 2013; Akeju & Olanipekun, 2014; Arewa & Nwakanma, 2012) with exceptions from recent studies (Oluyomi, Stephen, & Adeyemi, 2016; Michael, Emeka, & Emmanuel, 2016). Okun's law was found to be invalid for South Africa by Moroke *et al.* (2014) but Madito and Khumalo (2014) supported the Okun's law. Notably studies related with the economies of Kenya, Malaysia, Tunisia, and Egypt supported the law.Empirical validation of the relationship between economic growth and unemployment has resulted in four strands of literature, one strand finding support for a negative and significant Okun coefficient, while in the other the coefficient is negative but not significant. In the third case the coefficient is positive and significant and finally the coefficient is positive and not significant.

METHODOLOGY

The literature on Okun's law reviewed in previous section provides a framework for the present study. This section builds on the reviewed literature which serves as a background to set an analytical structure used in this study. These includes the collection, analysis and interpretation of the data which ultimately leads to meaningful inferences regarding the applicability of Okun's law for the SADC region. In this section, all four versions of Okun's law are presented together with their economic implications which will later on aid interpretation in this study.

Theoretical framework: In macroeconomics theory, there are relatively few models linking the relationship between unemployment rates to GDP

growth (Noor *et al.*, 2007). Okun (1962) focused the discussion on the empirical relationship that emanates between the unemployment rate and GDP fluctuations is treated more statistical rather than [sic] structural economic framework (Javeid, 2012). Negative association between GDP growth and unemployment suggested that a slowdown in economic growth causes unemployment to increase (Mankiw, 1994). More precisely, changes in the aggregate demand will force firms to adjust their output plans and this leads to changes in labour demand as a result unemployment rate changes in response. The first difference version specified by Okun is discussed below.

Model specification: Following Okun (1962) the model specification has two versions namely the first-difference version and the gap version. Subsequently four versions have been considered for estimation these are: first-difference version, gap version, dynamic version, and production function version. These different versions bear with their specific pros and cons and have different interpretations.

First-Difference Version: This version shows changes in the unemployment rate from one time period to the subsequent period. Okun (1962) specified the relationship between change in percentage level of unemployment (U) and growth of output (g) as

$$U = a - b\,(g) + \varepsilon_t \tag{1}$$

Mankiw (1994) and Thirlwall (1969) specified the relationship:

$$(Y_t - Y_{t-1}) = \alpha + \beta\,(U_t - U_{t-1}) + \varepsilon_t \tag{2}$$

In this specification the GDP growth is regressed on the changes in unemployment, and the Okun's coefficient measures the elasticity or the relative sensitivity of output to changes in unemployment. Okun (1962) proposed a negative or inverse relationship between GDP growth and unemployment rate (That is $\beta < 0$). Since the Okun's law is simply a statistical relationship, it does not give a causal link between the said variables(Noor, Nor, & Ghani, 2007). Therefore, it is imperative to carry out the Granger causality test to determine this link. Other specifications have been discussed in the previous literature (Sinha & Tseladikae, 2018; Javeid, 2012; Lee, 2000; Moosa, 1997; Ball *et al.*, 2017).There is an ongoing debate of how to estimate these variables some argue that using statistical filtering technique is the best whereas some advocate for the use of the production function approach(Central Bank of Malta, 2013).

The OLC is expected to have a negative sign which signifies what Okun (1962) postulated on the data of GDP growth and unemployment. When an economy experiences a high rate of unemployment this method suggests that labour resources are underutilized (Moroke, Leballo, & Mello, 2014).

This may again imply that the economy produces under the production possibility curve, therefore, showing inefficient production in the economy. The OLC is likely to be influenced by the number of workers who are marginally attached to the labour force, entering or exiting as employment fluctuates. Due to this reason, the value of the Okun's coefficient is likely to differ across countries (Ball *et al.*, 2017).

Granger Causality Test

Individual Country Causality: Since the Okun's law has two versions, it is necessary to examine causality test. If x and y represent the growth rate and the change in unemployment rate, respectively, both stationary variables observed for an individual country (say i) on T periods. For each individual country $i = 1, ..., N$, at time $t = 1, ..., T$, the linear model for an individual country is considered for applying the Granger causality test for lag orders (K) is expressed as follows

$$Y_{it} = \alpha_i + \Sigma_{k=1}^{K} \gamma_i^{(k)} Y_{i(t-k)} + \Sigma_{k=1}^{K} \beta_i^{(k)} X_{i(t-k)} + \varepsilon_{it} \quad (3)$$

For simplicity, the individual effects á$_i$ are supposed to be fixed for the country in the time dimension; and initial conditions of both individual processes $y_{i,t}$ and $x_{i,t}$ are given and observable. Besides, $\gamma_i^{(k)}$ and $\beta_i^{(k)}$ represent the autoregressive parameters and the regression coefficients slopes, respectively. This simple model with two variables constitutes the basic framework for studying Granger causality in time series context. The standard causality tests consist in testing linear restrictions on the vectors β_i and the null hypothesis that of no-causality that is X does not Granger cause Y is expressed as: $H_0 : \beta_i = 0 \ \forall \ i = 1, ..N$.

Panel Causality: While dealing with the basic framework for studying the Granger causality in a panel data context the issue of heterogeneity between individual panels is crucial. There are two sources of heterogeneity, first source of heterogeneity is standard and comes from the presence of individual effects α_i, while the second source is more crucial and is related to the heterogeneity of the parameters β_i. Assuming lag orders (K) are identical for all cross-section units of the panel and the panel is balanced, the Dumitrescu-Hurlin (2012) test under the null hypothesis of homogenous non-causality (HNC) which takes into consideration heterogeneity of the regression model and that of the causal relation is employed. Under the alternative for a subgroup of individuals for which there is no causality relation and a subgroup of individuals for which the variable x Granger causes y. For two stationary variables x and y, observed for each individual $i = 1, ..., N$, at time $t = 1, ..., T$, following linear model which is a fixed coefficients model with fixed individual effects is considered:

$$Y_{it} = \alpha_i + \Sigma_{k=1}^{K} \gamma_i^{(k)} Y_{i(t-k)} + \Sigma_{k=1}^{K} \beta_i^{(k)} X_{i(t-k)} + \varepsilon_{it} \quad (4)$$

The null hypothesis of HNC is thus defined as: H_0: $\beta_i = 0 \ \forall \ i = 1, ..N$; while under H_1, there are $N_1 < N$ individual processes with no causality from x to y. It follows that our test is not a test of non-causality assumption against causality from x to y for all the individuals (Holtz-Eakin *et al.,* 1988), but it is more general in the sense that the non-causality for some units is considered under the alternative: $H_1 : \beta_i = 0 \ \forall \ i = 1, .., N_1$ and $\beta_i \neq 0 \ \forall \ i = N_1 + 1, N_1 + 2, .., N$; where N_1 is unknown but satisfies the condition $0 \leq N_1/N < 1$, since if $N_1 = N$ there is no causality for any of the individuals in the panel, which is equivalent to the HNC null hypothesis. Conversely, when $N_1 = 0$ there is causality for all the individuals in the sample. The structure of this test is similar to the Im *et al.* (2003). unit root test in heterogenous panels. If the null is not rejected the variable *x* does not Granger cause the variable y for all the units of the panel. By contrast, if the HNC is rejected and $N_1 = 0$, then variable x Granger causes y for all the individuals of the panel: in this case we get a homogenous result as far as causality is concerned. Indeed, the regression model considered may be not homogenous, i.e. the estimators of the parameters differ across groups, but the causality relations are observed for all individuals. On the contrary, if $N_1 > 0$, the causality relationship is heterogeneous: the regression model and the causality relations are different from one individual from the sample to another.

Vector Error Correction Model (VECM)

If the output and unemployment series are individually integrated as I (1), specification based on first difference which can further be extended to an error-correction framework is considered. If output and unemployment are cointegrated, then the Okun regression in the form of Equation (1) is mis-specified and the estimate of the OLC may be over 3% (Attfield & Silverstone , 1998). From this perspective, in this section the robustness of estimates is evaluated with first-differenced data by re-estimating the Okun coefficient within an error-correction framework which considers information about cointegrating relations.

In addition, we have employed the Johansen method to re-estimate the Okun coefficient using the maximum-likelihood method to a vector error-correction model (VECM):

$$\Delta Z_t = M + \Sigma \Gamma_i \Delta Z_{-t} + \Pi Z_{t-1} + \varepsilon_t, \quad (5)$$

where $Z_t = [g_t, u_t]'$, M is a 2 X i vector of intercepts, Γ_i is a 2 X 2 parameter matrix, long-run relations are captured by the matrix $\Pi = a^*b'$ where a and

b are 2 X r matrices of rank $r < 2$, and b is the matrix of cointegration vectors such that ab' Z_t are called cointegrating relations.

The study follows the same analytical framework as for the case of Botswana done by Sinha and Tseladikae (2018). However, to avoid the on-going debate on the proper estimation of potential GDP and the natural rate of unemployment that surrounds the gap version, the study only focuses on the first difference version of the Okun's law. Several studies have been done for regional analysis with no consensus on the results(Kargi, 2016; Ball, Leigh, & Loungani, 2017; Dritsaki & Dritsakis, 2009; Moosa, 1997). The OLC varied across economies (Ball *et al.*; 2017).

4. DATASOURCES

The study used annual time series and panel data of real GDP growth at market prices based on the constant local currency with aggregates based on constant 2010 US dollars and the unemployment rate for the period extending from 1991 to 2014 (World Bank, 2017). The choice of the study period reflects the limitation of the availability of the time series data on the unemployment rate and economic growth for SADC member states. Although it would be necessary to have a longer period of data for analysis, the available data provides a basis for fair comparison since this time period does not have some gaps in between the years as compared to other years. Furthermore, the data covers the period of SADC's establishment in 1992 after being transformed from Southern African Development Coordination Conference (SADCC) let alone the economic recession of 2008/09 that led to a shrink in real GDP growth of many member states. The data was sourced from an online World Bank Indicators database. It is worthy of mention that the Democratic Republic of Congo (DRC) and Seychelles are not included in the analysis due to non-availability of data. Moreover, while there is a problem of data availability and unreliability in the SADC region the data for the countries included in this study are up to date.

5. RESULTS AND DISCUSSIONS

Before estimating the relationship between economic growth and unemployment it is necessary to check the stationarity of the series. To address the stationarity properties of the time series, both individual and panel data unit root tests are performed to determine whether or not the observed country specific time series for the variables exhibit stochastic trends. Next, cointegration analysis is performed to examine whether the variables are cointegrated (i.e. whether there are stable long term equilibrium relationships among them) in order to avoid spurious regressions for each country and for the whole panel.

Stationarity properties: In this section, only the ADF has been used to conduct the tests for each country and the results are presented in Table 2. The growth rate (RGDPG) is stationary at levels in all countries, but the unemployment rate (UNEMPR) is stationary only in six countries.

Table 2: Unit root results and OLS model results (SADC) 1991-2014

Country	*ADF test (5%)*				*Okun's Law (OLS)-DependentVar: ΔY*			
	RGDPG	*Prob**	*UNEMPR*	*Prob*	*constant*	*ΔU*	*Prob**	R^2
Angola	$I(0)_{nc}$	*0.040*	$I(1)_{ct}$	*0.070**	5.53	-26.57	*0.0820**	*0.137*
Botswana	I (0)	*0.007*	I (1)	*0.206*	4.69	0.32	*0.4740*	*0.025*
Lesotho	I (0)	*0.003*	I (1)	*0.053**	4.06	0.04	*0.5660*	*0.016*
Madagascar	I (0)	*0.001*	I (1)	*0.126*	2.69	-0.03	*0.9840*	*0.000*
Mauritius	I (0)	*0.001*	I (1)	*0.050**	4.51	-1.41	*0.0200**	*0.232*
Malawi	I (0)	*0.000*	I (1)	*0.073**	4.45	-26.54	*0.0000**	*0.714*
Namibia	I (0)	*0.003*	I (1)	*0.050**	4.29	0.01	*0.9260*	*0.000*
Eswatini	I (0)	*0.024*	I (1)	*0.275*	3.29	-1.05	*0.2960*	*0.052*
Tanzania	I (1)	*0.001*	I (1)	*0.613*	5.29	-1.06	*0.0770**	*0.142*
South Africa	I (0)	*0.047*	I (1)	*0.194*	2.77	-0.15	*0.4980*	*0.022*
Zambia	I (0)c	*0.013*	I (0)	*0.006**	5.10	0.40	*0.6421*	*0.010*
Zimbabwe	$I(0)_{nc}$	*0.004*	I (1)	*0.546*	0.01	-2.60	*0.4400*	*0.029*
Mozambique	$I(0)_{c}$	*0.012*	I (1)	*0.785*	6.98	-16.27	*0.0000**	*0.554*
Average					4.1277	-5.762		

Source: author's computations

ADF test at levels. ***c****,* ***ct****, and* ***nc*** *implies constant, constant & trend and None models*

I (0) - series is stationary at levels and I (1) series is stationary at first difference.

*OLC is Okun's law coefficient, * represent 10% or lower level of significance*

Regression analysis: The estimation of the Okun's coefficient is performed by using the Ordinary Least Squares (OLS) method and the estimated coefficients for each country is presented in Table 2. A few results are worth noting. First, the point estimates for the slopes appear to vary greatly across the countries and is negative in nine countries only, and second, the size of the coefficient estimating the impact of change in unemployment rate on the growth rate is extremely large and significant for Angola, Malawi and Mozambique. Similar results were obtained in Sumra (2016). Finally, as expected, the number of rejections of null hypothesis based on the individual country is five which is relatively lower than where it is not rejected, so that on this basis alone the evidence does not appear to favour the Okun's law in eight countries. However, for Mauritius and Tanzania it is negative and statistically significant and lies within Okun's 1% and 3% range. For South Africa, Eswatini and Madagascar the coefficient is negative and not but statistically not significant. However, for Botswana, Namibia and Lesotho the coefficient is

positive and not significant hence invalidating the Okun's law reflecting the growth without jobs. According to Sinha and Tseladikae (2018) such jobless economic growth is due to higher share of mining sector which is employment inelastic. Based on the regression output with evidence from figure A.1 (appendix A) it can be noticed that the countries with high OLC are accompanied by low unemployment rate.That is a 1% increase in unemployment rate significantly reduces growth rate especially for Angola, Malawi, and Mozambique.

Another interesting observation is that countries faced with high unemployment rates tend to have a low Okun's law coefficient. The general picture from Table 2 is that countries with the larger Okun's coefficient have a better employment generation capacity. This shed more light on the reason why high unemployment rate is experienced in countries with low OLC. The regression results can be linked to the evidence from Table 1 by indicating that countries that put more emphasis on the service, agriculture and industry sectors have a greater chance of absorbing more of its labour force. These sectors are opportune since they are employment elastic thus labour absorptive capacity is more pronounced as compared to mining and quarrying which is capital intensive.

Cointegration: After determining the order of integration the Johansen cointegration test and error correction are then used to check for the existence of a long run relationship of these macroeconomic variables presented in Table 6 which presents the rank test by Johansen and error correction model. The rank test indicated no cointegrating equation exists for Zimbabwe, Eswatini and Tanzania, since the p-values are (0.1474), (0.1398) and (0.1367) respectively.The error correction model examines the existence of a long run relationship between these variables. The growth and unemployment variables are cointegrated for only for four countries namely Mauritius, Malawi, Mozambique, and Eswatini, where the coefficient is negative and statistically significant.

Vector error correction model (VECM): The results of error correction indicate that all the countries will restore to equilibrium in case of disequilibrium in the long run. This is shown by a negative speed of adjustment for these countries. The speed of adjustment towards equilibrium for Malawi is 98%; Mauritius is 48% and lastly for Mozambique is 25%. For Mozambique, a trend was introduced since the results indicated a positive and insignificant error correction coefficient which is contrary to expectation as noted by (Gujarati & Porter, 2009). Gujarati and Porter indicated that if variables are individually nonstationary this suggested a spurious regression and as such introducing a trend can help solve the problem. The speed of adjustment for Malawi is faster than all the countries

followed by Eswatini with 71%. Table 6 above indicate that any deviation from the equilibrium position in the previous year will be corrected in the current year for all the countries. Therefore, Malawian economy converges to equilibrium quicker than for any other economies.

Test statistics in Table 3 indicate that the null hypothesis of number of cointegration vector (r) is 0 rejected for most countries with I(1) data except for Eswatini and Tanzania. Therefore, it is concluded that with these two exception, output and unemployment share at least one cointegrating relation. The evidence from Table 3 suggests that in the short run the estimates of OLC for Angola, Madagascar, Mauritius, South Africa, and Mozambique is negative and significant except for Mauritius where the p-value is less than 10% level of significance. For Botswana, Lesotho, Malawi, Namibia, Eswatini and Tanzania it is positive but significant except for Tanzania where it is not significant.

Table 3: Cointegration results (SADC) 1991-2014

Country	*Trace stat.*	*Max-Eigen stat.*	*ECM*		
	H_0: r=0 H_1: r>0	H_0: r=0 H_1: r>0	*ECT (-1)*	*Short run*	*Long run*
Angola	22.44	15.92	-0.04	-22.382	537.02
P-value	0.0038*	0.0272*	0.4800	0.2729	[7.1]
Botswana	18.68	17.11	-0.36	0.7375	-6.9
P-value	0.0160*	0.0173*	0.1110	0.5383	[-3.8]
Lesotho	15.71	12.22	-0.02	0.1253	-10.716
P-value	0.0464*	0.1025	0.3500	0.5164	[-4.7]
Madagascar	21.45	15.07	-0.33	-2.8675	6.572
P-value	0.0056*	0.0372*	0.4400	0.1974	[3.4]
Mauritius	25.53	16.91	-0.48	-1.6679	5.228
P-value	0.0011*	0.0187**	0.0020*	0.0470*	[3.4]
Malawi	14.20	10.95	-0.98	13.570	-42.842
P-value	0.0777*	0.1567	0.0400*	0.2791	[-4.5]
Namibia	18.52	13.79	-0.15	0.1398	-3.289
P-value	0.0169*	0.0592*	0.1227	0.5630	[-3.0]
Eswatini	12.37	9.54	-0.71	1.3298	-3.179
P-value	0.1398	0.2442	0.0400*	0.3082	[-1.2]
Tanzania	12.44	9.29	-0.29	1.3551	-4.362
P-value	0.1367	0.2629	0.1800	0.0640*	[-3.4]
South Africa	21.86	16.84	-0.20	-0.0382	-2.057
P-value	0.0048*	0.0191*	0.3400	0.9072	[-3.9]
Mozambique	24.60	13.85	-0.25^{T}	-0.1662	13.510
P-value	0.0016*	0.0580*	0.0200*	0.8926	[3.4]
Zambia	11.10	6.63	-0.105	-0.9304	-3.861
P-value	0.2056	0.5339	0.3962	0.2616	[5.5]
Zimbabwe	12.20	7.95	-0.06	-0.7013	126.45
P-value	0.1474	0.3841	0.2398	0.8904	[-2.5]

Source: author's computations.

* Rejection of the hypothesis at the 0.10 level or better,^{T}with trend

The long run coefficient is significant in all countries in SADC except Eswatini, but in Madagascar, Mauritius, Angola, and Mozambique it is positive while in remaining countries have a negative. As regards policy relevance of the study, it is suggested that sustained long term economic growth that is capable of generating enough employment should be pursued in the region through the implementation of policies that seek to diversify the regional economy away from natural resources (Folawewo & Adeboje, 2017).

Granger causality test was applied for 13 members of the SADC, but it was significant only in four countries and results are presented in Table 4. The p-value was significant only in case four countries. For Botswana and Mauritius, the null hypothesis that unemployment does not Granger cause growth rate is rejected, while for Malawi and Tanzania, the null hypothesis that growth rate does not Granger-cause unemployment is rejected.

Table 4: Granger Causality

Country	*Null Hypothesis*	*F-value*	*P-value*	
Botswana	UNEMPRT does not Granger cause _RGDPG	3.72855	0.0454*	Mankiw/Thirlwall specification
Mauritius	UNEMPRT does not Granger cause _RGDPG	5.41432	0.0152*	Mankiw/Thirlwall specification
Malawi	RGDPG does not Granger cause_ UNEMPRT	2.83948	0.0863*	Okun specification
Tanzania	RGDPG does not Granger cause _UNEMPRT	2.81957	0.0876*	Okun specification

*level of significance 10% and lower

Panel Regression Analysis: For panel estimation the benchmark regression model in difference version relates economic growth to changes in unemployment rates in country i during the period tas follows

$$Y_{it} = \alpha_0 + \beta_i \Delta U_{it} + \alpha_i + \epsilon_{it}$$

Here Y is the growth rate of real GDP and U is the unemployment rate. After determining the order of integration of the series the next task is to determine whether to use the random effect or the fixed effect models.

Table 5: Model determination-Fixed effect /Random effect model

Model specification	*Test type*	*Chi-sq stat.*	*d.f*	*P-value*
Fixed effects are redundant	Likelihood ratio	91.91	34	0.000
Random effect model is appropriate	Hausman test	0.098	1	0.340

Source: author's computations

Considering the p-value the likelihood ratio test resultrejects the null hypothesis that the fixed effects are redundant. The Hausman test does not reject the null hypothesis that the random effect model is appropriate since the p-value is very high (Table 5). The outcome of the tests suggests that the random effect or the fixed effect specification can be used. The study chose to use the fixed effect specification for estimation, because the fixed effect model is conventionally perceived to be a more convincing tool for estimating *ceteris paribus* effects due the fact that it allows arbitrary correlation between unobserved effects and the regressors (Wooldridge, 2013).In light of the results, the study presents the fixed effect[3] panel regression shown in Table 6. Column (3) reports ordinary least squares (OLS) estimate of effect of the (differenced) unemployment rate on the economic growth.

Table 6: Panel OLS regression results 1991-2014

Dependent Variable: RGDP	*Constant*	*Independent Variable DUNEMP*	*R-Squared*	*No. Observations*
coefficient	4.1833	-0.0152	0.265	299
P-value	0.000	0.9086		
Periods: 23	Cross-sections: 13	D-W statistics: 1.63	F-stat (prob): 0.000004	

Source: author's computations

The estimate is 0.0152 is negative but statistically not significant, rejecting the Okun's law for the SADC economies. In that respect, the Okun's law is not valid for the SADC region.Empirical analyses are performed at both individual countries and panel data levels show that unemployment rate has a reducing but insignificant effect on gross domestic product (GDP) growth, which indicates low employment elasticity of growth in the region. For causality at panel data we employ the Dumitrescu-Hurlin (2012) test for heterogeneous panel and the results are given in Table 7. One of the main advantages of this testing procedure is that it is very simple to implement the standardized average Wald statistics are simple to compute and have a standard normal asymptotic distribution (Dumitrescu & Hurlin, 2012). This testing procedure is similar tothe panel unit root tests suggested by Im *et al.* (2003) in terms of both the advantages and drawbacks. The homogeneous non causality (HNC) hypothesis is rejected based on asymptotic moments (Z-bar) for all the three lag orders but in case of semi-asymptotic moments(Z-bar tilde) it is rejected for one lag order only. Hence unemployment Granger cause economic growth in SADC countries.

Table 7: Dumitrescu-HurlinGranger non-causality (Panel) test

H_0: Unemployment does not Granger-cause GDP growth
H_1: Unemployment does Granger-cause GDP growth for at least one panel

Lag order	*W-bar*	*Z-bar*	*Z-bar tilde*
1	2.1476	2.9259	2.1826
	p-value	(0.0034)	(0.0291)
2	3.0221	1.8426	1.0508
	p-value	(0.0654)	(0.2933)
3	5.0261	2.9824	1.5722
	p-value	(0.0029)	(0.1159)

Panel unit root stationarity: After the causality test it is imperative to test for unit root between unemployment rate and economic growth using the Levin *et al.* (LLC), Im *et al.* (IPS), ADF- Fisher Chi-square and PP- Fisher Chi-square tests and results are given in Table 8.

Table 8: Panel unit root tests (level)

Test	*UNEMPRT*	*RGDPG*	*DUNEMPRT*	*DRGDPG*
Levin, Lin & Chu	-5.42174	-11.1003	-16.5332	-18.8433
P-value	0.0000	0.0000	0.0000	0.0000
Im, Pesaran and Shin	-4.69788	-10.6457	-15.3316	-17.2841
P-value	0.0000	0.0000	0.0000	0.0000
ADF- Fisher Chi-square	65.6581	150.208	218.755	260.195
P-value	0.0000	0.0000	0.0000	0.0000
PP- Fisher Chi-square	47.0943	164.797	290.816	1353.13
P-value	0.0069	0.0000	0.0000	0.0000
Cross-sections: 13	Number of Observations: 312			

Source: author's computations

The test summary indicates that UNEMPRT and RGDPG are stationary at level. All the tests reject the null hypothesis of the presence of unit root in the series. The probability value of 0.00 for the entire test implies that the null is rejected at 1%, 5% and 10% respectively. Therefore, RGDPG and UNEMPRT are integrated of order zero I (0) thus stationary at level. As per Okun's model specification of the first difference version, stationarity was determined on the differenced UNEMPRT and RGDPG. Thus, DUNEMPRT and DRGDPG are stationary at level.

Panel Cointegration: The results on cointegration between unemployment and real GDP growth in the SADC region are presented in Table 9. The empirical evidence shown by the Pedroni residual cointegration tests suggest that for most of the test statistics (except panel v-statistic) the

null hypothesis of no cointegration is rejected (Pedroni, 2004). Although, results for individual countries vary greatly among different countries, as expected, the number of rejections based on the individual country tests is relatively low, so that on this basis alone the evidence does not appear to favour the Okun's law (Table 9). By comparison, each of the panel statistics rejects the null of no cointegration, and the group statistics also reject the null for the case when the time means are subtracted. Thus, in contrast to the individual time series tests, both the panel and group statistics appear to provide fairly strong support in favour of the likelihood that the Okun's law holds for at least a significant proportion of countries since the probability value in these cases is less than 5% level of significance. Considering the results for individual countries, the point estimates for the slopes and intercepts appear to vary greatly among different countries. Further, as expected, the number of rejections based on the individual country tests is relatively low, so that on this basis alone the evidence does not appear to favour even weak Okun's law to hold. By comparison, we see that for the annual data the panel rho statistic and the two ADF statistics reject the null for the standard case,whereas all but the group rho reject the null for the case when the time means are subtracted. Thus, in contrast to the individual time series tests, both the panel and group statistics appear to provide fairly strong support in favour of the likelihood that the Okun's law holds for at least a significant portion of countries

Table 9: H_0: No cointegration between unemployment and real GDP growth(Panel)

Pedroni Residual Cointegration Test

Test	*Statistic*	*Test*	*Statistic*
Panel v-Statistic	0.1352		
P-value	0.4462		
Panel rho-Statistic	-9.7733	Group rho-Statistic	-6.9276
P-value	0.0000*	P-value	0.0000*
Panel PP-Statistic	-10.1498	Group PP-Statistic	-11.7048
P-value	0.0000*	P-value	0.0000*
Panel ADF-Statistic	-10.1560	Group ADF Statistic	-11.1436
P-value	0.0000*	P-value	0.0000*

Johansen Fisher Panel Cointegration Test

Hypothesized No. of CE (s)	*Fisher statistics trace test*	*Fisher stat. max-eigen test*
NoneP-value	100.70.0000	66.050.0000

**denote significant at 1% level of significance*

The above results and conclusions drawn are further supported by the Johansen Fisher panel cointegration test. The trace and Max-Eigen test from the Johansen Fisher test both indicate that the null hypothesis of no cointegration is rejected and conclude that there is cointegration.

6. CONCLUSION

This paper examined the empirical relationship between economic growth and the unemployment rate for the SADC region carried on annual time series and panel data for the unemployment rate and real economic growth for the priod 1991 to 2014. The first difference version of Okun's law has been used to determine this relationship. The main results indicate that Okun's law is only valid for Angola, Mauritius, Malawi, Tanzania and Mozambique.However, Okun's law is not valid for the SADC region.

Three countries namely Botswana, Lesotho, and Namibia have a positive relationship but insignificant coefficient. Further, these are the countries with high unemployment rate. It has been indicated earlier that countries with relatively low Okun's coefficients are characterised by intolerable unemployment levels. The unemployment rate for these countries has experienced great variability relative to GDP growth for the considered sample period. This crisis led to large increases in unemployment paired with economic growth expansions. Therefore, in terms of employment generating capacity Malawi serves as a model of success in the region. Thestudy recommends that; the government and policymakers should formulate economic policies that are more tailored to structural changes and labour market reforms, SADC member states should embark more on benchmarking from one another especially on Angola, Malawi, Mauritius, Tanzania and Mozambique where Okun's law seems to be applicable. Lastly, enforce regional diversification programs that support technology whilst promoting intensive use of labour.

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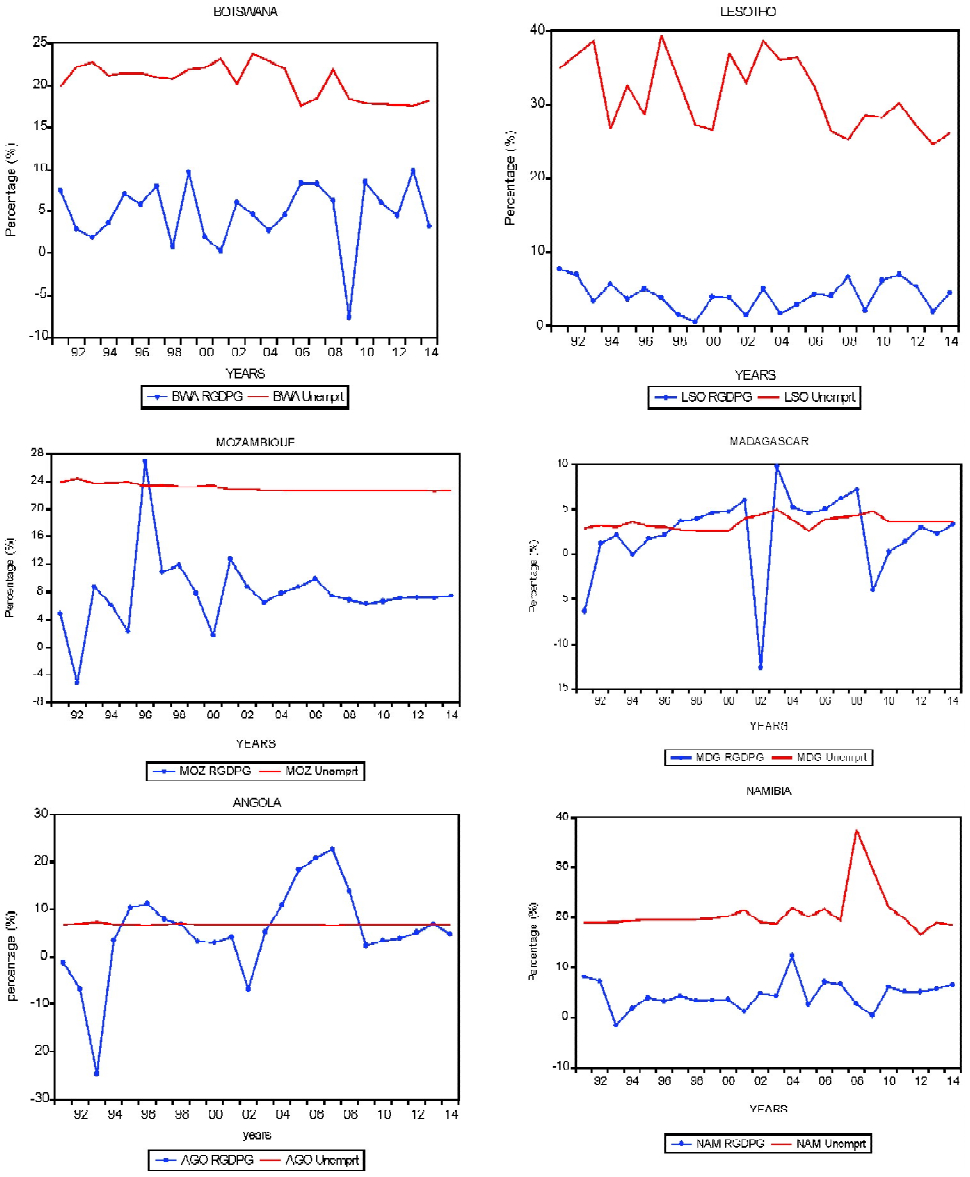
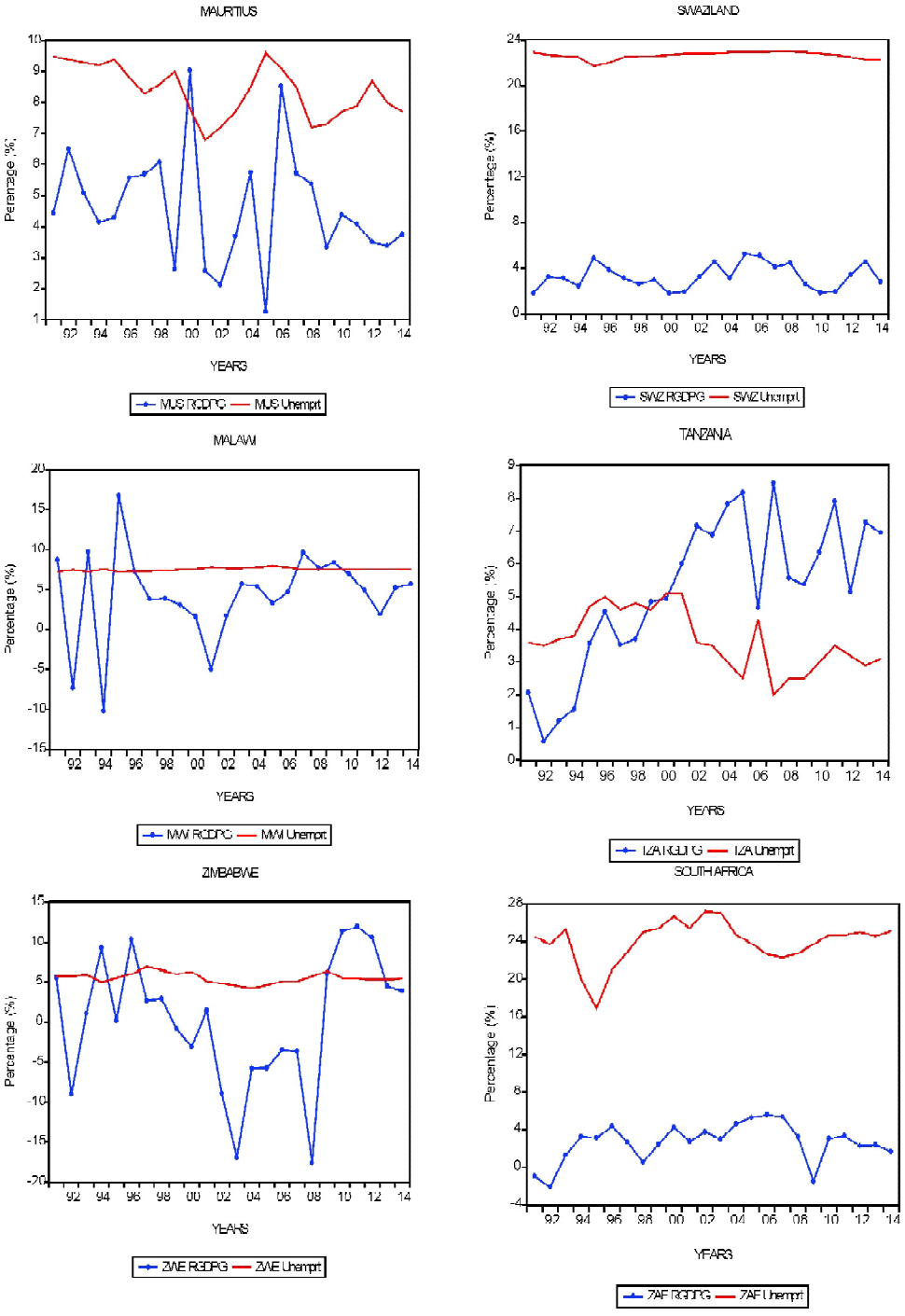
APPENDIX A

Figure 1: Unemployment Rate and Economic growth trends in the SADC region, 1991 - 2014





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Tax Knowledge and Personal Income Tax Compliance: A Study of Small and Medium Enterprises in Gombe State, Nigeria

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Abstract: Tax income is undoubtedly one of the major sources of revenue of most countries, hence tax compliance is one of the troubling issue faced by tax authorities. Therefore this study evaluated the effect of tax knowledge on tax compliance behaviour of Micro, Small and Medium Enterprises (MSME) in Gombe state Nigeria. The study retrieved 360 questionnaires from the entire 480 MSMEs registered with Small and Medium Enterprises Development Agency (SMEDAN) and corporate Affairs Commission (CAC) in Gombe state Nigeria. Partial Least Squared- Structural Equation Modelling (SmartPLS3) was employed to analyse the data. The study found out that tax knowledge has a significant positive effect on tax compliance behaviour in MSMEs in Gombe state-Nigeria. The study therefore recommends that tax authorities to put more effort in

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the provision of sensitization program to MSMEs in order to improve compliance.

Keywords: Taxation, Tax Knowledge, Tax Compliance, PIT, MSMEs

INTRODUCTION

Government of any country generate their revenue either through tax or non-tax revenue and Nigeria is not an exception. Compliance with tax payment is a serious challenge faced by tax administration in developing countries like Nigeria [1]. Nigeria witness a decreased in tax revenue generation in spite of GDP growth experience during the period of 2010 to 2018. Nigeria has one of the lowest tax revenues-to-GDP (Gross Domestic Products) in the world and it is established by world financial experts that no country will adequately finance its social or economic infrastructure when its tax revenue-to-GDP is below 15% [2].

Tax non compliance remained a menace in any economy. Nigeria is experiencing a serious problem of tax non compliance from every sector of the economy. In 2018 alone FIRS have 31,395 records of various bank taxes and 6772 of these records do not pay any form of tax which at least each record is expected to generate nothing less than N3 billion and if that is multiply 6,772 the amount is huge [2]. Moreover non-Oil revenue is on the decrease from 2016 to 2018. In 2017 non-oil revenue of N4.03 trillion amounting to 62.25 percent was realised as against the oil revenue of 37.75% in 2016. 64.99% was recorded as revenue in favour of non-oil and 35.01 per cent for oil collections while in 2018 non-oil collection dropped to 54.56 per cent and 45.44 per cent for oil [2].

A survey by the National Bureau of Statistics (NBS) in partnership with the Small and Medium Scale Enterprises Development Agency of Nigeria (SMEDAN) indicate that there are more than thirty seven (37) million MSMEs in Nigeria as at December, 2018. The statistics shows that micro enterprises constituted of 36,994,578, small enterprises are 68,168 while the remaining 4,670 are medium enterprises that bring the total of MSMEs to 37,067,419. At the moment, more than fifty nine (59) million Nigerians which constitute more than 84% of the total national labour force are employed by MSMEs [3]. As at 2016 about 48.5% and 7.3% were contributed to GDP and total national export by MSMEs. There exist a strong relationship between economic growth and tax revenue in any country when the former is lacking, the later will be affected negatively Uba [4] and he further buttressed that if MSMEs are appropriately educated and properly harnessed, their contribution toward economic growth could be in multi folds and the effect will be a promising Nigerian economy.

Several workshops and sensitization programs were organised by FIRS to educate MSMEs believing that they have the aptitude to grow up the economy and opportunity for job creation for the teeming youths. Several studies on tax knowledge and tax compliance were conducted both in Nigeria and foreign countries, yet little or nothing has been done on harnessing the compliance behaviour of MSMEs in Nigeria despite their tremendous contribution to the economic growth.

Previous studies found out mixed result on the relationship between tax knowledge and tax compliance. [Manual and Xin [5], Fauziati, Minovia [6], Inasius [7], Andreasa [8], Mohd, Akir [9], Deyganto [10]] found out that there is no significant relationship between tax knowledge and tax compliance in different countries. In the other hand Gangl, Torgler [11] in Australia, [Saad [12], Saad, Mansor [13]] in Malaysia, Kamil [14] in Indonesia found out that tax knowledge have negative effect on tax compliance. However, tax knowledge is found to have significant positive effect in different countries of the world such as Azmi, Zainuddin [15] in Malaysia, Asrinanda [16] also in Malaysia, Olaoye, Ayeni-Agbaje [17] in Nigeria, Manaye [18] in West Africa, Oladipupo and Obazee [19] in Nigeria.

Based on the studies reviewed so far the actual relationship between tax knowledge and tax compliance remained an issue of debate among scholars. Therefore this study is aimed at examining the effect of tax knowledge on tax compliance of MSMEs in Gombe state Nigeria.

LITERATURE REVIEW

Concept of Personal Income Tax (PIT)

Technical committee for tax administration, Federal Inland Revenue Service and State Internal Revenue Service were established in 1992. In 1993, Personal Income Tax Act (PITA) was established to repeal Income Tax Management Act of 1961. The 1999 Constitution provide for each tier of government a taxing authority and the taxes are shared by these tiers depending on the nature of the tax. Federal government has the power to legislate and collect taxes from company's income, custom and excise, education, custom levies, VAT and personal income tax of the Federal Capital Territory (FCT) and armed forces. The constitution provides state governments with the power to collect personal income tax except for the personal income tax of the personnel of the armed forces and residents of FCT. The local governments are empowered by the Constitution to charge other minor taxes or levies.

The first tax to be introduce in Nigeria was the Personal income tax (PIT) which started in 1906 as a community tax in Northern Nigeria [1].

The law imposing the tax empowered Federal Inland Revenue Service, State Internal Revenue Service and the Local Government Revenue Committee to administer and collect personal income tax.

Constitution of the Federal Republic of Nigeria, 1999 provide the legitimacy of imposing taxes on individuals. National assembly was given power to make laws for the imposition of taxes. The collection and administration of some specified personal income tax under the concurrent legislative list are left to the state governments. The State House of Assembly is empowered under the Residual List to make laws and to levy taxes and rates on individuals within the jurisdiction of the local government.

Alabede [1] affirms that personal income tax in Nigeria covers the income of the individual, corporation sole and body of individuals, (example partnership). The individuals, corporation sole and body of individuals that are assessable under personal income tax include the following:

a) An employee in both the private and public sector in respect of income obtained from employment.
b) A sole trader, for the income derived from trading.
c) A proprietor, for the income obtained from trade, business, profession or vocation
d) A partner, for income from the share of the profit from the partnership's trade, business, profession or vocation.
e) An executor(s), for income in respect of the estate of a deceased person.
f) A trustee(s) for the income from any settlements or trusts or estate.
g) A beneficiary, for the proportion of income derived from a settlement.
h) An annuitant, for income in respect of annuities.

For the purpose of tax collection, individual taxpayers are categorized under direct assessment and indirect assessment otherwise known as PAYE. Individuals under direct assessment are to pay their taxes not under appeal or objection within two months after notice of assessment has been given, while the collection of tax on assessments that are subject to appeal or objection will remain in abeyance until the objection or appeal is settled and must be paid after one month. The individuals under PAYE are employees working for either the private or public sectors. They pay tax on their emolument on a monthly basis. Employers of labour are to deduct taxes from salaries or wages payable to their workers at the end of each month in line with the tax table provided by the tax office and shall account

for the deducted amount in the manner that may be prescribed by the relevant tax authority.

Concept of Tax Compliance

The payment of tax is the compulsory obligation of every citizen whether individual or body corporate [1]. It is a responsibility upon any citizen to voluntarily comply with such duty however some do not until government takes measures against them. Most taxpayers don't want to pay tax thereby making imposition and collection very difficult for the tax administrators [20]. Kirchler, Hoelzl [21] on the other hand argue that it is a sole responsibility of any government to ensure that tax payers comply with the provision of tax laws irrespective of their social, economic or political status. For tax compliance to be ensured there must be an effective tax system in place which can make taxpayers voluntarily complying with the provision of the tax laws [1].

Tax compliance is seen as the extent to which citizens act in accordance with tax rules and regulations [1]. James and Alley [22] defined tax compliance as the willingness of taxpayers to act in accordance with tax laws voluntarily with all sense of commitment without any pressure or fear of law enforcement.

McBarnet [23] identified the following as three forms of tax compliance:

(i) Committed compliance which is the keenness of the taxpayer to comply with tax laws without complaining.

(ii) Capitulative compliance refers to complying with tax laws by the taxpayer reluctantly and

(iii) Creative compliance refers to any step by the taxpayer in order to reduce tax liability by adjusting revenue and expenditure within the borders of the tax law.

Moreover, Kirchler [24] further categorised compliance as either voluntary compliance where taxpayer willingly comply with the directives of the tax authorities or an enforced compliance arises where there is mistrust and a lack of understanding between the authority and the taxpayer and the later is not willing to comply with the tax laws thereby making the authorities to compel him to pay using the wrath of law. Mas'ud [25] opined that tax compliance is categorized into administrative perspective on ensuring application of tax laws and judicious perspective which emphasise on accuracy of amount of tax return.

Tax compliance is therefore seen as willingness of a taxpayer to accurately file, report a tax liability and remit same to appropriate tax authority. In the other hand tax noncompliance can be seen as intentionally

under filing, unintentional misfiling, or non-filing of tax return to the appropriate tax authorities.

Noncompliance in Personal Income Tax in Nigeria

Part 11 of PITA, 2004 provides sanctions against the following identified act of non compliance: Noncompliance with any provision of Nigerian tax laws; failure to comply with the requirements of a tax notice; failure to answer tax audit queries; filing of incorrect returns either by omitting or understating any income liable to tax; providing incorrect information for tax purposes; false statement and returns for the purpose of obtaining a deduction, set-offs, relief or refund; understating of income and over stating of claims and any form of forgery, fraud, wilful default or neglect with respect to tax.

The Personal Income Tax Act, 2004 makes provision for penalties for cases of noncompliance. The penalties for tax offences are mostly in the form of a court fine on conviction. However, Arogundade [26] argued that court fines are too low to serve as a restraint to noncompliance behaviour and he further criticized the Nigerian tax laws for treating tax evasion as a civil rather than criminal offence.

Tax Knowledge

Studies in UK and US on taxpayers knowledge, attitudes and perceptions of tax policies, have generally found that taxpayers are indeed really not informed and are at a loss [6]. Tax knowledge is an indispensable component in voluntary tax compliance [27], specifically in reporting and filing an accurate tax liability [13, 28].

Knowledge of taxation is the reasoning and knowing the meaning of benefit of complying and consequence of noncompliance of tax laws [14], he further said that without the knowledge and understanding of the tax rules taxpayers may not want to pay taxes.

Tax Knowledge and Tax Compliance

The manner in which taxpayers behave depends on how informed and knowledgeable they are on the tax laws, benefits and consequence of not complying. Well informed taxpayers' are expected to be more acquainted with tax laws and policies and consequently would be in a right position to comply [29]. However, Eriksen and Fallan [30] argued that level of education doesn't determine knowledge of tax laws. On the other hand, Saad [12] noted that research findings have it that level of education determines the level in which taxpayers understand tax laws and tax

compliance information thereby making those with low educational background seek assistance in filing tax return.

[Olaoye, Ayeni-Agbaje [17], Gereroms and Wilmots [31]] argued that the higher the level of education the lesser the compliance level because well informed people understand better ways of avoiding taxes. However Saad [12] found out that tax compliance has a positive relationship with level of education.

EMPIRICAL REVIEW

Researchers conducted studies widely in the area of tax compliance. The effect of tax knowledge and tax compliance is not left out. There are researches conducted recently on tax compliance and tax knowledge in different countries of the world by different authors at different time and the findings revealed mixed results.

For instance, in Malaysia [Azmi, Zainuddin [15], Asrinanda [16]], in New Zealand, Saad, Mansor [13]; in Indonesia Andreasa [8], [Inasius [7], Mukhlis, Utomo [32]]; in Germany Djawadi and Fahr [33], in West Africa Bernard, Manaye [18], in Ethiopia Deyganto [10], and in Nigeria [Olaoye, Ayeni-Agbaje [17], Oladipupo and Obazee [19]] collected data from taxpayers using either questionnaire and/or interview, employed regression analysis and the studies revealed that tax payers that are knowledgeable on tax laws and tax matters do comply more and hence low tax knowledge entails low compliance.

However, studies by Manual and Xin [5] in Malaysia, Saad [12] in New Zealand; and Kamil [14] in Indonesia employed regression to analyse the data collected through questionnaire administration and/or interview established that those taxpayers that are more knowledgeable on tax laws and tax policies have the highest possibility of non compliance. They further argue that because they are knowledgeable they are very well acquainted with how to avoid paying of taxes without leaving any possibility of being tracked by the tax authorities. Moreover, Fauziati, Minovia [6] in Indonesia found out that there is no significant relationship between tax knowledge and tax compliance.

Based on the literature so far reviewed, it's eminent to conclude that there is no agreement among researchers on the relationship between tax knowledge and taxpayers compliance behaviour. It is worthy to note that tax knowledge influences taxpayer's compliance behaviour either positively or negatively however, it depends on some factors surrounding the scenario. Taxpayer's income, tax penalty, tax fairness, trust, power are some of the factors that are also identified as influencing tax knowledge and taxpayer's compliance behaviour.

In view of the fact that tax knowledge and tax compliance behaviour has been widely studied and the results revealed both positive, negative and no relationship. Therefore the following hypothesis is hereby formulated to t test the objective of this study:

H_1: Tax knowledge has significant effect on Tax compliance behaviour of MSMEs in Gombe state-Nigeria.

THEORETICAL REVIEW

Tax compliance can be improved in different best ways. Payment of taxes can be effected by tax payers when it is attached to some motivations otherwise slight opportunity can make compliance low [1]. Increase in tax incentives, tax penalty, tax knowledge are identified to improve tax compliance however some researchers argue that it's the trust and power that improve compliance. Consequently, there are two major theories of tax compliance namely deterrence theory and psychology theory.

Deterrence Theory

This theory originates from the work of Becker [34] further developed by Allingham and Sandmo [35] which advocates that taxpayer's utility maximization is their top priority as such they are highly influenced by how to maximize profit by considering the likelihood of detecting tax non-compliance. Deterrence theory stresses on incentives to comply. For this reason, taxpayers weigh and analyse the various alternatives to compliance that can maximize their return, as whether or not to comply and the possibility of being detected and the consequential penalty. Hence, this theory maintained that increased in tax compliance can only be achieved through increased in non-compliance penalties. Therefore tax compliance and tax penalties have positive relationship.

Psychology Theory

On the other hand Psychology theory which is traced from the work of Jackson and Millron [36] and Alm, McClelland [37] which maintained that psychological factors are what influences taxpayers to comply with the tax obligations or not to. This theory stressed ethics and morals of the taxpayers. The theory have it that likelihood of being detected do not determine compliance however tax payers are driven by their moral and ethical values to comply. Therefore, this theory is advocating for changing taxpayers attitude toward tax obligations as the only way to achieve improved compliance as against the deterrence theory that emphasises on increase penalty. Therefore, improving taxpayers' knowledge on tax obligations is

major tool for changing taxpayers' attitude toward tax compliance. It is therefore believed that improved tax knowledge may increase tax compliance and vice-versa.

Therefore this study adopted psychology theory as an underpinning theory. This is considering the fact Psychology theory clearly explains the relationship between the study variables. Therefore this study would attempt to validate this theory.

METHODOLOGY

This study employed survey research designed where the data is sourced with the aid of a structurally designed questionnaire administrated to the owners of MSMEs in Gombe state, Nigeria. The population of the study consist of the entire 480 MSMEs registered with Small and Medium Scale Enterprises Development Agency of Nigeria (SMEDAN) and Corporate Affairs Commission (CAC) in Gombe state as at December 2018 [3]. A census sampling technique was employed and the questionnaires were sent to the respondents by means of an online method of data collection using web-based method (Google form), this method was found to be widely used in accounting researches [38]. Cooper, Cooper [39] and Benfield and Szlemko [40] argue that web based data collection is effective and efficient taking into consideration it's cost effectiveness and time management in distribution, retrieval, coding, entry and verification. The questionnaire link was developed and sent to the respondents via their email addresses obtained from CAC Gombe office. The study employed some procedural remedies to minimize the effects of Common Method Bias (CMB) which include: giving assurance to the respondents that all information provided will be kept strictly confidential as the finding will be presented on an aggregated basis to be used solely for academic purposes; vague concepts/statements were avoided in the questionnaire; and finally, few questions were reverse coded. Partial Least Squared-Structural Equation Modeling (PLS-SEM) Smart PLS3.0 software [41] is employed to analyse the measurement and structural model.

For the measurement of tax compliance behaviour five (5) items were adopted from Alabede [1]. The tool is used to tests respondent's knowledge of taxation specifically on the knowledge of tax administration (with 4 items), income to be included in tax computation (4 items), income to be excluded in tax computation (3 items), expenses allowable/disallowable (3 items each) and personal relief and allowances (2 items) on a 5-point Likert scale adopted from Alabede [1] as well.

RESULTS AND DISCUSSION

The measurement model was first tested and the analysis of the structural model was subsequently carried out [42]. Out of the 480 questionnaires sent to various MSMEs in Gombe state 360 responses were found to be valid for analysis.

Respondents Demography

The descriptive analysis shows that 76.67% are Owner managers while 23.33% are General Manager of MSMEs. This implies that top managers of micro, small and medium enterprises constitute the respondents of this study as expected, who are in better position to give information as regard to taxation of their enterprises. The analysis also showed that the activities of the businesses were more with Food and Beverages with 19.3%, followed by Convenience Stores with 15%, Bakeries with 12.2%, Furniture has 11.7%, Poultry and Fish Farming has 9.1% Tailoring and Fashion 9%, and Internet-related Businesses with 6.5%. Others include: Graphic Design and Printing Business with 4.2%, Renting Services 4%, Ice Block and Frozen Food Business 3.8%, Private Schools and Computer Training Institute 3.2%, and Building materials with 2%. This implies that the respondents who participated in the research provided adequate variance regarding their nature of businesses and backgrounds.

Descriptive statistics showed that the respondents with less than 5 years of their existence in the business dominated the with 31.11%; followed by the range of 5 - 10 years with 26.94%; then the range bracket of 11- 20 years with 24.72%; followed by those with years of existence ranging between 21-30 years with 9.61%, and, finally the range bracket of above 30 years with 7.62%, this is an indication that in addition to the differences in the type of businesses, the data collected are also from the different categories of people with a different range of experience in the business.

Considering the above information, it could be summarized that the respondents that participated in the survey have the capacity and are in better position to provide adequate and relevant information that will assist in addressing the objective of the study.

Measurement model evaluation

Convergent validity is the degree to which the variable converges to explain the variation of its questions [42] which is determined by examining the factor loadings, Composite Reliability (CR) and Average Variance Extracted (AVE). From table 1 below the construct of this study has achieved the loadings above 0.7, with excellent Alpha coefficients of 0.872, 0.882, 0.854,

0.791, 0.804 for the knowledge of expenses allowable, disallowable, income to be excluded, income to be included and tax administration respectively and 0.886 for tax compliance behaviour with the exception of the knowledge of tax relief and allowance which had a very low loading and hence dropped as suggested by [42]. In addition, the CR of the constructs is in line with that of the alpha coefficient with all the values above 0.8. The AVE for constructs are above 0.5 as recommended by Hair, Risher [42]. However, 1 item (KINC1) out of the 5 items of knowledge of income to be included was deleted from further analysis due to low loading.

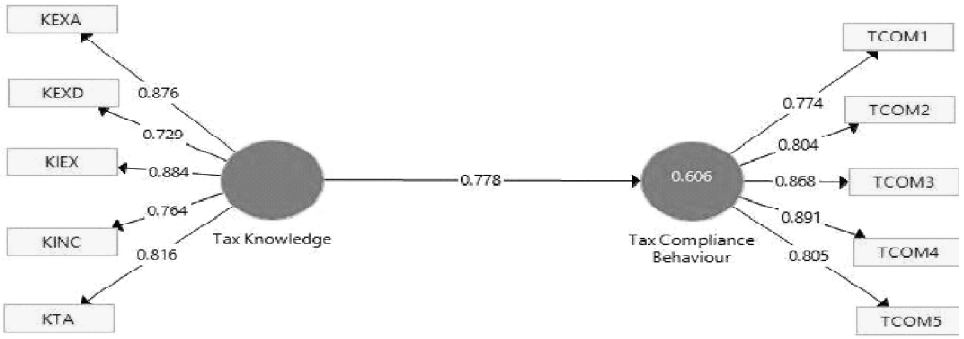
Table 1: Convergent Validity

Variable	*Item*	*Factor loading*	*Cronbach's Alpha*	*CR*	*AVE*
Tax Compliance behaviour	TCOM1	0.223	0.886	0.917	0.689
	TCOM2	0.232			
	TCOM3	0.254			
	TCOM4	0.261			
	TCOM5	0.233			
Knowledge of Expenses Allowable	KEXA1	0.374	0.872	0.922	0.797
	KEXA2	0.364			
	KEXA3	0.384			
Knowledge of Expenses disallowable	KEXD1	0.339	0.882	0.927	0.808
	KEXD2	0.373			
	KEXD3	0.400			
Knowledge of Income to be Excluded	KIEX1	0.374	0.854	0.911	0.774
	KIEX2	0.366			
	KIEX3	0.396			
Knowledge of Income to be Included	KINC2	0.292	0.791	0.863	0.612
	KINC3	0.257			
	KINC4	0.318			
	KINC5	0.403			
Knowledge of Tax Admin	KTA1	0.365	0.804	0.870	0.627
	KTA2	0.233			
	KTA3	0.290			
	KTA4	0.370			

Source: Author's Computation using SmartPLS3.0

Predictive accuracy (Q^2) of the model was also calculated, using blindfolding method and the results indicated that the dependent latent constructs have exhibited predictive relevance with Q^2 of 0.415 (see

Figure 1: Measurement Model



Appendix A) which is greater than zero. Hence, rule of thumb has it that Q^2 values within the range 0 to 0.5 portrayed small to large predictive accuracy of the PLS-path model [42], the more closer it's to 0.5 the better. Hence, Q2 of 0.415 is an indication of high predictive accuracy of the model.

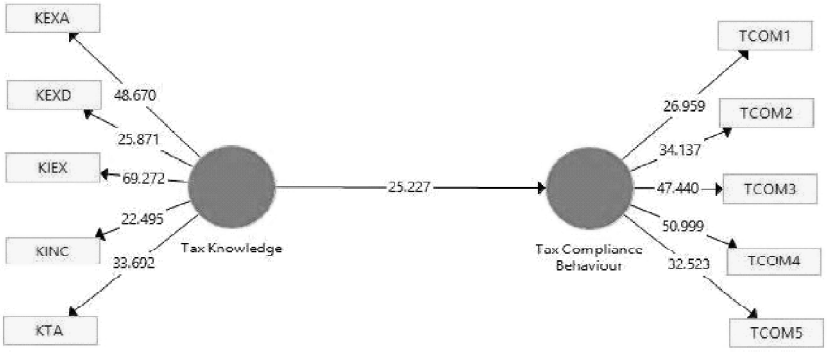
Table 2: Model Summary

	R^2	*t stat*	*Coef.*	*Std Dev*	Q^2	*P value*	*Decision*
Tax Compliance Behaviour	0.606	26.09	0.778	0.030	0.415	0.000	Supported

Source: Author's Computation using SmartPLS3.0

The summary of PLS-Path model presented in table 2 above showed R^2 of 0.606 which indicated that about 60.6% variation in tax compliance is explained by join effect of tax knowledge constructs and the result is significant at 1% level. This is further justified by the coefficient of 0.778, which indicated that a unit increase in tax knowledge will bring about 0.61 improvements in tax compliance.

Figure 2: Structural Model



DISCUSSION AND IMPLICATIONS

The paper empirically assessed the structural model of the effect of tax knowledge on tax compliance behaviour in MSMEs in Gombe State-Nigeria. The hypothesis of the study states that "Tax knowledge has significant effect on tax compliance in MSMEs in Gombe state". It was tested using SmartPLS3.0 software Ringle, Wende [41]. The statistical results supported the hypothesis that tax knowledge has significant positive effect on tax compliance behaviour of MSMEs in Gombe state. This finding is consistent with previous studies [7, 8, 13, 15, 16, 18, 32].

CONCLUSION

This study examines the effect of tax knowledge and tax compliance behaviour in MSMEs in Gombe state-Nigeria. The findings revealed that tax knowledge is positively related to MSMEs tax compliance behaviour and it accounts for 61% of the total variance. Therefore, the study concludes based on the findings on the need for tax authorities to dwell more on enlightenment campaigns, organising seminars and workshops for MSMEs in order to keep them posted on tax laws and policies which can consequently improve tax compliance. However, despite the contribution made by this study, it has some limitations, one major constraint was the used of cross-sectional design for survey research, thus, the study cannot establish a causal relationship on a longitudinal basis. Also, the finding cannot be generalized to the entire MSMEs in the country since the data collected during the study was limited to MSMEs in Gombe state-Nigeria only.

To overcome the limitations of this study, future research should employ the longitudinal approach of the study and examine a wider scope to enable better generalization. In addition, future studies can consider a qualitative and/or case study approach as against this study with quantitative research approach.

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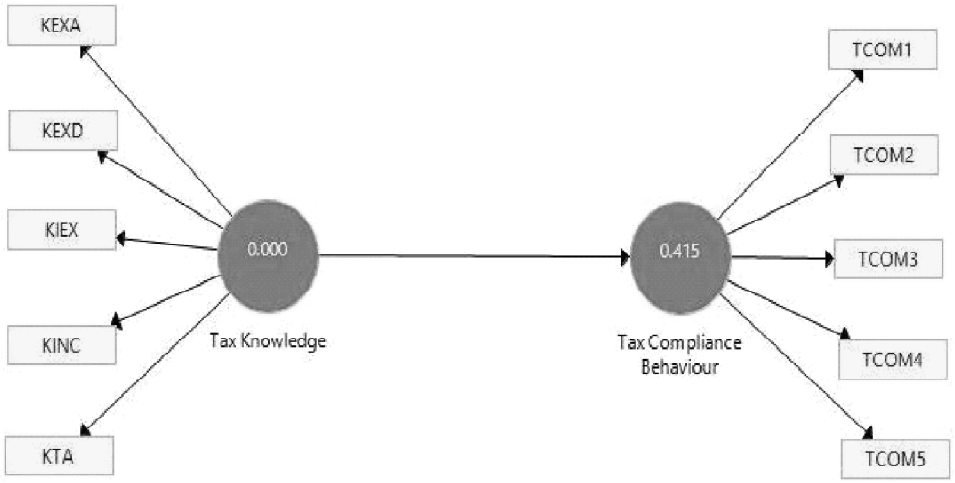
APPENDIX A

Blindfolding graph



APPENDIX B

QUESTIONNAIRE

Section One: **Demographic Information**

S/N	*Questions*	*Resp*	*Resp*
1	Management		
	Owner Manager	General Manager	
2	Business Activity/Type		
	Food and Beverages	Internet-related business	
	Convenience store	Graphic design and printing	
	Bakeries	Renting services	
	Furniture	Ice block and frozen food	
	Poultry and fish farming	Private schools	
	Tailoring and fashion	Building materials	
3	Years of operation		
	Less than 5 years	5 to 10 years	
	11 to 20 years	21 to 30 years	
	Above 30 years		
4	Gender		
	Male	Female	

Section Two: Tax Knowledge and Tax Compliance Behaviour

Knowledge of Tax Administration under Nigerian tax laws						
S/N	*Question*	*SD*	*D*	*N*	*A*	*SA*
1	Value added tax in Nigeria is collected by FIRS					
2	State Internal Revenue Service is responsible for the collection the PAYE of members of Nigerian armed forces					
3	Withholding tax is only remitted to FIRS					
4	The administration of company income tax is not the responsibility of FIRS					
Knowledge of Income to be Included under Nigerian tax laws						
1	Leave allowance not more than 10%					
2	Basic salary					
3	Gross dividend received on investment					
4	Interest on saving account					
Knowledge of Income to be Excluded under Nigerian tax laws						
	Rent received					
	Interest received on government security					
	Transport allowance					
Knowledge of Expenses Allowable for Deduction under Nigerian tax laws						
	Interest on loan used for personal purpose					
	Repairs of machines used for business					
	Salaries and wages of workers in an enterprise					
Knowledge of Expenses Disallowable for Deduction under Nigerian tax laws						
	Rent paid on building occupied by business					
	Depreciation of assets					
	Provision for doubtful debt					
Knowledge of Personal Relief/Allowances under Nigerian tax lawsI wish **TO COMPLY** with the provisions of Nigerian tax law for the following reasons						
1	If I decide not reporting my exact income, I believe that the Nigerian tax authority is tolerant towards my offence and most probability I will escape without any punishment					
2	I believe that Nigerian tax authority has limited capacity to investigate all income reported to it so opportunity for me not to declare my exact income is opened					
3	Where higher income earners should pay more taxes than lower income earners in Nigeria					
4	Filing tax return is easy and simple in Nigeria					
5	There are a number of services, facilities and infrastructure being provided by Nigerian government which I am very thankful					