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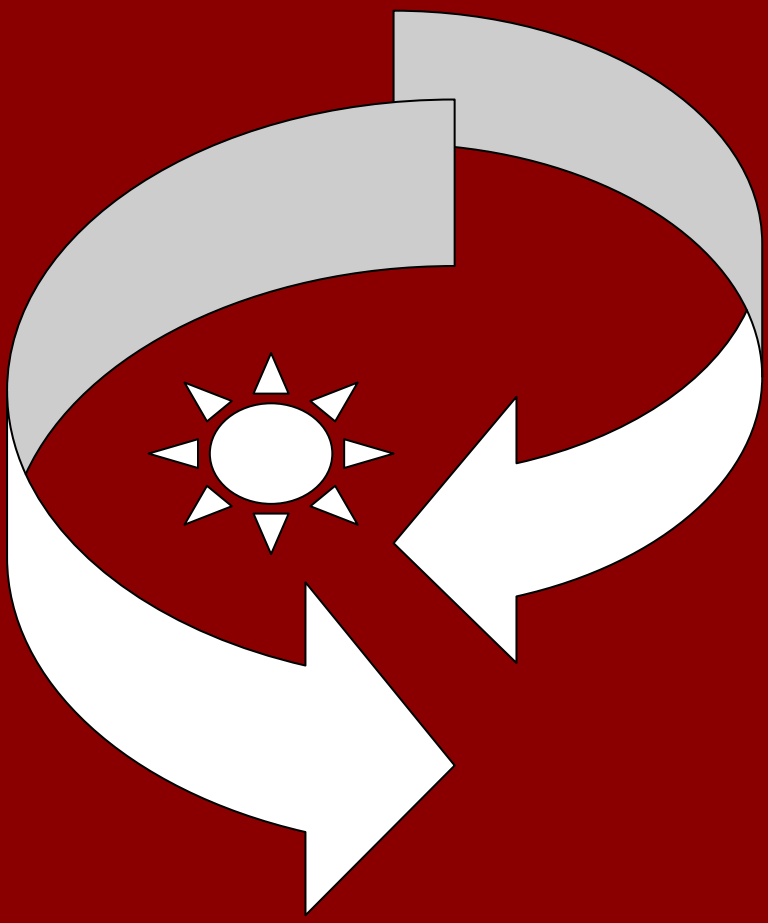

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Jurnal Perspektif Pembiayaan dan Pembangunan Daerah (The Journal of Perspectives on Financing and Regional Development) is reffered to be a forum for the delivery of scientific thought and analysis in the field of economics especially related to financing and regional development for faculty staff, researchers, alumni, students and broad community. Starting form Volume 6 No. 1, this journal is published into six times a year (originally published four times a year). The editor receives articles that have unpublished yet in any media, either inside or outside the country. The online version of this journal is available at http://online-journal.unja.ac.id/index.php/JES

Jurnal
Perspektif Pembiayaan dan Pembangunan Daerah
(Journal of Perspectives of Financing and Regional Development)

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On its sixth year (Volume 6), the Journal of Perspectives on Financing and Regional Development has two fundamental changes. First, this journal was originally published four times a year, and now has been published six times a year. This is based on consideration of the increasing interest of researchers / authors to publish their articles on this journal. Second, the journal has been nationally accredited with SINTA (Science and Technology Index) score of S4 which is valid from 9 July 2018 – 8 July 2023 based on the Decree of the Director General of Development and Research Enhancement, Ministry of Research, Technology & Higher Education of the Republic of Indonesia, Number 21/E/KTP/2018 concerning the Ranking of Scientific Journal Accreditation Period I Year 2018.

In volume 6 number 1, 2018 is presented thirteen articles that come from Jambi University (Indonesia), Universitas Padjadjaran (Indonesia), University UPJŠ Košice (Slovakia), Technical University Košice (Slovakia), Warsaw University of Life Sciences (Poland), National Academy of Sciences of Ukraine (Ukraine), Yobe State University (Nigeria), University of Huddersfield (United Kingdom), Obafemi Awolowo University, Ile-Ife (Nigeria), Federal University of Technology, Ondo State (Nigeria), Adekunle Ajasin University, Ondo State (Nigeria), Engineering Materials Development Institute, Ondo State (Nigeria), University of Nigeria (Nsukka-Nigeria), Bangladesh Civil Service (General Education), Ministry of Education (Bangladesh), Adeyemi College of Education, Ondo (Nigeria), University of Tirana (Albania)

Hopefully in the next issue can be presented articles with issues and from more diverse circles.

Happy joy reading

Editorial

India's economic reforms and challenges for industrialisation

Kalim Siddiqui[1]

University of Huddersfield, Queensgate HD1 3DG, UK

e-mail correspondence: k.u.siddiqui@hud.ac.uk

Abstract

This study focuses on the issue of economic reforms and its impact on industrialisation in India. However, to understand this, it seems also crucial to analyse pre-economic reforms. In India, due to the prevalence of high unemployment and overburdened agriculture sector, the manufacturing sector becomes very important not only just in creating employment but also to boost manufacturing exports. The article examines existing literature on industrial sector in India and try to explain the challenges, it is currently facing. The 1991 economic reforms in India, removed tariff barriers to foreign investments and trade, with a hope that it will encourage foreign investors and ease burden on current accounts. The public sector and the role of the state in the economy was reduced and bureaucratic controls were dismantled, while at the same time the increasing the role of the market and private sector within the economy was strengthened. As a result, foreign capital investment and foreign exchange reserves improved. The study concludes that more than a quarter of a century has passed since pro-market policies were enacted, but such polices did not lead to rapid creation of employment opportunities. There has been no rapid growth of manufacturing sector and there has been no corresponding decline in the share in agricultural employment. Even the much heralded IT sector's dramatic expansion over the last two decades has provided jobs directly to less than a million people.

Keywords: *Indian economy, manufacturing sector, economic reforms.*

JEL classification: O20, O10, O25, F11.

INTRODUCTION

In 1991, India experienced the balance of payments crisis after nearly a decade of steady economic growth and stable macroeconomic performance i.e. increased investment and lower inflation rates and improvements in growth rates. In fact, the 1991 neoliberal economic reforms had been preceded by pro-business reforms and India had borrowed from the IMF after the second oil shock. Economic reforms continued and by the mid-1980s and government undertook further steps to de-regulate industry and trade. Economic liberalisation involves adopting more open trade and capital accounts policies. However, twenty-five years later, India managed to achieve high GDP growth rates, but at the same time very little or negligible employment growth had been a feature of the economy under neoliberal policies in India. Even stagnating or falling real wages, along with falling wage shares have not moved towards increased labour demand in the manufacturing sector.

[1]The author would like to thank John Smith and Hugo Radice for helpful comments and suggestions on earlier version.

Soon after independence in 1947, India adopted mixed economic policies, despite the fact that the private sector was much larger than public sector, but the government exercised a large degree of control via "license raj" to a less regulated and more open economy with the private sector designed to play a more significant role than the public sector. The Indian government took a number of initiatives to enhance industrial and agricultural development, and also had focused on domestic demands and less relied on export-led growth. But the biggest failure was that it did not make any real impression on the country's huge unemployment problems. A number of measures were taken to stimulate and promote domestic industrialisation. However, the options for industrialisation began to be exhausted by the mid-1970s and the big industrialists saw that only collaborations and joint ventures, along with the availability of foreign borrowing and foreign markets, could further their interests. In addition, some high tech and IT companies found their interests lay with increased global market integration and gaining more access to foreign technology to improve efficiency and productivity, and enhance their growth. All these domestic changes led to the launching of neoliberal reforms, which began in the early 1980s and with major large-scale policy change in 1991 (Siddiqui, 2018; 1991). Industries in India tend to be dominated by a large number of small enterprises and a few large companies. Since the neoliberal was pursued, the India's engagement with the global economy has increased rapidly.

The study contributes by critically looking at not only the issue of growth rates, but also at the performance of the manufacturing sector. There seems to be a gap in the literature because most research has chosen to highlight the overall GDP growth rates of the Indian economy (Basu and Maertens, 2007), but little has been written about the industrial sector's importance, performance and near stagnation in overall job creation since economic reforms were launched in 1991. The aim of this study is also to provide a critical assessment of neoliberal reforms and its implications on Indian economy. The industrial sector has languished at around 16% of GDP, which is much less than that of China or any other country at India's stage of economic development (Siddiqui, 2018; also 2016a).

The economic reforms of 1991 has provided to big boost to the rapid growth in the service sector and it seems that India is experiencing modernisation and economic re-structuring without going through the intermediate phase of a significant expansion of the manufacturing sector. The aims of the neoliberal policies adopted in 1991 were mainly: to remove the capital control on production, prices and market forces to influence investment and operational decisions; to allow international prices and market competition to influence economic decisions; and to liberalise the financial sector and remove controls over the banking sector (such as reducing state-directed credits and freeing the interest rates); and finally, to privatise public assets (Siddiqui, 2017a). Liberalisation of trade and investment rules was relaxed in India in 1991 to attract foreign capital and investment, and it was hoped that such changes would be able to attract relevant sectors to India from global value chain production, which increasingly serve as a location for world market production; however, there had been little success to date (Nayyar, 2006).

For the last more than two decades Indian economic growth reveals that this growth is unbalanced in terms of sector i.e. for nearly a quarter of a century the services have grown much faster than other sectors in the economy. Growth in the industrial and agricultural sector, which provides jobs for the majority of the work force, has been slower. Despite high growth rates annually of more than 7%, developing economies such as India experienced a slight fall in their share of industry between 1998 and 2010.

Their share of agriculture also continued to fall, while the service sector has expanded sharply since the early 1990s (Siddiqui, 2014a).

Despite experiencing faster economic growth for over twenty-five years, this has not benefitted agriculture sector in terms of raising farmers' incomes and has not diverted the unemployed rural people to find jobs. It has not created enough opportunity for the people working in agriculture to move out and find jobs in the industrial sector. This is because the industrial sector in India has experienced slow growth in employment creation i.e. less than 1% per annum. This structurally uneven growth, coupled with disproportionate policy and economic interventions, has led to the emergence of inter-sectoral differences, marked by agrarian crisis and slow industrialisation (Siddiqui, 2014a).

In 2013, nearly 60% of total employment was still in the agricultural sector, with productivity levels which generated incomes which were less than one-fifth of those in the rest of the economy (Economic Survey, 2014). Neoliberal policy did not offer any policy incentive for agricultural sector on which large number of people rely on for their livelihoods. In fact, if productivity in agricultural sector rises then this sector needs to employ less people. Therefore, the development of the manufacturing sector is crucial for overall productivity growth in the economy.

Despite the rapid success in the GDP growth rates the country has achieved since reforms, in terms of employment it still remains primarily an agricultural economy, accounting for nearly two-thirds of total employment and a fifth of the country's GDP. Between 1983 and 1993, employment increased by more than 2% per annum. Then, from 1994 to 2006, the economy grew faster but employment growth decreased to 1.8% per annum. Since 2006 matters have become worse in terms of employment growth. Employment elasticity, which is a measure of the jobs that economic growth produces, had been 0.44% between 1999 and 2005, while it declined to 0.01% for the period from 2005 to 2012 (Siddiqui, 2014a).

Therefore, for a fuller understanding of the performance of the industrial sector in India, we must examine at historical perspectives to compare this with past performance. According to the official data, during the pre-reform period between 1950 and 1960, the average annual growth rate in the industrial sector was 6.1%, which declined to an average of 4.8% between 1960 and 1980. But the it increased to 8.2% per annum between 1980 and 1990 (CSO, 2014). Despite post-reform period (1992-2013), industrial growth increased to an average of around 7% for India, while this figure was 11% for China for the same period per annum (CSO, 2014).

This article is organised as following. Following the introduction to this topic in section I, section II is briefly discusses the theoretical significance of the industrial sector. Section III analyses the relationship between agriculture and the industrial sector whilst sections IV and V focus on industrial growth during the pre-and post-Independence periods. Section VI then examines state vs. market policies, followed by a conclusion which summarises the findings.

Currently, the manufacturing sector contributes nearly 16% to India's GDP, provides jobs to 10% of the country's total workforce and produces nearly 80% of its total merchandise exports (Siddiqui, 2018). Although manufacturing sector is relatively small in comparison to India's whole economy, but there is a huge potential and this sector could play an important role in raising the productivity and in its development efforts.

It seems that the international financial institutions and also political elites in India have tended to focus largely on GDP growth and overlooked the fact that the

economy needs to create more jobs (World Bank, 2006; Economist, 2007). Especially at a time when India has the largest number of young people of any country in the world, merely providing them with education is not enough. There is a need to find the real constraints on the growth of enterprises.

During the period from 1900 and 1946, the overall growth performance was negligible i.e. primary sectors' 0.9%, while the secondary sector growth was only 1.1% annually (Maddison, 1995). In contrast, after independence, from 1950 to 2015, the primary sector in India grew at an average of 2.2% per annum, and the secondary sector at 5.3%. Looking at individual decades, growth in the secondary sector was 6.7% in 1980-1990, and while it slowed down somewhat in the post-reform period (1991-2015), the secondary sector still grew at an average of 6% per annum (CSO, 2014; Siddiqui, 2014a). The past decades in India appear to have witnessed inadequate diversification of India's production structure away from agriculture and into manufacturing and somewhat premature rapid diversification into the service sector, (Siddiqui, 2015a).

The methodology to be followed here is derived from the aims of the study and comparisons of international statistics provide the main means of addressing the research questions and the objectives of this paper. Analysing pre-existing secondary data is the only possible way to obtain macroeconomic data. These include data from Indian government publications and from institutions such as the UNCTAD, World Bank and OECD.

THEORETICAL SIGNIFICANCE

Let us first define the concept of 'industrialisation', which refers to the shift in the pattern of a country's output and workforce towards industry. In the course of development, the industrial sector becomes proportionally more import than the primary sector both in terms of employment and revenue generation. The past experience indicates that the industrialisation seems to be very important in order to achieve affluence. Past experiences of developed countries suggest that to become prosperous a country needed to swing heavily towards expansion of manufacturing (Raj, 1986).

Nicolas Kaldor (1967) emphasised that industrialisation is a necessary stage of development, since it represents the development of productive forces and technology. In the developing countries industrialisation can play an important role as it saves foreign exchange by reducing imports and expanding employment opportunities; it lessens the burden on the agricultural sector, and also raises the overall productivity in the economy. The successful experiences of the industrialised countries also indicate that their success had been largely due to their strong manufacturing sector. As Kaldor (1967:54) argues that "The kind of economic growth which involves the use of modern technologies, and which eventuates in high real income per capita is inconceivable without industrialisation".

The expansion of industrial sector appears to be very important to the economic growth and well-being of the population of developing countries such as India. Kaldor (1967) identified what he considered to be the most critical issues in his 'Laws of Economic Development'. He sees the wider impact of the manufacturing sector as follows: 1) Higher growth in the manufacturing sectors could also lead to an increase in labour productivity; 2) Productivity in the non-manufacturing sector increases as the manufacturing sector expands; 3) Manufacturing is an engine of growth, not only because of higher productivity but also because of the external economies it generates, including forward and backward linkages; 4) As the manufacturing sector expands it provides job opportunities for the surplus labour in the agricultural sector, which

ultimately reduces levels of unemployment and poverty (Kaldor, 1967). Job creation in manufacturing is related to the rate of growth of the output or value added. This, in turn, is linked with the rate of growth of wages relative to value added. Kalecki (1971) referred to the 'mark-up price' above the costs which the producers are able to charge or to the 'degree of monopoly' in the market.

Past experiences of a number of countries show that industrialisation is not merely an instrument of economic growth but also has an in-built mechanism for distributing the costs and benefits of growth. However, it seems that the opening up of domestic markets and free trade as strategies for industrialisation can be incompatible with the circumstances, particularly for late-industrialising countries. For example, South Korea is characterised by active state intervention in the economy and the accumulation process was sustained (Amsden, 2003). Protection for certain strategic industries by the state in South Korea was considered necessary in order to bring about a situation where integration with the world economy would lead to the development of industries and expansion in employment domestically.

During the last four decades, the rapid economic transformation of the East Asian countries has become the most important development in the world economy. For instance, initially the development in Japan, then South Korea and most recently in China has been the most spectacular and the most widely discussed (Siddiqui, 2009; Das, 2006). However, proponents of 'outward-looking' industrialisation policy overlook the differences among the East Asian countries that successfully followed this policy (Siddiqui, 2013). Japan and South Korea had almost no foreign direct investment capital flows, while the economies of East Asian countries like Hong Kong, Singapore (Siddiqui, 2010) and more recently, China, have been dominated by inflows of foreign capital (Sen, 2007).

For instance, when we compare with China, both countries had roughly same levels of industrialisation in the 1950s; India, rather, at this time had slightly more developed industries than China, but by 2015 China became the world's second-largest manufacturing country, while India ranked tenth, producing one-quarter of China's industrial output (Nagaraj, 2017) At present, India and China are among the fastest growing economies in the world. Despite the differences in the performance of the industrial sectors in both countries, industry could have a vital role to play in improving the economy, productivity and living conditions of their people. These two countries together constitute nearly 40% of the world's population. Therefore, what happens to China and India is of great importance to academics and policy makers (Siddiqui, 2009).Manufacturing activities can be regarded as a critical engine of growth for the economy. The development of the manufacturing sector is seen to be crucial in order to allow India to expand supply and reduce the risk that the current growth spurt might not be sustainable because of supply side constraints (*Economist*, 2007).

In the light of a recent study by Dani Rodrik (2016), there is a need to revisit the question of industrialisation, which is still very important for creating employment, diversifying the economy and removing the low productivity workforce from agriculture. However, according this study, the increased global integration and liberalisation has led to de-industrialisation in some regions. It is very important for a country like India to draw lessons from such a potentially adverse impact, which could be a huge destabilising factor in India. As Rodrik (2016:2) argues: "With some exceptions, confined largely to [East] Asia, developing countries have experienced falling manufacturing shares in both employment and real value added, especially since 1980s. For the most part, these countries had built up modest manufacturing during the

1950s and 60s, behind protective walls and under policies of import substitution. These industries have been shrinking significantly since then. The low-income economies of sub-Saharan Africa have been affected nearly as much by these trends as the middle-income economies of Latin America – though there was less manufacturing to begin with in the former group of countries…Developing countries are turning into service economies without having gone through a proper experience of industrialisation. I call this premature deindustrialisation."

RELATIONSHIP BETWEEN AGRICULTURE AND INDUSTRY

Agriculture and industry are closely inter-related, as the performance of one sector affects that of the other. The agricultural sector provides raw materials for industries and also offers an important market for locally produced manufacturing goods (Siddiqui, 2015a). Earlier discussion of the relationship between industrialisation and agriculture by Prebisch, Lewis and others focused on agricultural growth as a very important stimulus towards rapid industrialisation through transfer of savings. Lewis (1954) emphasised that the agricultural sector plays an important role as a supplier of surplus to industry. He suggested that the supply of surplus from the agricultural sector and also a constant supply of workers at low wages could be important factors towards industrial growth. Lewis (1954) argues that: "Industrialisation is dependent upon agricultural improvement; it is not profitable to produce a growing volume of manufactures unless agricultural production is growing simultaneously. This is also why industrial and agrarian revolutions always go together. Economies in which, agriculture is stagnant do not show industrial development" (Lewis, 1954:433).

Demand-side constraints and how these might impact on the demand for industrial product in the domestic market was another major issue. Kaldor (1967) focused specifically on the demand-side problem of industrial growth. According to him, the growth of agricultural surplus is an essential condition to raise the purchasing power necessary for sustaining industrial growth. Kaldor suggests that to sustain industrialisation the terms of trade between these two sectors should be in favour of agriculture. He further argues that agricultural productivity should be improved with the help of technology to increase surplus and that would keep the food prices low, while increasing the demand for industrial goods (Kaldor, 1967).

The Prebisch-Singer model emphasises that elasticity is generally greater for manufacturing than primary products. Prior to industrialisation a country obviously had to resort to importing industrial goods and exporting primary goods. Prebisch-Singer OR Prebisch and Singer also noted that the terms of trade in the past had often been against the interests of primary producers, meaning that under such circumstances a country's imports of industrial goods would be limited by its export earnings (Siddiqui, 1998). Thus, the dependence on importing industrial goods and modern technology would limit the possibilities of income growth. Under such circumstances, an import substitution policy would help the country to relax these constraints by economising on the use of foreign exchange (Singer, 1987).

Moreover, the financing of the investment required by industries could be done by transferring funds from the agricultural sector. The terms of trade were favourable in the agricultural sector in India, especially in the period from the 1960s to the 1980s, but the outcome was that neither the industrial sector nor the rural poor benefitted from this. The Indian government refused to tax rich farmers and large land owners to raise revenue. As a result, the rural rich siphoned off most of the surplus, since they did not

pay any direct taxation and deprived the rural poor by undermining land reforms and not implementing minimum wages (Siddiqui, 2015a).

It appears that in the absence of significant improvement in the rates of growth in agriculture, in the near future there will be greater willingness to use imports to dampen down rising prices and place constraints on the supply of raw materials. K. N. Raj has commented: "Private consumers demand in a country such as India depends to a large extent [...] on how things go in the agricultural sector. If output and income in this sector are rising rapidly, consumer demand for both agriculture and non-agricultural product can also be expected to increase rapidly, the latter being even more than the former since higher proportions are generally spent on non-agricultural products as levels of income rise (Raj, 1986: 225).

The share of agriculture in terms of GDP in 1950-51 was 56.70%, while its share in total employment was 85% for the same period. The share of agriculture in GDP fell sharply thereafter, and by 2015-16 it was 13.05%, while the fall in the share in the agricultural employment was much slower (55%), and more than half the population still depends on agriculture for their livelihood, as shown in Table 1.

Table 1. Share of agriculture in GDP and employment in India, between 1950-51 and 2015-16.

Year	Share of agriculture in GDP at 1999-2000 prices (%)	Share of agriculture in employment (%)
1950-51	56.70	85.0
1960-61	52.48	77.3
1970-71	46.00	63.9
1980-81	40.00	60.0
1991-92	34.04	58.1
2001-02	25.18	57.3
2011-12	14.00	56.0
2015-16	13.05	55.0

Source: National Sample Survey, various years, Central Statistical Organisation, Government of India, New Delhi

INDUSTRIALISATION DURING THE COLONIAL PERIOD: 1757-1947

During the colonial period, modern industrial development in India was only carried out by the private sector because state investment in the industrial sector was dismal (Siddiqui, 1996). Academics have already discussed the 19th century impact of the British rule on Indian industry, especially the decline of the indigenous handicraft manufacturing sector (Dutt, 1902; Anstey, 1957; Thorner, 1962; Siddiqui, 1990). However, the neoclassical economists choose to ignore past economic realities, failing to say anything about how a handful of metropolitan countries controlled global resources and created a new international division of labour to further their economic and strategic interests (Chang, 2010; Reinert, 2007; Siddiqui, 1990).

British rule in India lasted for nearly 200 years. In terms of policies, it could be divided into three phases. The British's own class forces changed which led to changes in policies in India. The first phase (1757-1813) could be termed as the merchant capital period. During this period, merchants enjoyed monopoly trade between India and Europe, dominated by the 'East India Company', a British trading company based in the City of London. During the second phase (1813-1890), the trade monopoly of the 'East India Company' was abolished and policies in India were enacted to promote British industrial capital. In the third phase (1890-1946) was led by the interest of the finance capital and it was dominated by the export of capital from Britain to India for mining,

tea plantations, railways etc. During this period British investment in India was one-sided and did not stimulate overall industrial growth in India. Moreover, vast funds were spent for unproductive purposes such as the military, colonial administration, etc. while productive activity was confined largely to the extraction of raw materials. Even the banks and insurance companies were developed to stimulate the production of raw materials (Siddiqui, 1990:65).

The primary method of surplus extraction in India was in the form of land revenue levies. Initially the East India Company's trade was based on the import of Indian piece goods (such as muslin and calico), spices, indigo and silk. The trade was financed by the export of Treasury bullion from Britain. However, after the occupation of Bengal, the Company gained ultimate control of resources beyond their wildest dreams which they were able to exploit without having to pay but were able to sell at full price. This could be achieved by treating the entire revenue of India as gross profit (Bagchi, 1976). As Habib (1984) argues, following the Plassey victory in 1757 i.e. occupation of Bengal: "enormous individual fortunes were made, […] followed by a continuous extraction of wealth, through taxation, monopoly and corruption" (Habib, 1984: 5).

The benefits that the industrialised countries derived from their colonial markets are ignored in the mainstream arguments (Krueger, 1987). The Colonies provided markets, supplied raw materials and cheap labour. The economic policies were formulated in the Colonies to suit the metropolis. For Britain, for example, the access to colonial markets provided assured markets for their manufactured goods but at the same time British protectionism ensured that Indian manufactured goods could not be sold into British markets (Siddiqui, 1990). The supply of cheap raw materials from India minimised inflation in Britain. Until the end of the 19th century, nearly half of British exports consisted of cotton textiles, destined chiefly for India and China, ironically at the same time that these two countries were themselves experiencing de-industrialisation, massive unemployment and poverty (Siddiqui, 2009). The international division of labour was created with the metropolis producing manufactured and exported high-end goods while the Colonies served as a source of raw materials and primary commodities.

For the Colonies, the notion of 'comparative advantage' meant that they had to specialise in the production and export of raw materials. In fact, the adoption of such policies led to the perpetuation of mass poverty and famine in India for the whole of the 19th century and first half of the 20th. India proved to be useful to Britain as the surplus extracted from this colony was used to settle its deficits with the other industrialised countries whose goods it had imported. During the period from 1900 to 1946, India experienced near stagnation in per capita income, while GDP growth was minimal. Maddison estimated that growth in national output was only 0.81% per annum, whereas growth in per capita was dismal, being just 0.04% per annum (Maddison, 1995). In contrast to this, in the second half of the 20th century the annual growth in GDP was 4.2% and per capita income was 2.1%.

Thorner (1962) analysed the issue of the destruction of handicrafts in India. He defined de-industrialisation as either a decline in the proportion of the working population engaged in the industrial sector or a decline in the proportion of the total population dependent on the industrial sector. Thorner argues: "India's national handicrafts have declined sadly from their pristine glory. This falling-off, however, was not a phenomenon peculiar to India but a worldwide development affecting countries at

different times. The ruin sooner or later of the old style craftsmen, was an integral part of the Industrial Revolution as the coming of the factory system" (Thorner, 1962: 70).

However, it seems that such an argument ignores that industrial development in Britain as a colonising power and India as a colonised country had taken place in different circumstances. For example, in Britain, the traditional industries such as handicrafts faced destruction in the 19th century due to the rapid development of industries. People lost jobs in the traditional industries but the jobs created in the modern industries were much higher than those which were lost. However, the experience in the Colonies such as India was quite different. The British government used protective measures not only during the early years of the Industrial Revolution but right the way through until the 1840s; however, no such protective measures were available for Indian industries. In India, handloom weaving and hand-spinning constituted the largest handicraft industries, employing a large number of people. Therefore, their destruction had a very depressive effect on the whole economy (Siddiqui, 1996; Bagchi, 1985). As Bagchi (1976: 154) observes: "Within India herself, when de-industrialisation drove labourers to seek their living in agriculture, they faced highly imperfect market, the most important complementary asset, land, being already concentrated in the hands of landlords".

The growth of the British textile industry practically wiped out India's cotton goods markets in Britain, and even began to seriously threaten Indian industries in their home markets. For instance, Britain's textile goods exports rose from 0.8 million yards in 1815 to 45,000 million yards in 1830; this increased again to 51.78 million yards in 1835 and had reached 100,000 million yards by 1839. Cotton twist increased from just 8 IBs in 1814 to 4.56 IBs in 1828 and 10.81 million IBs by 1839. In terms of monetary value, Britain's total cotton exports to India amounted to £2.29 million in 1839 whilst cotton twist was another £0.64 million. But by 1855 these figures had risen to £5.40 million and £1.27 million, while India's manufactured cotton exports declined. For example, between 1794 and 1804 India's piece goods exports were £2.42 million per annum. Later, this figure fell sharply to £0.69 million by 1849 (Anstey, 1957; Dutt, 1902). Similar trends could be seen in other areas of Britain's exports to Indian markets with iron bars, machinery, bolts, cutlery, guns, and glasses all having rapidly increased. This led to the 'de-industrialisation' of India. As Habib argues that "The urban decline, initiated by the diversion of surplus from the Indian ruling classes to the Company, spread quite naturally wherever the East India Company's sovereignty extended. It was compounded many times over the urban unemployment by English manufacturers. This urban decline seems not only to have been in relative terms (percentage of urban population to total), but in absolute terms as well" (Habib, 1975: 38).

The surplus was not invested domestically in India and did not create new jobs. As a result the Indian economy became subservient rather than sovereign in terms of policy matters. The fruits of its labour were systematically transferred to Britain or its new colonies of white settlers. Economic development was hampered by the removal of 'surplus', high land rents and tribute charges, and also by the destruction of the Indian capitalist class meaning that they were unable to invest. A densely populated country like India was drawn into the orbit of exploitation in the mid-18th century and later on, in the interest of British industry, India was utilised as a huge market for their products. Moreover, as Bagchi (1985) argues: "Competition from the foreign cloth led to the unemployment among handloom weaver, where wages declined" (Bagchi, 1985: 101). The huge increase in the cultivation of the opium, indigo, tea and jute led to the decline of land available for the cultivation of food crops. As Bagchi notes about the changes in

the production structure that, "The trade in opium illustrates how advanced capitalist countries have in the past moulded the production and consumption structure of the whole subcontinents and have impeded their progress" (Bagchi, 1985: 102).

INDUSTRIAL PERFORMANCE FROM 1947 TO 1990

On the eve of independence in 1947 modern large scale industries and mining contributed just 7% of India's GDP, while small scale industries accounted for 10% and the agricultural sector 49% and services and construction 34%. Total employment in the industrial sector was just 2.9 million people, which amounted to less than 2% of the total workforce. In contrast to this, the small industries employed a much higher proportion, some 7% of the workforce, while nearly 72% of the Indian workforce was employed in agriculture; services including construction employed 18.7% of the total workforce. Cotton and jute were among the main modern industries established in the early 20th century in India (Siddiqui, 1996).

In fact, even this lop-sided industrialisation that India had managed to achieve under colonial rule was closely linked to British industrial and financial interest rather than sovereign industrial growth. The anti-colonial struggle in India had a clear vision concerning the need for improvement in the material conditions of life of the people. Post-independence India the state played an active role, which was seen as beneficial by the industrialists who came up with 'Bombay Plan', which suggested that public investment was needed in key industrial sectors to boost the economy. The policy was aimed at developing basic industries via government planning, while the bulk of the economy remained in the hands of private enterprises. India's first Prime Minister, Nehru, was impressed with Soviet economic planning and the USSR's rapid capital intensive industrialisation. It was said that such strategy posed a constraint on resources available for agricultural development. For example, government spending on agriculture and irrigation decreased from 34.6% in the first Five-Year Plan to 17.5% in the second Five-Year Plan, with investment in heavy industries being prioritised during this later period. The second Five-Year Plan in 1956 was launched to build 'heavy industries', which was seen as being essential for the country's long term industrial growth.

The "inward-looking" dirigiste economic strategy adopted in pre-reform period in India was seen as the most suitable option by the ruling elites. Also known as the 'import substitution' strategy option the public sector was expected to take a leading role in the development process. However, such policies were criticised by neoclassical economists as inefficient, promoting delays and corruption. The proponents of neo-liberal reforms argue that: "Rather than adopting the classic Asian strategy −exporting labour-intensive low-priced manufactured goods to the West− India has relied on its domestic market more than exports, consumption more than investment, services more than industry, and high-tech more than low-skilled manufacturing" (Das, 2006:2).The aim was to remove serious gaps in the production structure. Due to the long gestation period, private investors saw such investments as high risk and also lacked funds.

On the other hand, the government was determined not to tax the rich. Therefore, for public sector investment funding, the government relied on foreign aid, deficit financing and indirect taxation. As a result, for example, the share of indirect taxes to the total tax revenue increased from 61.9% in 1955 to 70.7% in 1966. Both indirect taxes and deficit financing were regressive, meaning that they had a dampening effect on income for the majority of people. As a result, the domestic market for mass

consumer goods did not increase. Hence, further initiatives for investment and industrialisation by private investors were undermined (Raj, 1986).

Between 1951 and 1965, the annual average industrial growth was 7%, which was much higher than anything that had been seen in the past. There was also a notable shift as the importance of traditional industries such as jute and cotton declined, while modern industries such as machinery, engineering, chemicals, rubber, pharmaceuticals, power and steel became more important. However, the industrial growth also coincided with huge increments in foreign debts and foreign aid, which meant that industrialisation in India was not financially self-reliant. Moreover, Indian industries did not allocate much money for research and development, which resulted in increased reliance on imported technology and foreign corporations. Although pre-reform industrialisation in India was impressive in terms of growth, it failed to make any dent on growing unemployment (Raj, 1986).

Industrial stagnation marked the period from the mid-1960s to the end of the 1970s. Then in the early 1980s, the government took various measures to promote businesses and as a result the economy grew faster in comparison to previous decades, but the country relied heavily on foreign borrowings. The fiscal deficit and foreign debts had increased to high levels by the end of the 1980s. As a result, the debt service ratio had become untenable.

ECONOMIC REFORMS OF 1991 AND INDUSTRIAL GROWTH

The Gulf War in 1991 added to the India's fiscal crisis and a further crisis was just waiting to happen. The government decided to accept an IMF loan and under the Finance Minister, Manmohan Singh, it began to implement neoliberal economic reforms. As a result, industrial licensing was discarded and import tariff rates were sharply reduced. The IMF and World Bank supported neoliberal reforms since the role of the state in the economy would be very limited. The product markets were liberalised and there was also a shift from 'import substitution' to 'export-oriented' policies (Bhaduri, 1993). During the early 1990s, the Indian economy rapidly opened up. It seems that this was done not only to enforce a cost discipline on the supply side through foreign competition, but also to narrow the differences between domestic and international prices.

The key question arises: What has happened to industrial growth since the economic reforms were undertaken in 1991 in India? After two years of negative growth, growth rates began to increase in 1994. The annual growth rate in the manufacturing sector was 6.4%, which was lower than that during the 1980s, namely 8.2%. In manufacturing, various industries behaved differently. For instance, consumer durable goods continued to grow fastest but the capital goods industry suffered most. As a result, the annual growth rate of electrical goods declined by nearly 6.7% between 1991 and 1999. This was not due to a fall in the investment rate but because of increasing import competition, as tariff on imports were substantially reduced during this period.

India's foreign exchange balance started to rise from a very low level in 1991, when the economy was at very critical level. Exports have risen, especially in software and information-related technology. Exports as a percentage of GDP exceeded 10% for the first time in 1992 and then remained at around 19%. There was success in both the software and the pharmaceuticals sector and Indian corporations also invested overseas in buying international companies. Since 2007, a number of Indian companies (such as

Tata, Hindalco etc.) went for acquisition in the United States and various European countries on the strength of massive foreign currency loans at low costs.

According to Panagariya (2004) the surge in industrial growth in India which took place in the 1980s could not be attributed entirely to the economic reforms of 1991. The 1980s industrial policies could not be sustained over a longer period, as they relied on huge deficit financing and excessive foreign borrowings. According to Basu and Maertens (2007:164) observe: "If India wants to sustain and raise even higher its current growth, the main bottlenecks in the Indian economy will need to be addressed. These are infrastructures such as roads, expensive freight rates, power supply, ports and airports, labour and bankruptcy regulations, and the high level of corruption".

Macroeconomic performance is seen to crucial to industrial growth. Table 2 shows India's macroeconomic changes (average annual % changes) from 2013-14 to 2018-19. The figures of 2017-18 and 2018-19 are projected data from the OECD. India's rates are projected to remain above 7% per annum, while the consumer price index is expected to remain low. Also, imports will remain higher than exports (see Table 2).

Table 2. India's macroeconomic indicators and projections (annual % changes), from 2013-14 to 2018-19.

Indicators	2013-14	2014-15	2015-16	2016-17	2017-18*	2018-19*
Real GDP*	6.6	7.2	7.6	7.0	7.3	7.7
Consumer Price Index (CPI)	9.4	5.8	4.9	4.8	5.0	4.6
Wholesale Price Index (WPI)	6.0	2.0	-2.5	2.8	4.0	4.2
Fiscal Balance (% of GDP)	-6.7	-6.5	-7.2	-7.0	-6.7	-6.4
Current Account Balance (% of GDP)	-1.7	-1.3	-1.1	-0.8	-0.9	-0.9
Gross Fixed Capital Formation	3.4	4.9	3.9	0.4	4.3	7.3
Total Domestic Expenditure	2.0	6.9	8.0	5.4	7.5	7.9
Exports of Goods & Services, National Accounts Basis	7.8	1.7	-5.2	4.5	4.6	5.2
Imports of Goods & Services, National Accounts Basis	-8.2	0.8	-2.8	-2.3	5.4	6.3
Net Exports, Contribution to Growth of Real GDP	4.5	0.2	-0.5	1.5	-0.2	-0.2

Source: OECD, 2017:12. http://www.oecd.org/eco/surveys/economic-survey-india.htm.
*Note: *GDP measured in market prices (i.e., at factor costs plus indirect taxes, minus subsidies).*

With regard to the comparison between the manufacturing sector performance in the pre-and post-reform period, Nagaraj (2006) noted: "The growth rates for the period before reforms (1980-81 and 1991-92) are 7.4% and 7.6% per year respectively[...] However, there are no statistically significant changes in the trend growth rate of the registered manufacturing GDP after reforms" (Nagaraj, 2006: 180).

The Economic Survey (2014) states that growth is the prerequisite for achieving several economic objectives including economic development, industrialisation and improving the living conditions of ordinary people. Industrial growth has slowed down

since 2012, export growth has also slowed down and all these factors has adverse impact on the current account balance (as shown in Figure 1)

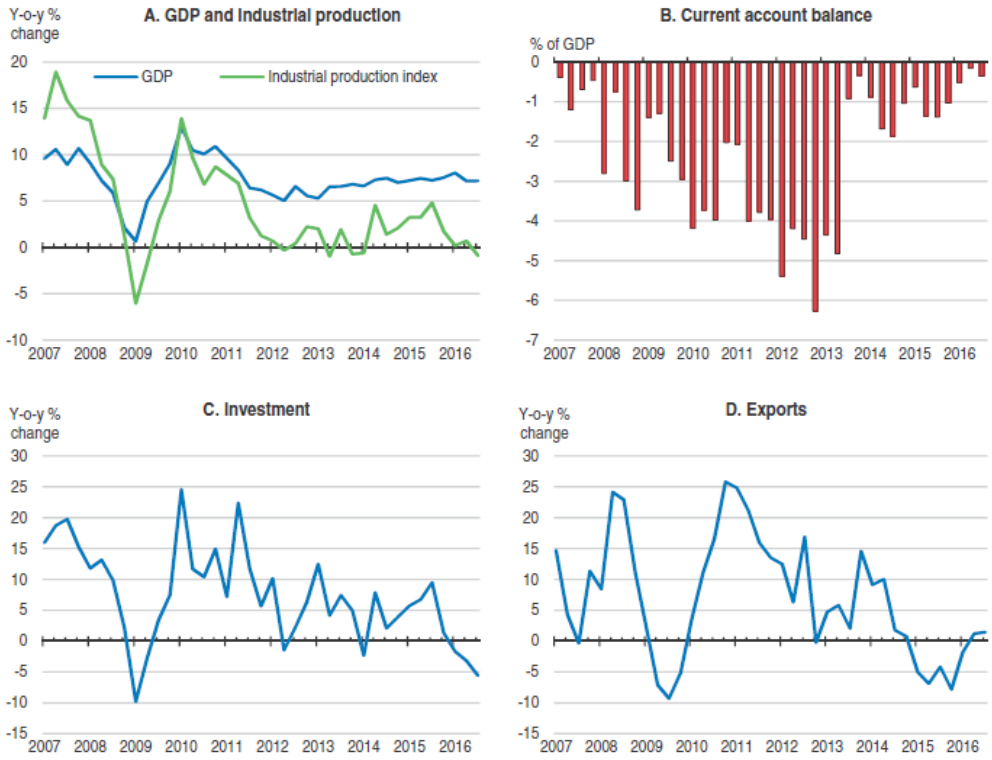

Figure 1. India's macroeconomic developments, 2007-2016
Source: OECD, 2017.

Prior to economic liberalisation, domestic savings were mobilised and invested in the public sector, which relied on domestic markets. But since the adoption of economic reforms, hopes have been pinned upon foreign capital and MNCs to achieve modernisation and productivity growth. However, growing trade deficits in the manufacturing sector clearly show that the manufacturing sector is losing its competitiveness across the range of medium- to high-tech goods. Manufacturing of this kind accounted for only 15% of India's export earnings in 2010 as against a corresponding figure of 50% for China (UNCTAD, 2013: 173) whilst resource- and knowledge-based exports account for 25% of India's total export earnings.

It has been claimed that an increase in the rate of investment necessarily increases the rate of growth of aggregate supply of goods and services (Srinivasan, 2005). But if there is no mechanism in the economy which can generate a corresponding and equivalent growth in aggregate demand, then an increase in the rate of growth in the economy would lead to an increase in unsold goods and services. The intersectoral shift in the workforce from agriculture to manufacturing slowed down during the period 1990 to 1997 and labour productivity in the non-agricultural sector (including manufacturing and services) was nearly four times that in agriculture. It clearly means that this slow-down in the transformation of the workforce implies an immense loss in productivity gains (Siddiqui, 2015a). To regain this loss of momentum in workforce transformation and to ensure better utilisation of surplus labour is crucial, lying at the heart of equity growth in a large agrarian country such as India.

However, India's investment to GDP ratio has been on a downward trend for some years (See Figure 2) and also India's invetment is far below than China. Recently,

low capacity utilisation and the weak financial position of some corporations have damped corporate investment (Siddiqui and Armstrong, 2017b). Several factors have added to these cyclical factors such as banking system has been weakened by poorly performing public banks, which suffer from high non-performing loans, and also the infrastructure bottlenecks (e.g. frequent power cuts) coupled with the often long land acquisition process, have held back investment, in particular in the manufacturing sector (OECD, 2017).

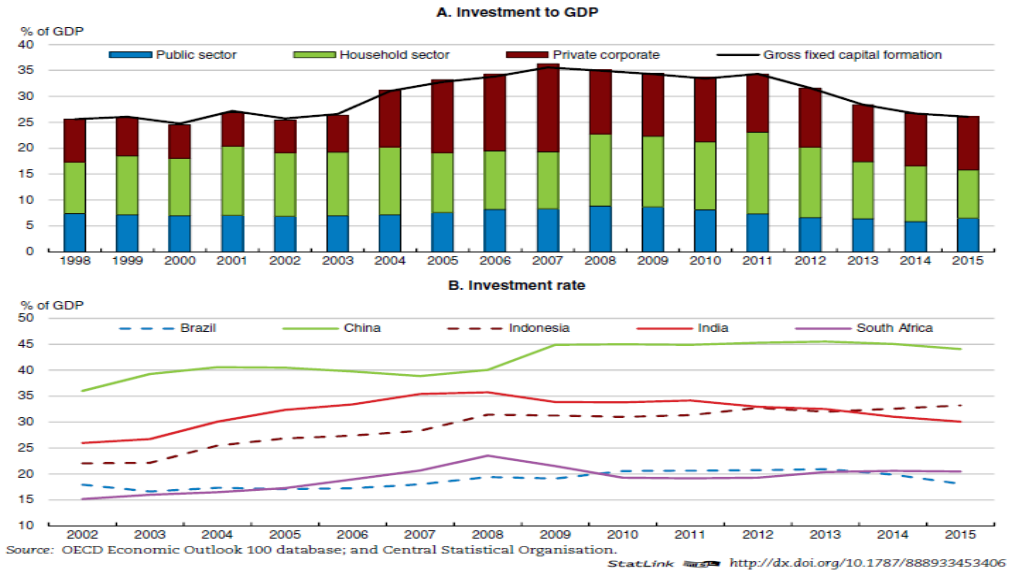

Figure 2: Investment rates in India, 1998-2016.
Source: OECD, 2017; http://dx.doi.org/10.1787/888933453406

India's potential growth is high. According to OECD estimates, it stands at slightly above 7% in 2016, largely consistent with other estimates (OECD, 2017) However, it has been slightly declining trend since 2012, as the investment to GDP ratio dropped from 34% in 2011 to 30% in 2015 (OECD, 2017). Investment is very important for the economy and it is a key factor to achieve stronger long-term growth. It also requires more public investment to reduce infrastructure bottlenecks.

India's experience over the past few decades indicates that corporations are out to make profits by cutting costs, especially the cost of labour. They create more output per worker but not much employment. For example, Tata Steel in Jamshedpur increased its annual production five-fold from 1 million to 5 million tonnes between 1991 and 2006, but at the same time it reduced its workforce from 85,000 to 44,000. Similarly, India's record of employment generation has been dismal for over two decades under neoliberal reforms. Despite an annual GDP growth rate of over 7%, growth in employment has been less than 1%.

Moreover, it was expected that an open economy would lead to the availability of cheaper capital goods and machinery, and ultimately would result in the expansion of labour intensive industries, but this did not happen. The crucial point is whether the neoclassical model provides an adequate framework to understand the development process of a huge agrarian country such as India. As Bhaduri argues that, "In the presence of substantially under-utilised labour, an extensive growth strategy may still form an essential element in the early phase of development process [...] indeed there is something strange about so much attention being paid to 'efficient allocation of resources' and the price mechanism while ignoring the blatant inefficiency of massive under-employment" (Bhaduri, 1993: 11).

Large Indian companies welcomed foreign capital and technology. The IT sector which is highly competitive found their interests would be better served by closer cooperation with global markets. Some small and medium enterprises also welcomed this as they found that the foreign technologies; capital and business organisation in addition to joint ventures with foreign companies would help them to compete with domestic monopolies. For example, increasing the foreign equity limit in Indian telecommunications was supported by Bharti Enterprises, as it helped the company to enter into a successful partnership with Signtel, Warburg Pincus and other overseas companies. India's largest companies also found new opportunities to enter the global market. Another Indian company, for example, Tata valued at US$ 70 billion in 2015, has transformed itself into an Indian multinational company. Its global sales for 2016 represented more than two-third of its total sales and one-third of its total employees work outside India (Siddiqui, 2017a).

We should not ignore the changing nature of the composition of both Indian and foreign markets. The reasons for the slow growth of industries could also explain lack of job creation. The sectoral shift in favour of services and economic liberalisation means the further opening up of Indian markets has led to the increase in imports of goods especially for the richer sections of society. Increased reliance on exports would mean Indian industries have to produce goods that are in demand on the world market, manufactured using modern technology, which is often labour-saving. Increasing reliance on MNCs, which employ capital saving technology and high import intensity of domestic manufacturing, reduces the employment elasticity of growth.

Industries contributed to 26.9% to the GDP in India in 1990, which slightly declined to 26.2% in 2000 whilst in 2010, it rose slightly to 26.3%. In contrast to this, China's industrial sector contribution was higher than that of India i.e. 41.3% in 1990, steadily rising to 45.9% and 46.8% in 2000 and 2010. In the case of the manufacturing sector, the percentage of GDP is almost double in China as compared to that of India (Siddiqui, 2016a). Although exports of manufactured goods have risen in both countries between 1990 and 2010, the rate of this increase was much faster in China than in India. Such differences in the performance of per capita GDP terms could also be found. Since 1990 China has witnessed a sharp rise in GDP per capita, while in India this was more modest. This was largely due to the dramatic expansion of the industrial sector and exports, while India failed to witness any similar rapid expansion in its industrial sector. At present, India's manufacturing sector accounts for 16% of the GDP and it employs about 1% of the total workforce (Siddiqui, 2015b). During the period 1990 to 2000 the annual growth of this sector has been 6.8%, while for the same period China's manufacturing sector witnessed double digit growth of 12.8%, which is nearly double that of India (Siddiqui, 2016a).

Here it is important to look at the industrial sectors' contribution to GDP in other developing countries such as in 1960 industries contributed 37% of the GDP in Brazil, 45% in China, 19% in India, 25% in South Korea and 19% in Malaysia (Siddiqui, 2012b). By 1985, the figures were: 45% in Brazil, 43% in China, 26% in India, 39% in South Korea, and 39% in Malaysia. In 2010, industrial GDP represented 28% in Brazil, 47% in China, 27% in India, 39% in South Korea and 44% in Malaysia (Siddiqui, 2016b).

STATE VS. MARKET IN FOSTERING INDUSTRIALISATION

It is important to examine the choices in industrial policy between the role of state and market. The development of modern industries has been subject to debate

among academics and policy makers, concerning whether industrial strategy should be based on 'import-substitution' or 'export-led growth'. In the neoclassical model, the role of the state should be minimal, whilst greater reliance is placed on "market forces" (Basu and Maertens, 2007). The mainstream economists advocate for the minimal role of the state in the development of the industrial sector and they largely focus on 'getting the price right' (Krueger, 1987). Such arguments run into difficulties when there is virtually no past evidence to support this model of development. Successful industrialisation in the past was always carried out with active state intervention whenever it was seen necessary in order to achieve suitable outcomes (Reinert, 2007).

However, historical experience for developed countries clearly shows us that state intervention is important to promote industrialisation. For example, in the 19th century the United States had extensive policies in favour of protectionism. Britain also adopted protectionist measures and used state intervention to promote its industrial sector. In the 18th century British policy was characterised by heavy tariffs to protect its domestic industries against the onslaught of cheap foreign goods. Britain had heavy tariffs from 1775 onwards, which continued for a century. The British government levied export duties, which made raw wool more expensive to foreign producers; at the same time it provided tax exemption and monopolies to those who established themselves as wool manufacturers. This continued for nearly a century, followed by a ban on all export of woollen cloth from Ireland from 1699 onwards. The suppression of Ireland's domestic woollen industry was seen as necessary in order to build wool manufacturing in England. The Western countries who today support the free market, in the past saw the active role of the state as essential to achieving desired levels of growth and building a strong industrial sector (Chang, 2010).

Thus, historical evidence concerning successful industrialisation confirms that building an industrial base in the developing countries would require state support, which would also put a limit on imports ((Siddiqui, 2012a). Otherwise the nation in question would be trapped into focusing on exports of raw material and low value products as is the case for the majority of the developing countries, a sector that is characterised by diminishing returns and often over-supply and negative terms of trade. In a broader historical context, Rist argues that, "The historical conditions that would explain the 'lead' of some countries over others cannot enter into the argument, since the 'laws of development' are supposedly the same for all, and 'win their way through with iron necessity' [...] this bracket out the effects of conquest, colonisation, the slave trade, the dismantling of craft production in India, the breaking of social structures, and so on" (Rist, 2009:75).

In order to achieve industrialisation, the question arises whether reliance should be made on state intervention or market forces in the economy. The Prebisch-Singer model argues that government intervention is seen as crucial for successful industrialisation since according to them this would lead to diversification of the economy and output. This is considered a necessary prerequisite for affluence. As a consequence, not only failed to diversify their economy but also unable to draw people away from agriculture into expanding manufacturing sector flourished. Higher growth in the manufacturing sector could lead to higher productivity not only in agriculture but also other industries as well. It has been argued that negative trends in terms of trade acts as an impediment to the economic progress of the developing countries (Singer, 1987; Siddiqui, 2016b).

However, the past experiences of Brazil, China, India and Mexico tell us that the 'import substitution' policy ran into difficulties after some time (Siddiqui, 2015b) This

was due to a number of reasons like in the name of protection of domestic markets: inefficiency, rent-seeking, and wastefulness of resources flourished. Local producers turned into monopolies and thus were able to charge higher prices than imported prices (Patnaik, 2015).

CONCLUSION

India was the top manufacturing nation until the British conquest of Bengal. In fact, colonialism degraded the Indian economy and squeezed the incentives for local investment in industry and agriculture. For the majority of the colonial period, Indian agriculture stagnated and foodgrain output fell. The primary goal for the British colonial administration was to extract revenues from the peasantry. From the mid-18th century, India's economy was integrated into the British colonial system which, besides extracting surplus value, also imposed an international division of labour with unequal terms of trade where India was turned into a supplier of primary commodities. During the colonial period, the Indian economy became subservient rather than sovereign in terms of policy matters (Sen, 1981).

The study found that soon after independence in 1947, the Indian government took a number of initiatives to enhance industrial and agricultural development. Initially, these met with some modest success including building key industries, becoming self-sufficient in terms of food production and improving literacy rates. However, the biggest failure was that it did not make any real impression on the country's huge unemployment problems. By the mid-1960s economic growth had begun to falter and the fiscal crisis of the state deepened. Finally, India sought an IMF loan in 1991 to avert balance of payment crisis. In return, India was asked to adopt neoliberal reforms (Patnaik, 2015).

To compare Indian economic policies under neoliberal reforms with those of the previous period under dirigisme would seem to be important, particularly when we consider this comparison in terms of employment expansion. In the period of neoliberal reform, the growth rates accelerated to 7% annually, but the rate of growth of employment has remained at only 1%, while in the dirigiste period the average growth rate was 3.5%, but the expansion of employment was doubled i.e., 2% annually.

In fact, in the late 1950s and 1960s the industrial sector did witness a sharp rise. For example, the share of manufacturing in GDP rose from 9% in 1951 to 16% in 1961. Indeed, a decade later this share reached 18% before reaching its peak of 20% in 1996. However, the industrial share in GDP was still less in comparison to other developing economies, particularly in East Asia. For example, in 1971, the manufacturing share in GDP for South Korea was 25%, Malaysia 28%, Thailand 26%, China 35% and Brazil 29% (Siddiqui, 2016a; 2018). The study has argued that India's progress towards industrialisation has been disappointing and the optimism that foreign capital and technology would bring efficiency and boost growth in manufacturing has largely been proven unfounded. In fact, manufacturing is very important for a country like India, where rapidly growing manufacturing, besides earning foreign capital, can utilise labour, increase productivity and incomes through linkages and spill-overs into other sectors.

However, since neoliberal reforms were undertaken in 1991, the agriculture sector hardly saw any benefits and, during this period, its growth rates were negligible (Siddiqui, 2010). The pursuit of neoliberal economic policies has led to the withdrawal of the state role in assisting farmers in particular and the rural sector in general, and is instead promoting the interests of global financial capital, with which the Indian

corporate capital is closely integrated. Despite the fact that the majority of the country's population has not witnessed any improvement in its living conditions, the government nevertheless celebrates this as a "great achievement"; it has completely ignored economists such as John Stuart Mill when he said that he did not mind a zero growth rate if workers are better off in such a stationary state than in a growing economy. For him, improvements in workers' real incomes should take priority over high GDP growth rates. On this account, the statistics reveal that since the adoption of neoliberal policies half of India's population has witnessed stagnation in its real per capita income.

The study concludes that twenty-five years have passed since the neoliberal economic reforms were launched in India, but industrial growth has still not witnessed rapid expansion, especially in manufacturing areas. And it seems that neoliberal policies have failed to create jobs and thus improve the living conditions of significant proportion of the population. Therefore, to combat these problems certainly requires effective government policy intervention, especially in areas such as education and health sectors, which could ultimately have very positive effects on industrial growth and productivity.

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Market size and foreign direct investment in sub-Saharan Africa: the role of education

JEMILUYI Olufunmilayo Olayemi; DADA James Temitope

Department of Economics, Obafemi Awolowo University, Ile-Ife, Nigeria

e-mail correspondence: olayemiolufunmilayo@gmail.com

Abstract

This study examines the role of education in the nexus between foreign direct investment (FDI) and market size in sub-Saharan African countries from 2005 to 2015 using a panel of 30 countries. Market size is proxy by gross domestic product and population while two variables are used to measure education; primary school enrolment and secondary school enrolment. Difference Generalised Method of Moments (GMM) is used as the estimation technique. The result shows that education and market size have positive and significant effect on foreign direct investment. The interactive effect of market size (population and gross domestic product) and education (both primary and secondary school enrolment) has positive effect on foreign direct investment. The study concludes that policy maker in the region should focus more on the quality of education rather than quantity of education.

Keyword: *Foreign Direct Investment, Market size, Education, Population, Gross Domestic Product*

JEL classification: E22, F41, F43, O11

INTRODUCTION

Although foreign direct investment (hereafter FDI) has been argued as an important source of shocks emanating from the international markets (Xing and Pradhananga, 2013; Caballero, 2002), its immense contribution to the growth and development of the less developed economies such as Asia, Africa, Latin America cannot be over emphasized. In addition to promoting competition, increasing capital inflow, creating both direct and indirect employment, FDI has also played crucial roles in technological spillover, crowding in additional domestic investment, improving access to international market and reinforcing economic interdependence (Moura and Forte, 2010; Alfaro et al., 2004). Thus, the discussion of the growth-enhancing effect and determinants of FDI inflow have been intensively researched over the last four decades.

With strong evidence in favour of the growth-enhancing effect of FDI through increased investment, employment and productivity (Desbordes and Wei, 2017; Alfaro et al, 2004), attracting FDI has remained a top agenda in developmental plans of most developing economies including sub Saharan African countries. However, data on FDI flows in Africa has revealed that Africa compares less to other developing continents of Asia and Latin America in terms of size and sectorial composition. For instance, the total inflow of FDI into Africa in 2014, 2015 and 2016 was $71 billion, $61 billion and $9 billion respectively compared with $460 billion, $524 billion and $443 billion for

Asia in the same period. Total FDI into India (in Latin America) in the same period was more than half of total inflow into the whole continent of Africa in each period ($34.57billion, $44.01billion and $44.46billion respectively) (UNCTAD, 2017). Also, while the sectorial composition of FDI in Latin America and Asia reveal concentration in the manufacturing and service sectors, FDI in Africa has been largest for the extractive sector with the consequential implication for natural resource depletion and environmental degradation.

Regardless of the geographic locus, a chunk of the large body of empirical evidence on factors determining the attraction of FDI to the host countries has argued in favour of market size (Kohler, 2013; Ho et al., 2013). This conclusion has been hinged on market size-related benefits such as economies of scale exploitation, production factor specialization, high demand and efficient utilization of resources (Petrović-Ranđelović et al. 2017; Chakrabarti, 2001; Balassa, 1966). The dominant role of market size (measured by level of economic development or population size) in FDI attraction is evidenced in the high level of FDI inflow into the world's largest economies. In 2010, the world's largest ten economies account for the 47% of all FDI inflow. In 2015, US, the world largest economy accounted for the largest inflow of FDI receiving $476. 69 billion, followed by China, the most populous which received $242.49 billion (UNCTAD, 2017). Multinational companies (MNCs), owners of FDI are likely to move to countries with larger and expanding markets and greater purchasing power, where there are potentials to receive a higher return on their investment and by implication earn higher profit from their investment.

Like in most economies of the world, empirical investigations of determinants of FDI in SSA has also established a positive link between market size and FDI. However, the expected large market from a high population has been argued to be non-sacrosanct as the high purchasing power effect implied by the supposed large market is not inevitable (Kohler, 2013; Asiedu, 2002). Asiedu (2002) argues that market size is not a determining factor for inflow of FDI in developing economies due to low income. Put differently, large market size is not sufficient to attract foreign investment in developing economies, high level of income is also essential. Even though a large market size is essential to attract FDI, what is more important is the purchasing power commanded by the large population. If a larger share of the population is engaged in subsistence agriculture and other low paying jobs as the case in most sub-Saharan Africa countries, high demand-effect due to large market size may not arise.

Human capital, in particular, education is correlated to income (Glewwe et al., 2014; Jamison et al. 2006; Barro, 1991). The income-effect of education has been extensively demonstrated in the literature. Based on empirical findings, education potentially enhance individual earning capacity by increasing productive skills. On the aggregate, education has been found to play a significant role in the productivity of an economy, and hence determine the growth of aggregate income. Therefore, an economy with large number of skilled and educated population is likely to have higher market size compared with those characterized by pool of unskilled/uneducated population. While some developing countries of Asia have come out of poverty using effective educational polices, many developing countries of Africa have remained stuck in the low skill-low income trap (UNCTAD, 2006). High-income consumer market has higher purchasing power and hence greater demand for produced goods and services.

In addition to the income-effect, education also has important implications for efficiency-seeking motive of FDI. Multinational companies seek to invest in countries with large number of educated labour force. Education is an important factor in boosting

labour efficiency and productivity. Educated and skilled labour force are able to conduct research and development (R&D) and help in diffusing technology. With large pool of educated labour force, wages for domestic skilled labour becomes relatively cheaper to wages of expatriate (Aziz and Makkawi, 2012). Many emerging economies of Asia have been able to attract huge FDI inflow compared to their market size, reflecting their relative success in attracting FDI for efficiency reasons rather than large market size. Large scale presence of information and communication technology MNCs in India, South Korea and China signifies a major evidence of positive impact of educated labour force in FDI attraction.

Although, large body of evidence on the ongoing debate on FDI determinants in Africa has regards the role of market size, but the mediating role of education in the FDI-market size nexus has not been addressed in the existing literature. This missing link may explain the difference in the level of FDI inflow among countries or region with similar market size or why countries or region with larger market size have attracted lower FDI relative to country with lower market size. This study therefore contributes to the existing literature by analyzing the mediating role of education in the FDI-market size nexus.

The empirical investigation of the determinants of FDI has remained an ongoing research with a large body of evidence on both time series and panel analyses. For SSA in particular, there exist a plethora of studies examining the nexus between FDI and various identified factors, both for the region as well as country specific. A number of factors important for the attraction of FDI to the host country have been identified in the literature. For instance, extant literature have shown that trade openness (Sakyi, Commodore and Pokou, 2015), infrastructural development (Bakar, Che Mat and Harun, 2012), institutional framework (Daude and Stein, 2014; Alguacil, Cuadros and Orts, 2011), natural resources endowment (Kudaisi, 2014), quality of human capital, financial development (Nwosa and Emma-Ebere, 2017; Desbordes and Wei, 2017) and macroeconomic stability (Shah, 2016; Alguacil, Cuadros and Orts, 2011) play important roles in the location choice decision of foreign investors.

Since the seminal paper of Balassa (1966), several authors have likewise contributed to the increasing literature on the nexus between market size and FDI. The early contributions focus on the US and European economies, Bandar and White (1968), Lunn (1980), Kravis and Lipsey (1982) and Nigh (1985) finds that market constitutes an important factor in determining the inflow of FDI into host country. Jaumotte (2004) also concludes that market size advantage of regional trade agreement (RTA) in developing regions is a strong determinant of FDI inflow into countries participating in the RTA.

Dermirhan and Masca (2008) argues that the effect of market size on FDI depend largely on the adopted measure of market size. The study finds no empirical evidence of relationship between FDI inflow and market size proxy by absolute GDP or GDP per capita. It however establishes a significant effect of growth of per capita real GDP on FDI inflow. Mughal and Akram (2009) examines the impact of market size on the location choice decision of MNCs and finds that while there is no evidence of influence of market size on FDI inflow in the short run, market size do play a significant role in attracting FDI in the long run.

In a more recent study, Hoang and Bui (2015) finds that market size is positively related to FDI flow into ASEAN countries. Anyanwu and Yameogo (2015) finds a similar result in an empirical investigation of the determinants of FDI into West African countries. In an empirical analysis of Malaysia outward FDI, Goh and Wang (2010)

confirms that host market size is crucial to Malaysia outflow of FDI. Similarly, Petrovic-Ranđelovic et al. (2017) examines the effect of market size, market growth, trade openness and population on FDI inflow in the Western Balkan countries. The empirical finding shows among other things that market size plays a significant role in influencing FDI location choice in Balkan countries. The above studies ignored to look at the intermediate role of education in the FDI- market size nexus. This creates an empirical gap that needs further studies hence, this study. The remainder of this paper is organized as follows: section 2 contains methodology, section 3 presents empirical results while section 4 focuses on conclusion and section 5 centres on policy recommendation.

METHODOLOGY

Conceptualisation

The theoretical framework of this study rest on the "Eclective Paradigm" of Dunning (1977, 1993), which posit that multinational companies invest in another country because of three advantages namely: Ownership (O), Location (L) and Internalisation (I). This paradigm has been popularly called the OLI framework. Similarly, based on the aforementioned advantages, Dunning (1993) highlighted four major reasons for FDI; resource seeking (such as infrastructural facilities, raw materials, labour force, etc.), market seeking (e.g. population, income, etc.), efficiency seeking (such as development of human capital), and strategic asset seeking (such as R&D, technology, innovation, etc.). Since it has been established in the literature that market size is one of the major determinant of FDI, human development indicators such as education which is one of the driver of the quality of human capital (Beaker, 1995; Hanushek and Denis, 2000) are linked with FDI. For instant, MNCs may be interested in a particular country due to the quality and quantity of expertise of labour force, as adequately trained domestic labour force reduced offshoring of skilled labour force which is common among MNCs. Furthermore, a skilled manpower receives higher wages, which translate to higher income for the country. From the above, the study proceeds to specify the baseline empirical model which captures the hypothesized relationship. The model is stated as

$$Fdi_{it} = f(Mrk_{it}, Edu_{it}, Z_{it}) \quad \text{……(1)}$$

where Fdi is foreign direct investment, Mrk is market size, Edu is education and Z is other variables affecting foreign direct investment. In order to capture the intervening role of education in FDI-Market size nexus, equation 1 is stated as

$$Fdi_{i,t} = f(Mrk_{i,t}, Edu_{i,t}, Mrk_{i,t} * Edu_{i,t}, Z_{i,t}) \quad \text{…… (2)}$$

Specifying equation 2 in specific form becomes

$$Fdi_{i,t} = \alpha + \beta Mrk_{i,t} + \chi Edu_{i,t} + \phi Mrk_{i,t} Edu_{i,t} + \varphi Z_{i,t} + \gamma Fdi_{i,t-1} + \delta_t + v_i + u_{it} \quad \text{…….....} (3)$$

Where v_i is country specific effect, δ_t is the time effect and μ_{it} is the error term.

Measurement and description of variables

Foreign Direct Investment (FDI): Foreign direct investment refers to direct investment equity flows in an economy. It is the sum of equity capital, reinvestment of earnings, and other capital. Net inflow of FDI as a percentage of GDP is used to measure FDI

Market Size: Two variables are used to measure market size: population and gross domestic (GDP) product. The larger the population and domestic income implies a greater market for MNCs. Population growth rate is used to proxy population while growth rate of GDP is used to measure gross domestic product.

Education: Education is proxy using two indicators namely primary school enrolment and secondary school enrolment.

Other control variables included in the model are: trade openness and inflation rate. Trade openness measure the relationship of the country with the rest of the world in term of trade, while inflation rate measures the macroeconomic stability or instability in an economy.

The data set comprises of 30 countries in sub-Saharan Africa from 2005 to 2015 (see Appendix A for list of countries selected). The data were collected from World Bank Development Indicators (WDI) of the Word Bank 2016 Edition.

Estimation technique

Difference Generalised Method of Moments (GMM) is used as the estimation technique. As noted by Bond et. al. (2001) and Wooldridge (2001), GMM technique has four major strengths. Firstly, it produces estimates not bias by omitted variables, secondly, it produces estimates which are consistence even in the presence of measurement error. Thirdly, it is robust in solving endogenity problem and non-normality in the data. Lastly, it exploits an assumption about the initial conditions to obtain moment conditions that remain informative even for persistent series. Estimation of GMM is based on the assumption that there are a set of L moment conditions that the K dimensional parameters of interest should satisfy. When there are more moment conditions than parameters, the system of equations may not provide an exact solution and thus it is said to be over-identified. For GMM estimators to be identified, there must be at least as many instruments as there are parameters in the model. When there are more instruments than the parameters, J-statistic will be greater than zero, but when the number of instruments is the same as the number of parameters, J- statistic is zero. In order to obtain over- identifying restrictions, the past values of the explanatory variables as well as the dependent variables can be added as moment conditions as long as they are uncorrelated with the error term (Wooldridge, 2001). This study employs the lag values of dependent as instrument variable. As a robustness check, Random effect model was used to confirm the GMM result.

EMPIRICAL RESULT

Table 1 shows the result of the effect of market size and education on foreign direct investment inflow into sub-Saharan African countries. Two variables were used as proxy for market size namely gross domestic product and population. Also, two variables were used to measure education: primary school enrolment and secondary school enrolment. The result confirms that market size is one of the major determinant in SSA, since both proxy of market size (gross domestic product and population) have positive and significant effect on foreign direct inflow into SSA. Comparing the effect of gross domestic product and population on FDI, the result reveals that population has more effect on FDI than gross domestic product. It has also been established in the literature that large population drives FDI since it serves as a potential market for multinational companies, and their interest is where they can get maximum return on their investment. This confirms the market seeking hypothesis of Dunning (1993)

Table 1 Foreign direct investment, Market size and Education

	GMM				Random Effect Model (REM)			
FDI(-1)	0.048 [0.01] (0.000)***	0.064 [0.115] (0.000)***	0.018 [0.012] (0.131)	0.099 [0.005] (0.000)***				
C					5.094 [1.935] (0.009)***	5.934 [2.330] (0.012)**	5.362 [1.716] (0.002)***	9.154 [2.115] (0.000)***
GDP	2.365 [0.356] (0.000)***	0.643 [0.840] (0.445)			1.316 [0.143] (0.000)***	1.202 [24.831] (0.961)		
Population	-		25.327 [1.888] (0.000)***	4.399 [1.258] (0.001)***			1.578 [9.912] (0.874)	15.578 [5.583] (0.006)*
Primary education	6.410 [0.950] (0.000)***		25.788 [1.151] (0.000)***		2.863 2.406 (0.734)		0.748 [3.148] (0.812)	
Secondary education	-	3.679 [1.252] (0.004)**		20.686 [0.513] (0.000)***		24.381 [11.053] (0.0257)**		6.853 [2.041] (0.001)***
GDP*Primary education	52.157 [10.199] (0.000)***				47.608 [17.922] (0.0464)**			
GDP*Secondary education	-	16.192 [13.011] (0.215)				16.078 [26.717] (0.0032)**		
Population* Primary education			79.257 [3.880] (0.000)***				4.052 [15.399] (0.972)	
Population* Secondary school				65.522 [1.803] (0.000)***				20.836 [7.518] (0.006)***
Trade openness	0.001 [0.002] (0.170)	0.0002 [0.004] (0.965)	0.0002 [0.0003] (0.465)	0.0003 [0.002] (0.000)***	0.0001 [0.008] (0.087)*	0.002 [0.0008] (0.058)*	0.002 [0.0008] (0.072)*	0.002 [0.0008] (0.015)**
Inflation	-0.020 [0.003] (0.000)***	-0.010 [0.009] (0.965)	-0.007 [0.011] (0.545)	-0.013 [0.004] (0.001)***	-0.005 [0.017] (0.768)	-0.005 [0.017] (0.785)	0.004 [0.016] (0.823)	-0.007 [0.017] (0.687)
Number of countries	30	26	30	26	30	28	30	28
Number of instrument	30	26	30	26				
J-Statistic	22.337	20.640	24.286	21.646				
Sargan Test	(0.366)	(0.499)	(0.478)	(0.561)				
Serial Correlation Test	(0.945)	(0.738)	(0.874)	(0.916)				
Wald Test	26.153 (0.000)***	1.549 (0.215)	41.725 (0.000)***	132 (0.000)***	11.338 (0.000)***	0.362 (0.548)	0.0012 (0.972)	7.680 (0.006)***

Note:

1. *Dependent variable is FDI*
2. *Standard errors are in parenthesis "[]"*
3. *Probability are in parenthesis "()"*
4. **** significant at 1% level, ** 5% level and * 10% level*
5. *Wald test Null hypothesis: the interaction of market size and education is zero*
6. *No serial correlation and Sagan Test for Random Effect model*

Similarly, education is also one of the important human capital that a country cannot toil with. Increase in the school enrolment both at primary school and secondary school level drives FDI into the region. This also support the efficiency seeking argument of Dunning (1993). The effect of primary school education on FDI is much felt than secondary school education, which further reveals that governments/policy makers in SSA concentrated more on primary school education than secondary school education which is not adequate in guaranteeing a skilled economy.

The interaction of market size; population and gross domestic product with education at both primary and secondary education shows that it has positive effect on foreign direct investment. Interaction of primary school education with market size has more positive effect than the interaction of secondary school education with market size. Since the multinational companies need skilled manpower, this is one of the reasons multinational companies brings their expatriates while coming into the host country especially SSA. Furthermore, it could be the reason why the region has not attracted enough FDI in recent times. Multinational companies have shifted towards relatively skill-intensive production and service and less toward primary and resource-based manufacturing. For countries seeking to attract higher value-added MNCs, it is necessary to upgrade human capital especially education above the basic schooling level (Majeed and Ahmad, 2008).

Other control variables included shows different effects on foreign direct investment. Trade openness has positive and significant effect on FDI inflow into the region. The more trade is liberalised in the region, the more the benefits that accrued to SSA countries. Inflation rate which measure the degree of economic stability has negative effect on inflow of FDI into the region. Stability of the macroeconomic environment is very importance for SSA countries to attract FDI to its fullest potentials

Applying random effect technique as a robustness check on the estimates of GMM, the result further buttress the results obtained from GMM estimates except that majority of the variables were not stationary.

Using Wald statistic to determine the significant of the interaction of market size and education on FDI, the result shows that it is significant in all the models estimated except for the interaction of secondary school education and gross domestic product which is not significant. The validity of instruments underpins the consistency of the GMM estimator, and this is addressed by employing two specification tests; a test of over-identifying restrictions and a test for second-order serial correlation in the error term. The main regressions (GMM) satisfy both the Sargan test of over identifying restrictions and the serial correlation test of both the first and second order.

CONCLUSIONS AND RECOMMENDATIONS

Conclusion

This empirical study examines the effect of market size and education on FDI by focusing on the interactive role of market size and education in sub-Saharan African countries. The study focuses on a panel of 30 countries in the region from 2005 to 2015. Market size was proxy by population and gross domestic product. For education, two variables were used as proxy; primary and secondary school enrolment. The result shows that market size and education have positive and significant effect on FDI inflow into the region. The result reveals that market size and education are locational determinant of FDI in the region. The interactive effect of market size and education also reveals a positive and significant effect on foreign direct investment.

Policy Recommendation

Based on the above finding, policy maker in the region need to focus more on the quality of education rather than quantity (number of school enrolment), with this, there will be improvement in the quality of labour which can be productively engaged in production of goods and services.

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Appendix: ***List of countries***

Angola, Benin, Botswana, Burkina Faso, Burundi, Central Africa Republic, Comoros, Congo Democratic Republic, Congo Republic, Cote d'Ivoire, Gambia, Ghana, Guinea, Kenya, Lesotho, Madagascar, Malawi, Mali, Mauritius, Mozambique, Namibia, Niger, Nigeria, Senegal, Seychelles, South Africa, Swaziland, Togo, Uganda and Zambia.

Towards sustainable consumption in Albania

Anita GUMENI; Ornela SHALARI; Pranvera MULLA

University of Tirana, Faculty of Economics, Saranda Branch, Albania

e-mail correspondence: ornela.shalari@unitir.edu.al

Abstract

In recent years, there has been an increasing awareness towards economic, environmental, and social problems of the actual development system. However, sustainable development remains one of the main challenges of actual times. Sustainable consumption plays a significant role in achieving sustainable development goals. Moving towards more sustainable patterns of consumption will reduce environmental damage, adjust social inequalities, and increase economic efficiency. Therefore, it is substantial to investigate the determinants of sustainable consumption behaviour. The aim of this paper is to identify whether the Albanian consumers adopt sustainable consumption behaviour. An empirical analysis is used to identify the main factors that influence sustainable consumption of Albanian consumers. The results have revealed that sustainable consumption in Albania is a niche segment. The main determinants of sustainable consumption behaviour in Albania are: internal factors such as personality characteristic's, Perceived Consumer Effectiveness, knowledge, and attitudes towards sustainable consumption, and external factors.

Keywords: *sustainable development, sustainable consumption, consumers behaviour*

JEL classification: E21, D12, D14

INTRODUCTION

The main economic problem is caused because the natural resources are limited and the human demands unlimited.The actual patterns of consumption are unsustainable and are draining the natural resources. Consequently, there is a growing need to change towards more sustainable patterns of consumption (Baumol & Oates, 1998).

As is pointed out in agenda 21 (4.3) "... The major cause of the continued deterioration of the global environment is the unsustainable pattern of consumption and production, particularly in industrialized countries, which is a matter of grave concern, aggravating poverty and imbalances." The aim of sustainable consumption and production (SCP) is to "produce more and better with less" (UNEP, 2012). Additionally, sustainable consumption can be used as a vital instrument in reducing social inequality (Zoysa, 2011; UN, 2015). SCP integrates the social, economic, and environmental dimension of sustainability (UN, 2015).

The Oslo Symposium gives the first definition of sustainable consumption and production: "The use of goods and services that respond to basic needs and bring a better quality of life, while minimizing the use of natural resources, toxic materials and emissions of waste and pollutants over the life cycle, so as not to jeopardize the needs of future generations." (Oslo 1994).

The progress towards sustainability has been very slow, particularly in developing countries. SCP cannot be achieved only by changes in one level and one direction). Sustainable development requires efforts at all levels (local, regional, global

level) by all the stakeholders of society (individuals, governments, companies, and NGOs). (UN, 2015).

There are two main alternative discourses on sustainable consumption: the week approach of sustainable consumption (wSC) and the strong approach of sustainable consumption (sSC) (Lorek & Fuchs, 2011; Young, Hwang, McDonald, & Oats, 2010). According to the (wSC) sustainable development can be achieved only through technological advancement (Lorek & Fuchs, 2011; Young, Hwang, McDonald, & Oats, 2010). On the other hand (sCS) assumes that in order to achieve sustainable development we should change the levels and the models of consumption. Individuals have a vital role in achieving sustainable consumption not only as consumers but as citizens also. (Lorek & Fuchs, 2011). The consumer behaviour has a direct impact on the environment, personal wellbeing, and total welfare (Spaagaren, 2003). Consumers influence the offer through purchasing power. They can boycott products that harm the environment and support sustainable products (Jackson, 2005; Luchs, Naylor, Irwin, & Raghunathan, 2010). Their pressure can oblige companies to adapt sustainable production patterns (ECEU, 2011) (WBCSD). On the other hand, consumers can support and vote policies that promote sustainable consumption and production (ECEU, 2011) (WBCSD).

Because of the significant role that individuals play in achieving sustainable consumption, as consumers and as citizens, it is significant to investigate their attitude and behaviour toward sustainable consumption. Despite the enlarged awareness on sustainable consumption, SC remains a niche segment. Therefore, there is necessary to analyse consumer behaviour-attitude gap towards sustainable consumption (Power & Mont, 2010). Numerous academic researchers have been conducted in order to analyse the determinants that influence consumer behaviour toward sustainable consumption (Diamandopoulos, 2003; Ehrich & Irwin, 2005) (Vermier & Verebeke, 2006; Thøgersen, 2010; Pezzini, 2013; Von Meyer-Höfer, Wense, & Spiller, 2013; Anastasiadis & Dam, 2014). Most of the researches on sustainable consumption have been undertaken for developed countries. On the other hand, there are only few studies on sustainable consumption in developing countries. However, sustainable patterns vary a lot between developed and emerging countries. Data have shown that if the unsustainable models of consumption change towards more sustainable models of consumption in the early stages of development there will be less irreversible damage in the specific county. Consequently, orientation towards sustainable consumer behaviour should be a priority for the developing countries also.

The purpose of this paper is to examine Albanian consumers actions towards sustainable consumption. Empirical research is used to identify the main factors that influence consumer behaviour toward sustainable consumption.

Several authors have revealed that there are two main factors that influence the decision making process towards sustainable consumption: Internal factors (psychographic characteristics, demographic) and external factors (macro and micro environment) (Vermier & Verebeke, 2006; Chen, Lobo, & Rajendran, 2014; Von Meyer-Höfer, Wense, & Spiller, 2013; Anastasiadis & Dam, 2014).

Demographic factors influence consumer attitude towards sustainable consumption (Pezzini, 2013). Empirical researches have shown that females are more prone to adapt sustainable consumption behaviour (Blend & van Ravenswaay, 1999; Von Meyer-Höfer, Wense, & Spiller, 2013). Income and education are positively related to sustainable consumption (Blend & van Ravenswaay, 1999). Also, consumers worried about their health and product quality are more likely to adapt sustainable

consumption patterns (Vermier & Verebeke, 2006; Chen, Lobo, & Rajendran, 2014; Von Meyer-Höfer, Wense, & Spiller, 2013; Anastasiadis & Dam, 2014).

Social norms have an important influence on consumer behaviour towards SC. Empirical researches have indicated that values and principles such as honesty, freedom, responsibility, equality, altruism, idealism are related to sustainable consumption patterns (Straughan & Roberts, 1999) (Vermier & Verebeke, 2006). Conversely, values such as ambition, hedonism, tradition are related with unsustainable consumption patterns (Vermier & Verebeke, 2006)

Lifestyle is potentially a helpful tool to analyse progress toward sustainable consumption. Bruno and Grunert define consumption-related lifestyles as the: "system of cognitive categories, scripts, and their associations, which relate a set of products to a set of values" (Brunsø & Grunert, 1995). Several studies have analysed the role of lifestyle in adapting sustainable consumption models (Chen, Lobo, & Rajendran, 2014; Young, Hwang, McDonald, & Oats, 2010).

(Anastasiadis & Dam, 2014) specifies that concern about sustainability influence sustainable consumption. Consumers attitude towards issues such as: environmental problems, insufficiency of natural resources, sustainability, etc. motivates or demotivate sustainable consumption. Empirical evidences have pointed out a strong positive relation between attitude toward environmental issues and sustainable consumption (Straughan & Roberts, 1999; Blend & van Ravenswaay, 1999; Young, Hwang, McDonald, & Oats, 2010; Papaoikonomou, Valverde, & Ryan, 2012) If consumer believe that their actions will have an impact in achieving sustainability will be more likely to adapt sustainable consumption patterns. On the other hand, consumer who believe that their behaviour has no impact on sustainability will be less likely to adopt sustainable behaviour (Straughan & Roberts, 1999; Von Meyer-Höfer, Wense, & Spiller, 2013).

Consumer behaviour is shaped and influenced by external factors also. Academics have underlined different external factors that influence decision-making process:(i) the price of sustainable products (usually sustainable products are more expensive than traditional one) (Diamantopoulos, Schlegelmilchb, Sinkovicsd, & Bohan, 2003; Vermier & Verebeke, 2006; Young, Hwang, McDonald, & Oats, 2010) (ii) distribution, the lack of product availability explains why some buyers tendencies remains low (Diamantopoulos, Schlegelmilchb, Sinkovicsd, & Bohan, 2003; Vermier & Verebeke, 2006; Thøgersen, 2010) (iii) lack of information on sustainable consumption behaviours (Ehrich & Irwin, 2005; Von Meyer-Höfer, Wense, & Spiller, 2013). (Vermier & Verebeke, 2006) believes that consumer behaviour can be influenced by increasing the information. (iv) time available, usually consumers don't have enough time to undertake market research needed for sustainable products. They use to by traditional products that are familiar with (Young, Hwang, McDonald, & Oats, 2010).

However, (Thøgersen, 2010) believes that consuming patterns differ from country to country. He emphasises the important role of structural factors (policy instruments, financial support, distribution systems) in promoting sustainable consumption.

The rest of this paper is structured as follows. Section 2 describes the methodology used. Section 3 submit the consequential results of the empirical research. Finally, our conclusions and recommendations are represented in section 4.

METHODOLOGY

The data were collected with the help of a close ended questionnaire. Likert scale questions are used to measure the attitude and behaviour of Albanian consumers

toward sustainable consumption. The responses were collected on a 5-point Likert Scale.

Through the survey is collected information about the dependent variables: adapting SC behaviour and the independent variables: exploratory variables used to test the relationship that exists between depended and independent variables.

The data were collected through a self-administered questionnaire. Simple Random Sampling was used in this study for choosing respondents. 660 questionnaires were selected during 1-30 March 2016. The survey instrument was divided into three sections. 1st Section: obtained demographic and psychographic information about the respondents, 2nd section addressed the perceptions and attitudes of respondents about sustainability issues, 3d section measures the behaviour of the respondent toward sustainable consumption

Multiple regression method, Exploratory Factor Analysis, (EFA) and Principal Component Analysis (PCA) are used to exam relationship between the depended and independent variables.

PCA is a variable reduction technique which identifies the number of latent constructs and the underlying factors structure to a set of variables. PCA aims to identify a small number of derived variables from a larger number of original variables to simplify the consequent analysis of the data (Kootstra, 2004). The factor analysis model expresses the variation and co-variation in a set of observed continuous variables X as a function of F factors and residuals e for person. Through EFA we will estimate the factors which influence attitude and behaviour toward sustainable consumption. Factor analysis attempts to bring intercorrelated variables together (Tucker & MacCallum, 1997) (Kootstra, 2004).

Several tests are used to control the relevance and reliability of data for factor analysis. Kaiser-Meyer-Olkin is used to measure the adequacy for each variable. KMO tests the ratio of item correlation to partial item correlation. The range of KMO is between 0.0 to 1.0, the KMO should have a value over 0.5 for a good PCA. Bartlett's test of sphericity tests the validity and appropriateness of the answers collected through the questionnaires. Bartlett's test the hypothesis that the correlation matrix is an identify matrix (variables are uncorrelated). If the Bartlett's test of sphericity is statistically significant we reject the null hypothesis which means that there are correlations in the data set that are appropriate for PCA. Cronbach's alpha is used to measure the internal consistency of the data set. Cronbach's alpha is acceptable if it takes value above 0.7.

Regression analysis is used to investigate the relationship between the main factors obtained from the PCA.

RESULTS

Our sample is composed of 660 respondents, 61% female respondents and 39% male respondents. 46% of our respondents are less than 25 years old, 25% are between 25-34 years old, 14% are between 35-44 years old and 14,5% are more than 45 years old.

The main external factors that influence sustainable consumption behaviour are: income, infrastructure, product availability, and lack of information. 50 % of the respondents were not satisfied from public transportation quality, 43% of them complain about the availability of cycling roads, 64% of the respondents emphasised that low income is the main reason for having unsustainable consumption patterns.

Multivariate analysis is used to identify the internal determinants that influence consumers behaviour toward SC. Principal Component Analysis is used to reduce the complex data set. PCA aim is to extract information by depended variables used to measure knowledge, attitude, and behaviour towards sustainable consumption and to

represent this information as a set of new variables called principal components. Factors driven from PCA are used in regression analysis to test the hypothesis.

KMO, Cronbach's alpha, and Bartlett's test indicate that we can perform efficiently a principal component analysis on our dataset (table 1) Cronbach's alpha indicates that variables used for this study have a relatively high consistency, so the reliability of the scale is good for carrying out factor analysis for each index, respectively. KMO shows a very good sample for performing factor analysis. Bartlett's sphericity test is statistically significant (a=1%). This guarantees reliable results from factor analysis. From the data set five indexes are computed

Table 1. Kaiser-Meyer-Olkin, Bartlett's sphericity test and Cronbach's alpha

KMO the Bartlett's Test		Personality index	Knowledge index	Attitude index	PCE index	Lifestyle index
Kaiser-Meyer-Olkin Measure of Sampling Adequacy		0.872	0.893	0.89	0.872	0.816
Bartlett's Test of Sphericity	Approx. Chi-Square	2688.838	2407.615	2113.54	2076.9	1341.692
	df	136	45	21	21	66
	Sig.	0	0	0	0	0
Realibility statistics						
Cronbach's Alpha		0.875	0.867	0.88	0.875	0.762
Number of items		17	10	7	7	16

Personality index is related to variables that measures personality traits. This factor includes 17 of the original variables. *Knowledge index* is linked to variables that measure consumer knowledge towards sustainable development. This factor includes 10 of the original variables. *Attitude index* is associated with variables that measures consumer attitude towards sustainability issues. This factor contains 7 of the original variables. *PCE index* is linked to variables that measures consumers perceived effectiveness towards sustainable development. This factor contains 7 of the original variables. *Lifestyle index* is linked to variables that measure lifestyle activities. This factor includes 16 of the original variables.

Index of carrying out activities related to sustainable consumption

In order to analyse the frequency of carrying out activities related to sustainable consumption in addition to a common index of sustainable behaviour other more detailed/focused indexes were created. Common index include 16 variables that indicate behaviours related to sustainable consumption. Results are represented in the table 2. Cronbach's alpha indicates good internal consistency (0.747). KMO indicates that the degree of common variance among sixteen variables is meritorious (KMO=0.818). Bartlett's sphericity test is statistically significant. The elements of the diagonal matrix vary 0.695 - 0.877. Therefore, factor analysis could be applied to reduce the number of factors. Subtracted component of sustainable consumption behaviour explains 26.919 percent of the variation of the 16 original variables

Table 2. Kaiser-Meyer-Olkin, Bartlett's sphericity test and Cronbach's alpha for index of SC Activities

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.818
Bartlett's Test of Sphericity	Approx. Chi-Square	1688.539
	Df	91
	Sig.	0.000
Reliability Statistics		
Cronbach's Alpha	N of Items	
.747	14	

In subtracting, detailed indexes are used 16 original variables. Two criteria are used for selecting specified indexes: first, the eigenvalue associated with a component is more than 1. Second, a component should have at least two variables in his composition. Based on these criteria no variables were excluded from the analysis. The rotation used to better interpret the factors derived from the analysis is Varimax. The Varimax rotation indicates 4 principal components with eigenvalues greater than one.

Four components result from the analysis: 1st Component named *"energy"* is related to variables that measures behaviours related with energy consuming patterns. These variables measure the frequency of carrying out activities that tend to reduce energy consumption like: switch off lights when not at home, save water, choosing energy efficient gadgets, washing clothes at lower temperatures. This factor explains 16.5 percent of the variation of the original variables. 2nd Component named *"products"* is strongly related to other variables, more explicitly frequency of adopting behaviour related to sustainable products such as: buying locally produced products, consuming seasonal products; buying biological products when available, using recyclable products; using product with low environmental impact. This factor explains 15.834 percent of the variation of the original variables. 3d component named *"awareness"* is includes three original variables that are strongly related with awareness towards sustainable consumption: use of public transportation even though you might own a private car, use of bicycle, switch off the gadgets when not at home, recycle habits. This factor explains 12.636 percent of the variation of the original variables. 4th Component of the analyses named "Transportation" is related strongly with 2 variables that are strongly related with sustainable transport behaviour. Using of public transportation and walking. Consumers that carry out these activates more frequently seem to adopt green transportation behaviour This factor explains 11.186 percent of the variation of the original variables.

These 4 components correspond to an overall cumulative variance of 56.155 percent of the variation of the original variables. These components are used in the following section to investigate the connection between sustainable consumption behaviour and personality traits, concern about sustainability, knowledge importance and lifestyle.

Table 3 represents the variables included in analysis and their correlation with four components resulting from factor analysis.

Table 3. Variables included in analysis and their correlation with four components resulting from factor analysis

Variables	Index			
	1	2	3	4
Use of public transportation	-.047	.126	.022	**.738**
Use of public transportation even though you might own a private car	.076	.130	**.493**	.462
Walking	.293	.083	.041	**.654**
Cycling	-.012	.120	**.704**	.200
Buy local produced products, seasonal products	-.037	**.630**	-.079	.323
Buy biological products when available	.133	**.717**	-.168	.286
Use recyclable products	.228	**.718**	.305	-.062
Use products with low environmental impact	.346	**.679**	.254	-.034
Switch off lights when not at home	**.571**	.116	-.367	.332
Wash clothes at lower temperatures	**.644**	.143	.267	-.039
Recycle	.419	.362	**.524**	-.063
Save water	**.807**	.004	-.002	.149
Choosing energy efficient gadgets	**.677**	.322	-.007	.048
Switch off gadgets when not using them	-.003	.081	**-.597**	.088

Multiple regression

In this section multiple regressions are being conducted to identify the main determinants that influence sustainable consumption. Exploratory variables include demographic variables, personality traits index, knowledge index, consumers precieved efectivenes index, lifestyle index.

First multiple regression is computed using all the exploratory variables. The calculation procedure was repeated afterwards excluding the statistically insignificant variables. Fisher test F (10, 551) = 0.66, Prob > F = 0.7600 for these variables indicate that these variables are statistically non-significant and can be omitted from the regression. The results of the re-evaluated and re-diagnosed regression are presented in table 4 The result of the regression was finally inspected to ensure that there was no homoscedasticity among the predictor variables. The functional form test and the homoscedasticity test have provided the appropriate results. All variables are statistically significant in confidence level 5%, except civil status.

Table 4 Determinants of sustainable consumption

Activities all	**Coef.**	**Std. Err.**	**t**	**P>t**	**[95% Conf. Interval]**	
Education/MSc, PhD	-0.220	0.103	-2.140	0.033	-0.421	-0.018
Civil status: Married	0.122	0.079	1.540	0.124	-0.034	0.278
Personality traits	0.110	0.043	2.530	0.012	0.025	0.195
Knowledge	0.131	0.043	3.060	0.002	0.047	0.215
PCE	0.204	0.040	5.150	0.000	0.126	0.282
Life style	0.328	0.040	8.160	0.000	0.249	0.407
_cons	-0.010	0.044	-0.240	0.813	-0.096	0.075
N=569		**R-squared= 0.308**		**Adj R-squared = 0.301**		
RESET test: F (3, 559) = 1.45 Prob > F = 0.227						
Breusch-Pagan / Cook-Weisberg test for homoscedasticity: chi2(1) = 3.09 Prob > chi2 = 0.0790						

All variables (except education) have the predictable sign. Which indicates that Personality characteristics, knowledge, PCE, Lifestyle and civil status are positively related to sustainable consumption. Informed consumers, consumer with high consumer perceived effectiveness, are more likely to adopt sustainable consumption behaviour. Also, liberal, original, innovative, collaborative persons are more likely to adopt sustainable consumption behaviour. Lifestyle is likewise strongly related to sustainable consumption, active people, people worried about their health, activists of civil society are more likely to adopt sustainable consumer behaviour. The only variable that is inconsistent with the theory is education. According to regression coefficients educated people that have a post university degree are less likely to adopt sustainable consumption behaviour.

Multiple regression is computed for every detailed component of sustainable consumption (Table 5). The functional forms for the four regressions are well-specified at the 5 percent level.

Table 5. The determinants of energy index, products index, awareness index, transportation index

Variable	*Energy index*	*Products index*	*Awareness index*	*Transport Index*
Gender	-0.02	-0.009	0.168**	-0.048
age18_24	0.041	0.011	0.047	0.048
age25_34	0.035	0.099	0.113	-0.233
age35_44	-0.078	-0.08	0.151	-0.356**
Education: University degree	-0.06	0.091	0.184*	-0.047
Education: MSc, PhD degree	-0.225	-0.026	0.314**	-0.03
income22_40K AL	0.024	-0.051	0.046	-0.11
income40_90KALL	-0.024	0.138	-0.121	-0.032
Civil status: Married	0.188	0.271**	-0.055	-0.242**
employed	0.104	-0.19	-0.047	0.035
student	-0.059	-0.099	-0.118	0.151
personality index	0.108**	0.066	0.217***	0.173***
Knowledge Index	0.087*	0.057	0.036	0.044
awareness index	0.170***	0.031	0.118**	-0.103**
PCE	0.080*	0.128***	0.084*	0.096**
life style	0.027	0.259***	0.524***	-0.011
_cons	-0.045	-0.044	0.122	0.196
N	568	568	568	568
R^2	0.124	0.167	0.258	0.11
R^2-adj	0.099	0.143	0.236	0.084
RESET	0.227	0.067	0.241	0.065

*legend: * p<.1; ** p<.05; *** p<.01*

The set of all statistically insignificant variables is removed from every regression. The regressions of the detailed factors of sustainable consumption have been diagnosed and re-evaluated.

As is shown in table 6 the energy saving behaviour is determined from the personality index (significant 5% level), awareness index (significant 1% level), perceived consumer effectiveness (significant 10% level). All variables have the expected positive sign. Multiple regression of the energy index indicates that sustainable consumption related to energy consumption is influenced from PCE, personality and awareness.

Table 6. Reduced model for determinants of energy-saving behavior with robust errors for heteroskedasticity

Energy index	**Coef.**	**Robust std. err.**	**t**	**P>|t|**	**[95% Conf. interval]**	
personality index	0.116	0.048	2.430	0.015	0.022	0.211
knowledge	0.086	0.053	1.630	0.104	-0.018	0.189
awareness index	0.152	0.049	3.110	0.002	0.056	0.247
PCE	0.080	0.048	1.710	0.098	-0.015	0.175
_cons	-0.011	0.040	-0.280	0.781	-0.090	0.067
N=569		**R-squared = 0.1096**		**Root MSE = 0.94629**		

Table 7 shows a reduced model for factor that influence buying sustainable products. All the variables in regression are statistically significant and have the expected positive sign. The results indicate that married people, consumers with high

perceived e effectiveness are more likely to buy sustainable products. Lifestyle is also related with behaviour towards sustainable products.

Table 7. Reduced model for determinants of buying sustainable product with robust errors for heteroskedasticity

Product Index	Coef.	Robust std. err.	t	P>|t|	[95% Conf. interval]	
Civil status: Married	0.196	0.091	2.160	0.031	0.018	0.374
PCE	0.19	0.043	4.520	0.000	0.110	0.279
life style	0.299	0.040	7.470	0.000	0.220	0.377
_cons	-0.054	0.045	-1.190	0.234	-0.142	0.035
N=575		**R-squared = 0.1096**		**Root MSE = 0.92758**		
	F (3, 571) =	**34.13**	**Prob > F =**	**0.000**		

The reduced model for awareness index have not the right functional form (F (3, 558) = 3.08, Prob > F = 0.0272) which means that statistically non-significant variables should not be excluded from the multiple regression. Results presented in table 5 indicates that gender (statistically significant 5% level) is the determinant factor of awareness index towards sustainable consumption. Education is also a significant factor that influence sustainable consumption behaviour. Educated people that hold a university or post university degree are more likely to adopt sustainable consumption behaviour related with awareness towards sustainability. Personality characteristic, perceived consumers effectiveness, lifestyle have an important positive relationship with awareness index.

Finally, reduced model for transport index is estimated. All non-significant variables are dropped from the model. The results are represented in table 8 All the variables are statistically significant at 5% confidence level. Young people between 25-44 years old are less likely to adopt sustainable transport behaviour. Also married people are less likely to use sustainable transport means. Personality characteristics and perceived consumer effectiveness are positively related to sustainable transport index.

Table 8. Reduced model for determinants of the transport index with robust errors for heteroskedasticity

Transport	Coef.	Robust std. err.	t	P>|t|	[95% Conf. Interval]	
age35_44	-0.287	0.125	-2.300	0.022	-0.533	-0.042
Civil status: Married	-0.32	0.096	-3.290	0.001	-0.507	-0.128
personality index	0.172	0.045	3.830	0.000	0.084	0.260
awareness index	-0.081	0.047	-1.710	0.087	-0.174	0.012
PCE	0.094	0.047	2.010	0.045	0.002	0.186
_cons	0.132	0.049	2.720	0.007	0.037	0.227
N=570		**R-squared = 0.0837**		**Root MSE = 0.96364**		
	F (5, 564) =	**10.30**	**Prob > F =**	**0.000**		

CONCLUSIONS AND RECOMMENDATIONS

Sustainable consumer behaviours are seen only in a small number of Albanian consumers. Sustainable consumption behaviour in Albania is influenced from internal and external determinants. The main factors that influence behaviour towards sustainability are as follows: External factors Additional cost, generally sustainable products more expensive than traditional one. However, only 30% of the respondents

have expressed their willingness to pay an extra price for buying sustainable products. Lack of information towards sustainable behaviours in general and towards sustainable products specifically. 61% of the respondents admit that they have insufficient or no information about sustainable products or sustainable behaviour. Inefficient distribution of sustainable products is another factor that influences consumer behaviour. 54% of the respondent's support that usually they must make extra efforts to find sustainable products. Infrastructure have a significant role in decision-making regarding mobility. Usually, consumers prefer less sustainable mobility patterns (e.g. private cars) because there are no sustainable alternatives (e.g. bike paths) or because of the low performance of sustainable alternatives (e.g. public transportation). Income level has a significant influence on consumers decisions regarding sustainable consumption. 64% of the respondents acknowledge that one of the main barriers in adapting sustainable consuming behaviours is inadequate income.

The main internal factor that influence consumer behaviour are: personality traits, original persons, collaborative, innovator individuals are more likely to adapt sustainable consuming behaviour; Knowledge is strongly related to sustainable consumption. An individual that has sufficient knowledge according sustainability issues is more inclined to sustainable consumption; Perceived consumers effectiveness is positively related to sustainable consumption. Individuals who believe that their individual behaviour will have an impact in issues related to sustainability are more likely to adapt sustainable consumption patterns. Lifestyle is positively related with SC. Individuals that have an active lifestyle, individuals with high social engagement, individuals involved in the decision-making process, are more likely to adopt SC. Also, individuals that follow a healthy lifestyle are more likely to adopt SC. On the other hand, demographic variables have a small influence in behaviour related to sustainable consumption. Only two demographic variables are statistically significant civil status and education.

However, further analysis indicated that the influence of internal determinants is different for detailed factors of sustainable consumption. More explicitly:

The main factor that influence sustainable consumption behaviour related to energy consumption are: personality characteristics, attitude towards sustainability and perceived consumers effectiveness. Sustainable behaviour related with consuming sustainable products is influenced mostly by civil status of individuals, perceived consumers effectiveness and lifestyle.

Sustainable consumption related with mobility is influenced by demographic variables (civil status, age,) personality characteristics and perceived consumers effectiveness.

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Rising public expenditure and economic growth, was Wagner right? Evidence from Nigeria

Richardson Kojo Eedme; Chukwuemeka Valentine Okolo; Chinazor Jane-Francis Idenyi; Chiamaka Faith Okolomike

Department of Economics, University of Nigeria, Nsukka-Nigeria

e-mail correspondence: richard.edeme@unn.edu.ng

Abstract

This study empirically tests if the Wagner's law stands for the Nigerian economy using data for the period 1981-2015. Form the results, economic, social and community services expenditure show highly significant values suggesting that these sectors are very much needed and still adds value to the economy. The results of the Granger causality analysis indicates that there is a bi-directional causality between economic growth and government spending, which posit to a high level of accuracy that Wagner's law holds for Nigeria. The result suggests that economic growth has an important role to play in determining government spending because as the economy grows, it expands and for this, government need to expand its spending to meet up with the demands of the expansion. There is therefore the need for curtail the rapid growth of its size above the optimum level that stimulates rise in expenditure. Any further expansion in expenditure should focus on economic, social and community services since they are growth enhancing.

Keywords: *Public expenditure, Economic growth, Wagner's Law, Granger causality*

JEL classification: E10, E62, O11, O47

INTRODUCTION

The relationship between government expenditure and economic growth has been an interesting topic among economists and policy makers for decades (Todaro, 1995). Government expenditure, which is the total amount government pumps into the economy in a fiscal year, can be broadly categorized into two recurrent and capital or development expenditure. According to Edeme & Nkalu (2016), recurrent expenditure refers to operating expenses for the day-to-day functioning of government departments while capital expenditure are expenditure on creation or acquisition of fixed asset and sometimes used to improve existing facilities. Capital expenditure thus represents the expenditure undertaken by the government to build its investments. In literature, there are basically two different views on the relationship between economic growth and public expenditure which has culminated into Wagner's law and Keynesian hypothesis.

According to Wagner, economic activities and government expenditure have a positive relationship and an increase in economic activity leads to a corresponding increase in government expenditure (Henrekson, 1993). In contrast, Keynesian posits that growing government expenditure may lead to a higher level of aggregate demand, which in turn promotes economic growth. As contended by Singh & Sahni (1984), Bojanic (2013), different analyses treat the relationship between government

expenditure and national income in different ways. At Wagner's side, growth in national income induces government expenditure while for the Keynesians; an increase in government expenditure induces income growth. The Wagnerian and Keynesian approaches therefore represent two alternative viewpoints in explaining the causality between government expenditure and national income.

Although government over the years have been involved in economic and social sector expenditure, endogenous growth models such as Barro (1990) predict that only the productive expenditures will positively affect the long run growth. For instance, expenditure on the health and education sectors will ensure production of rich human capital/resource, which will contribute to increased productivity and thus economic growth. In Nigeria, despite the rise in government expenditure over these years, there are still public outcries over decaying infrastructural facilities. According to data obtained from the Central Bank of Nigeria Statistical Bulletin, government spends a considerable portion of their revenues on recurrent expenditure, while spending less on capital component. Over the years, the growth rate of public expenditure and the economy has both been on the rise, the trend of government expenditure has been persistently gyrating. For instance, government expenditure declined to N720290 million in the third quarter of 2016 from N834,480 million in the second quarter and averaged N1,104,189.88 million between 2010 and 2016, reaching an all-time high of N1,615,675.03 million in the fourth quarter of 2010 and a record low of N720,290 million in the third quarter of 2016.With these fluctuations, there is need to understand the trend of key components of the nation's economy and ascertain whether economic growth causes government spending to rise or vice versa. Few empirical studies have delved into finding out if the case over the years has been that public expenditure on certain sectors has boosted the economy, or whether it has been growth in the economy which has boosted or facilitated government spending. Wagner (1883) realized a positive relationship between rates of economic growth and public spending. Loosely stated, Wagner found growth in the economy to cause government to spend more on the economy.

These conflicting positions drive us towards ascertaining the linkage between public spending and economic performance in Nigeria. Testing the validity of Wagner's law entails determining whether or not increase in economic activities leads to an increase in public expenditure. Keynes proposed the concept of government intervention in the economy using macroeconomic policies, fiscal and monetary policies, with a view to influencing and adjusting macro-economic variables.

EMPIRICAL LITERATURE REVIEW

The validity of Wagner's law has been tested in many countries by various studies with some proving the law right while others have not. For instance, Anoke, Odo, Chukwu & Agbi (2016) examined the validity or otherwise of Wagner's theory in Nigeria using time series data from 1980- 2015. The co integration, VECM, and pair wise granger causality econometric tools of analysis were adopted in testing the variables specified in the model. The results obtained from the estimations indicated a long run equilibrium relationship between real GDP and the independent variables. Total government expenditure was found to have a negative significant relationship with economic growth both in the short and long run. The causality test showed bidirectional causality from national income to government expenditure. Similarly, Dada and Adewale (2013) as well assessed if Wagner's law was a myth or reality with empirical evidence from Nigeria. The model made use of time series data on variables

such as real GDP, total government expenditure, exchange rate, inflation rate, and monetary policy rate from the period 1961 to 2011 while employing the Vector Error Correction Mechanism (VECM) to model causal relation between economic growth and government spending. The result provided evidence in support of long-run causality running from real GDP to government spending.

However, while evidence exists for long-run causality running from real GDP to government spending such evidence does not exist for short-run causality in this same direction. This indicates that Wagner's Law is supported only in the long-run. The study concluded that government expenditure was employed as an endogenous factor determined by economic growth and that Wagner's law is not a myth but a reality in Nigeria within the period investigated. In a related study carried out by Wijeweera & Garis (2009), the Engle and Granger (E-G) two-step cointegration method was used to examine the relationship between government expenditure and economic growth. The results neither confirm nor denied Wagner's Law. Out of the four model specifications tested, two models indicate that a positive long run relationship exists between government expenditure and economic growth. However, the income elasticity was not large enough to suggest that the growth in government expenditure exceeds the growth in national income. It only suggests that the growth in national income exerts upward pressure on the government spending of Saudi Arabia. The study forecasted that Saudi Arabia should expect growing government expenditure in the coming years. Serena and Andrea also looked into the increasing public expenditures: Wagner's law in 23 OECD countries. Empirical evidence provided indication of a structural positive correlation between public spending and per-capita GDP that is consistent with the Wagner's law. In addition, it was found that the correlation is usually higher in countries with lower per-capita GDP, suggesting that the catching-up period is characterized by a stronger development of government activities with respect to economies in a more advanced state of development.

In the study conducted by Ukwueze (2014) on public expenditures and economic growth, four models were applied both for the short run dynamics and the long run relationships using data from 1961-2012. From the results, it was found that the size of revenue, national output growth (national income), external debts and domestic debts are the determinants of the size of public sector in Nigeria. The result also showed that public expenditure has positive and significant impact on output growth in the short run but insignificant in the longer period. It was also found that both the recurrent and capital expenditures granger cause output changes, and that the shocks from them cause fluctuation in output of Nigeria, thus invalidating Wagner's law. Also invalidating the Wagner's hypothesis in Nigeria was the work of Ibrahim (2009) who analyzed the pattern of public expenditure and economic growth in Nigeria between 1970 and 2007. Engel Granger causality test was carried out to test the relationship between public expenditure pattern and economic growth. Gross Domestic Product was found not to Granger cause public expenditure. In the least square regression with GDP as the dependent variable, defence and agriculture were found to have positive and negative relationships with economic growth respectively, however both effects were insignificant. Expenditure on education and health were positively related to GDP, however expenditure on education had a significant impact while that on health did not. The work suggested proper monitoring of expenditure on the Agricultural sector and health sector as well as encouragement of expenditure on education and defence. Okoro (2013) also looked into government spending and economic growth in Nigeria using time series data between 1980 and 2011. Making use of the granger causality test, the

error correction model as well as the ordinary least square multiple regression analysis to estimate the model, the result showed that there exists a uni-directional causality running from both capital and recurrent expenditure to real GDP. This as well invalidates Wagner's law in Nigeria. The research also discovered a long-run equilibrium relationship existing between government spending and economic growth in Nigeria. Both the short-run and long-run expenditure had significant effect on the economic growth of Nigeria. The study recommended increase in both capital expenditure and recurrent expenditure mostly on issues that should attract economic growth. Funds meant for development of the Nigerian economy should be properly managed to boost employment as well as improve the wellbeing of citizens.

In studies that bordered on public expenditure on economic growth generally,Isibor, Babajide & Okafor (2013) assessed the impact of government expenditures on the Nigerian economy using data from 1970 to 2012. Variables such as capital expenditure, recurrent expenditure internal debt etc, were subjected to the instrumental variables two-stage least squares regression. The result showed that both capital expenditure and lagged-two capital expenditure positively and significantly impacts GDP. Internal debt was found to positively affect GDP as well. The study recommended among others, that government should ensure that adequate budget provisions be made and more budgetary allocations should go to public expenditures while the Public Private Partnership model was encouraged for capital projects in order to minimize corruption. Public Private Partnership for capital projects should be encouraged where there are limited funds in the hands of the government. Abu & Abdullahi (2010) employed a disaggregated analysis to study government expenditure and economic growth in Nigeria between 1970 and 2008.The results revealed that government total capital expenditure, total recurrent expenditure, and government expenditure on education have negative effect on economic growth. Rising government expenditure on transport, communication and health, result to an increase in economic growth. Among the recommendations was that government should increase its investment in the development of transport and communication, in order to create an enabling environment for business to strive. In addition, government should raise its expenditure in the development of the health sector since it would enhance labour productivity and economic growth. Lastly, government should encourage and increase the funding of anti-corruption agencies in order to tackle the high level of corruption in public offices.

From the empirical literature review, Ukwueze (2014), Okoro (2013) and Ibrahim (2009) invalidated Wagner's law while Anoke, Odo, Chukwu & Agbi (2016) as well as Dada & Adewale (2013) found bidirectional causality and affirming Wagner's law. But this study adopts a different approach by disaggregating the components of government expenditure and looking at the causal relationship as well as the relationship amomg these variables and economic growth.

DATA AND METHODOLOGY

Time series sourced from the Central Bank of Nigeria (CBN) Statistical Bulletin for the period spanning 1981-2015 was used in this study. According to endogenous growth theory, fiscal policy can affect both the level and growth rate of the economy. Detailed illustration of the mechanism through which fiscal policy influences growth can be found in, amongst others, Barro (1990); Barro & Sala-i-Martin (1995). In the analysis, government expenditure is measured through two components (economic service and social and community services. Specifying economic growth according to

be a function of government expenditure, the relationship between Gross domestic product and public expenditure can be specified as:

$$Y = f(X_i) \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots \quad (1)$$

where Y= gross domestic product, Xi= expenditure on the various component of government expenditure. In line with the variables under consideration, the linear relationship between he dependent and explanatory variables is stated thus:

$$EG = \beta_0 + \beta_1 EC + \beta_2 SCS + \beta_3 INFL + \mu t \ldots\ldots\ldots\ldots\ldots (2)$$

where EG = economic growth (proxied by real gross domestic product), EC = Economic services expenditure, SCS = social and community service expenditure, INFL = Inflation.

RESULTS AND DISCUSSIONS

In conducting our analysis, we first ascertain if the variables have unit root making use of the Augmented-Dickey Fuller (ADF) Test and the results is presented in Table 1.

Table 1. Unit roots results

Variable	ADF-statistic	5% critical value	Level of integration	Decision
RGDP	6.288	-2.975	I (0)	Stationary
EC	-6.091	-2.978	I (1)	Stationary
SCS	-4.332	-2.978	I (1)	Stationary
INFL	-3.011	-2.975	I (0)	Stationary

From the result in Table no. 1, real gross domestic product and inflation are stationary at level form while Economic services expenditure and Social and community service expenditure are stationary at first difference.

Table 2. Regression result

Variable	Coefficient	Newey-West Std. Error	t-Statistic	Probability
EC	10.5948	3.5239	3.01	0.005
SCS	42.9495	4.4705	9.61	0.000
INFL	2.379761	22.6867	0.10	0.917
Constant	17796.37	1094.749	16.26	0.000
R^2 = 0.9585		F-stat = 213.90	DW= .6369747	
Adjusted R^2 = 0.9545		Prob. (F-stat) = 0.0000		

In Table no. 2 which shows the result of the impact of the government expenditure on economic services, government expenditure on social and community services and inflation on public sector, the coefficient ofeconomic services expenditure is 10.6828suggests that a percentage increase in government expenditure on economic servicesincreaseeconomic growth by 10.6 percent and expenditure on social and economic services engender economic growth by 42.94, averagely. Meanwhile, an increase in inflation dampens growth by 2.4 percent point

Table 3. Granger causality results

	F-Statistics	Lags	P-Value
RGDP does not cause EC	9.5269	1	0.002
RGDP does not cause SCS	4.1403	1	0.042
RGDP does not cause INFL	0.0731	1	0.787
EC does not cause RGDP	6.6146	1	0.010
EC does not cause SCS	7.0462	1	0.008
EC does not cause INFL	0.2367	1	0.627
SCS does not cause RGDP	3.8710	1	0.049
SCS does not cause EC	6.1549	1	0.013
SCS does not cause INFL	0.0561	1	0.813
INFL does not cause RGDP	0.2798	1	0.597
INFL does not cause EC	0.1094	1	0.741
INFL does not cause SCS	0.0053	1	0.942

From the result of the Granger-causality in Table no. 3, the null hypothesis that economic growth *does not Granger cause* economic services expenditure and that economic services expenditure*does not Granger cause* economic growth were rejected. Hence, that there is a bi-directional causality between economic services expenditure and economic growth. Also, the null hypothesis of economic growth *does not Granger cause* social and community service expenditurewas rejected given that the probability is less than 0.05 at 0.042. Similarly, the null hypothesis that social and community service expenditure *does not Granger cause* economic growth was rejected. Hence, concluding that there is a bi-directional causality running from Social and community service expenditure and economic growth. However, the null hypothesis of economic growth *does not Granger cause* inflation given that the probability is 0.787 and that inflation *does not Granger cause* economic growth was accepted given that the probability is greater than 0.05 at 0.597. Hence, we conclude that there is no causality between economic growth and inflation. Given that the probability is less than 0.05 at 0.008 the null hypothesis of social and community service expenditure *does not Granger cause* economic services expenditure was rejected, which implies that there is bi-causality between economic services expenditure and social and community service expenditure. This finding corroborates Dada & Adewale (2013) and Anoke, Odo, Chukwu & Agbi (2016) who found bidirectional causality which affirms the existence of Wagner's law for Nigeria.

CONCLUSIONS AND RECOMMENDATIONS

Conclusions

Government expenditure on economic, social and community services expenditure add value to the growth process of an economy. The Granger causality analysis has shown that there is a bi-directional causality between economic growth and government spending, which posit to a high level of accuracy that Wagner's law holds for Nigeria.

Recommendations

There is need for government to curtail rapid growth of government size above the optimum level that escalates expenditure. Also further expansion on expenditure should focus on economic, social and community services since they are growth enhancing.

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The feminization of the cooperative bank's board as a factor differentiating its financial performance

Rafał Balina; Marta Idasz-Balina

Department of Finance, Faculty of Economic Sciences, Warsaw University of Life Sciences, Poland

e-mail correspondence: rafal_balina@sggw.pl

Abstract

The research was aimed at showing the relationship between the gender of the CEO and the efficiency of the Polish cooperative banks. The research covered 354 banks operating in Poland in 2013-2015. Based on the conducted research, it has been shown that, for the surveyed Polish cooperative banks, women served as CEOs in significantly smaller banks than men, as the number of clients, the number of members, the total value of assets and the value of equity in male-dominated banks was on average more than double. In banks managed by women. At the same time, the results of the research clearly showed that the gender of the person acting as the chairman of the management board in a cooperative bank had an impact on the level of its financial effectiveness.

Keywords: *financial performance, cooperative bank, gender, management board, feminization ratio.*

JEL classification: J71, J53

INTRODUCTION

Shaped over the centuries and still persisting division of roles for men and women meant that continues stereotype that male role is bound to activity outside the home, and the work of women within the household. Because individual types of activities require different traits and behavioral patterns, men are expected to be competitive, decisive and action oriented, while women are perceived to be involved exclusively in the sphere of domestic life (Budrowska, Duch i Tikow, 2003).

Attributes associated with femininity for a long time excluded or limited the possibility of entering the business world. This situation has gradually changed in recent years. The issue of differentiating statutory entities – in this case financial entities – with regard to gender and the performance of said financial institutions has become relatively popular. One of the reasons for this attention is the widely considered observation regarding the low membership of women in the highest statutory corporate entities. In many countries around the world, the participation of women in high management positions in corporations continues to lag behind the numbers of men. Over the years this condition has incurred change as more women were appointed to management positions. This change has been a result of certain societal shifts which encouraged modifying women's status in the contemporary world. Additionally it also results from efforts made by various institutions to increase women's engagement in corporate management. Norway, as one of the first to declare by law, requires that corporate management be made to be at least 40% women (Ahern i Dittmar, 2012).

Similarly, Spain required an increase of women in management boards and management to a level at least 40% (Adams & Ferreira, 2009). Sweden warned its business community that if corporate management was not at least 25% women, business would feel the legislative consequences. Following Norway, Spain and Sweden were other European states encouraging their business community to increase women's engagement in important management bodies. For example, Poland already has a "Code of Best Practices for WSE Listed Companies" (Karta Praw Podstawowych, 2007) which encourages raising women's presence in the statutory corporations. A similar mechanism was introduced by the Netherlands, France and Germany (Bøhren & Strøm, 2010). These changes are introduced on the conviction that women's presence in corporate management will have a positive influence on management operations (Adams & Ferreira, 2009). Others indicate that women's presence in key positions will lead to a better understanding of markets and clientele. They further indicate that corporations will also experience greater creativity and innovation. Smith points to the gains in efficient problem solving, and above all, points out that with women in management, the corporate image improves in the eyes of clientele and stakeholders (Smith, Smith i Verner, 2006).

Besides the benefits of women's participation in management, literature shows there is a detrimental aspect of this condition. Early and Mosakowski point out that one-gender bodies tend to communicate in straight-forward fashion and agree to a consensus more quickly – a most important quality when making decisions (Earley i Mosakowski, 2000). Furthermore, we can observe that 'male only' groups are more inclined to cooperation and less frequently suffer conflicts. Many studies show that balanced gender make-up of corporate bodies generate higher friction (Goodstein, Gautam i Boeker, 1994), extends decision making and significantly interferes with reaching compromise (Knight i inni, 1999), and probably induce into higher corporate costs. Lau and Murnighan show that mixed corporate bodies have a negative impact on performance – a result of procrastination during decision-making (Lau i Murnighan, 1998). Not less frequent are benefit/liability studies of women statutory corporate bodies and literature abounds with studies considering gender-varied management and boards of directors' impact on financial performance where contrasting voices find their venue. A number of studies point to a positive correlation gender-varied corporate management and financial performance. Erhardt determined that those American corporations where decision making is dominated by women show better ROA and ROI performance than those dominated by men (Erhardt, Werbel i Shrader, 2003). Campbell and Minguez-Vera confirmed the positive correlation between women's management membership and corporate performance measured Tobin's 'q' for corporations in Spain (Campbell i Mínguez-Vera, 2008). Mahadeo also demonstrated that women in corporate management positively influence return on assets (ROA) (Mahadeo, Soobaroyen i Oogarah-Hanuman, 2011). In Poland, Bohdanowicz among others, identified a correlation between gender-varied statutory entities and levels of ROA and ROE (Bohdanowicz, 2011). Other studies indicate a negative relation between women's participation in corporate management and the level of performance. For example, Aherni and Dittmar (2012), Böhren and Ström (2010), and Adams and Ferreira (2009), demonstrated a negative correlation between women in corporate management and Tobins 'q' indicator. Furthermore, Sharader also demonstrated a negative relation between women in American corporate management and levels of ROE, ROA, ROI and return on sales (ROS) (Shrader, Blackburn i Iles, 1997). Still other studies indicate absolutely no correlation between corporate performance and

gender ratios in management, as in Randøy, Thomsen i Oxelheim (2006), Rose, (2007), Miller i Del Carmen Triana (2009).

What becomes apparent when reviewing the referred to international studies is differentiation with regard to sample size, country where the study is carried out, and the commercial activity of selected corporations. Noticeable is that there are few studies examining the financial sector – especially banks – which is a fundamental element of modern economies as confirmed by many studies (Owoputi, Kayode i Adeyefa, 2014). The strong connection between the banking sector and economy exists as well in Poland.

Poland's banking sector is divided into two categories – commercial and cooperative (co-op) where, because of its charter, co-op banks have an independent function in Poland's economy. Poland's co-op banks are an integral part of the banking sector as is confirmed from the Polish Financial Supervision Authority data: at the end of 2015, of 598 functioning banks. 560 were cooperative. More importantly, the total co-op banking sector possesses close to 8.5% of the total assets of Poland's banking sector, close to 7.5% of total borrowing, and close to 9.5% of total savings. Interestingly, Poland's co-op banks employ close to 20% of personnel working in the banking sector i.e. approximately 32.100 individuals working in 4.740 offices – 40% of all banking offices in Poland.

Another important element is that 80% of the co-op bank offices are located in smaller communities in rural and suburban areas. In result, the co-op banks are thus key players in commercial development in rural areas since commercial banks are little interested in these areas (Balina, 2015). Further, in many cases co-op banks counter tendencies of financial exclusion of less urbanized area residents. Nevertheless, co-op banks operate under a manifold theoretical basis and their identification requires examination of at least two aspects : first, they are cooperatives structured on the basis of a commercial interest; second, they are banks ergo credit institutions. This means that co-op banks are entities of a complex structure and the services they perform have significant impact on their behavior and activity. This complexity has influence on co-op banks' performance. An important condition that any co-op bank should fulfill is effective performance. For the bank to be effective, positive indicators and high profitability do not suffice; an effective co-op bank also accrues, over an extended period of time, assets and earned profits which should be properly exploited to insure the safety of its operation.

METHODOLOGY

The research involved the use of balanced panel data for the years 2013-2015 from 354 cooperative banks. The studied population of cooperative banks accounted for 62.7% of all cooperative banks operating in Poland as at December 31, 2016.

In order to determine the level of effectiveness of the cooperative banks in Poland the following measures of effectiveness were used: a) net financial result [WFN]; b) profitability ratio of own funds [ROE]; c) return on assets in total [ROA]; d) NPL indicator; e) TCR indicator.

The efficiency analysis was carried out within separate groups. The grouping was made based on the sex of the the president of the board and the feminization ratio of the management board of the cooperative bank, which was defined as the number of women sitting on the board of the cooperative bank to the total number of persons sitting on the board. Due to the significant diversity of banks in terms of the

feminization rate, the analysis was conducted in the following groups: 0%, 1-25%, 25-50%, 50-75%, 75-99%, 100%.

RESULTS

The research was conducted on a group of 354 cooperative banks, of which 149 the president of the board were a woman and in the other 205 banks the man was the president. As can be seen from the data included in Table 1. Banks, whose function as the president of board were significantly larger - include the balance sheet total, total deposits, total loans and bank's own funds, than banks in which women performed this function. This indicates that men manage much larger banks than women.

Table 1. Characteristics of the research sample [thouseds of PLN]

Item	Total	Total	Total loans	Own Founds	Number of
Female	119 937	102 506	68 793	13 039	149
Male	206 529	177 799	126 973	19 677	205
Avrage	170 082	146 108	102 485	16 883	354

In addition, Figure 1 presents the relationship between the feminization ratio of the cooperative bank's board and its size. According to the analyzes carried out, the largest banks were banks in which the board was composed of men themselves (feminization rate equal to 0%). Then co-operative banks were placed, in which women constituted from 75 to 99% of the total number of board members. Interestingly, the smallest banks in terms of adopted criteria were managed by women (the feminization rate equal to 100%). What is equally interesting, the banks in which the functions of the board were performed by the women themselves were almost four times smaller than the banks in which the functions were performed by men themselves.

Subsequently, the relationship between the feminization ratio of the bank's board and the level of its effectiveness was estimated (Figure 2). According to the analyzes the net financial result of the banks surveyed was strongly correlated with the bank's size and feminization rate, as the highest net financial results were generated by banks with a feminization ratio of 0, ie banks in which only managers were on the board. The lowest-value financial result was obtained by banks in which only women were members of the board (feminization rate equal to 100%).

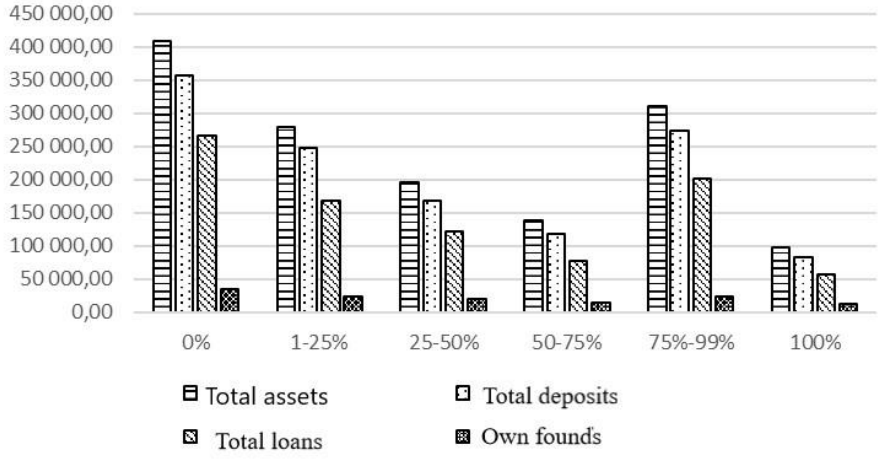

Figure 1. Relationship between the feminization coefficient of the cooperative bank's board and its size [data in thous. PLN]

At the same time, taking into account the values of ROA and ROE, it was found that the differences were not as significant as in the case of the net financial result and the spread between the highest and the lowest result reached only 1.44 percentage points. No less noticeable is the tendency that along with the increase in the feminization rate of the board, co-operative banks obtained a lower level of ROE, outside the range between 75-99%.

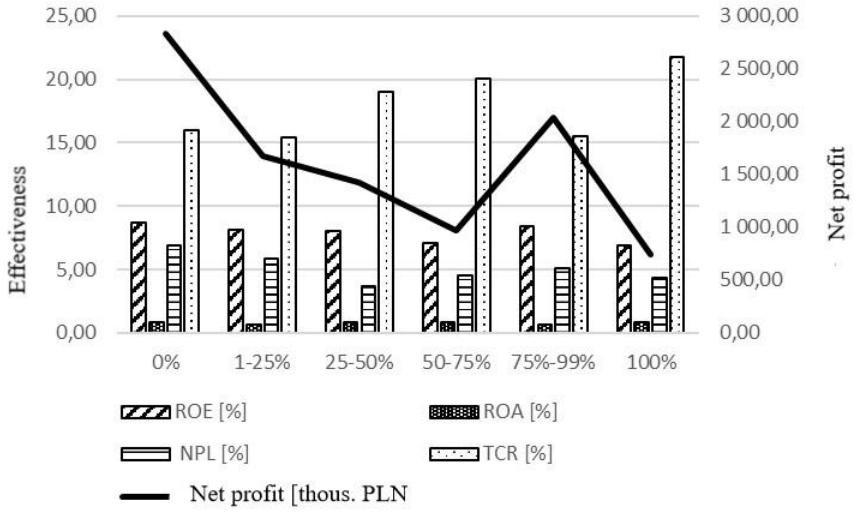

Figure 2. Relationship between the effectiveness of a cooperative bank and the feminisation rate of the board

In the case of the TCR index, the opposite tendency is noticeable, as the highest level of capital adequacy ratio was characterized by banks with a 100% feminization rate, and the lowest banks with 0% and 75-99% share of women on management boards. This may indicate that women are prone to lower risk. What results from the dependence that a higher solvency ratio (TCR) indicates a higher level of financial security of the bank, because the funds are considered able to cover a greater part of the risk generated by the bank. However, the higher the capital adequacy ratio, limits the bank's efficiency due to taking lower risk.

In the case of the relationship between the feminization rate and the NPL index determining the share of non-performing loans, i.e. loans with delays in repayment above 30, in the bank's loan obligation, there was no clear trend in this respect, which may indicate that both banks managed by women and by men are characterized by a similar level of credit risk.

Table 2 presents the relationship between the efficiency level of the cooperative banks studied and the feminization ratio of the board, depending on the sex of the president of the board.

Table 2. Relationship between the effectiveness of the cooperative banks studied and the feminization ratio of the management board depending on the sex of the president of the board

Feminization ratio	Wynik finansowy netto [thous. PLN]		ROE [%]		ROA [%]		NPL [%]		TCR [%]	
	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male
1-25%	4 577,67	1 448,41	14,11	7,67	0,95	0,63	5,08	5,90	12,39	15,64
25-50%	887,28	1 499,49	6,22	8,27	0,80	0,87	4,38	3,60	21,27	18,75
50-75%	929,01	995,76	7,41	6,90	0,85	0,75	3,48	5,35	20,85	19,50
75%-99%	1 441,33	2 232,89	9,87	7,88	0,99	0,57	2,80	5,84	15,07	15,61

Interestingly, the conducted research clearly indicates that in the case of the efficiency of the bank's operation expressed in the net financial result, the highest level was characteristic for cooperative banks in which the woman was the chairman of the board and the remaining part of the board were men. Similar relationships are noticeable in the case of ROE. However, in the case of ROA, its highest level was recorded in the case of cooperative banks, in which women acted as the president of the board and the remaining part of the board were also women. Which may indicate that the efficiency of earned capital is the highest in banks in which only women are members of the board. Taking into account the level of risk undertaken by the surveyed banks, it was found that in the case of banks in which women accounted for 100% of the board, it was the lowest, which indicates a high level of financial security of the bank. In the case of banks managed mostly by men, the risk was significantly higher (see Table 2).

CONCLUSIONS AND RECOMMENDATIONS

Conclusions

On the basis of the conducted research, it was found that the size of cooperative banks managed solely by women was significantly lower than that of banks in which men were responsible for the management, which in the analysis of the net financial result translated into a lower level of efficiency of these entities. However, an in-depth analysis depending on the amount of the feminization rate showed that ROE is the highest in banks where only women are members of the board. The best effects also in terms of ROE were obtained for cooperative banks, where the feminization rate was relatively low, however, the woman was the president of the board and at the same time the supervisory role over the rest of the board members.

The research also showed that for TCR a tendency is noticeable, in which its highest level was characterized by banks with a 100% feminisation rate, and the lowest banks with a complete lack or marginal share of women on management boards. This may indicate that women are prone to lower risk and their actions are more conservative. What results from the dependence that a higher solvency ratio indicates a higher level of the bank's financial security, as the funds are considered able to cover a greater part of the risk generated by the bank. However, the higher solvency ratio may also cause the bank's efficiency to be reduced due to lower risk or lost profits.

Recomendations

According to the analysis, it is not possible to give an unambiguous answer whether there are dependencies between the gender of the person holding the function of the president of the management board in the cooperative bank and the level of its effectiveness, however, the results obtained suggest that a woman in the role of the president of the management board may contribute to the financial efficiency of the cooperative bank.

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The impact of exchange rate volatility on manufacturing sector in sub-Saharan Africa (1980-2015)

Taiwo Akinlo

Adeyemi College of Education, Ondo, Nigeria

e-mail correspondence: taiwoakinlo@yahoo.com

Abstract

This study examined the impact of exchange rate volatility on manufacturing sectors in selected sub-Saharan Africa from the period 1980 to 2015. Panel data regression analysis was adopted in the study. Panel pooled OLS, panel fixed effect and Dynamic Generalised Method of Moment models were used for the estimation. The pooled OLS result shows that Gross Domestic Products and physical capital have positive impact on economic growth in sub-Saharan Africa while trade openness, interest rates and exchange rate volatility have negative impact on manufacturing sector. The results from fixed effect and Dynamic Method of moment model shows that trade openness, interest rate and exchange rate volatility have negative impact on manufacturing sector.

Keywords: *exchange rate, volatility, sub-Saharan Africa, panel data, GMM, manufacturing*

JEL classification: F32, F01, C82, C32

INTRODUCTION

The relationship between exchange rate volatility and manufacturing sector in sub-Saharan Africa has been a major concern of policy makers in recent time due to the impact of exchange rate volatility on any country that engaged in international trade. This relationship has also become a subject of debate in the literature. This relationship is very important in sub-Saharan Africa as this crucial time when governments of sub-Saharan Africa countries are worry about poor performance of manufacturing sector and the current high level of importation of manufactured goods into sub-Saharan Africa countries. The manufacturing sector in sub-Saharan Africa has been on decline comparing to other regions of the world as it plagued by various factors ranges from poor electricity supply, imported raw materials, poor demand for products and low-quality product. Oladipupo and Onotaniyohuwo (2011) stated that exchange rate volatility has a major impact on economic variables. The exchange rate volatility has an impact on cost of imported raw materials of manufacturing industries and it also has great impact on the prices of the manufacturing products. Since the introduction of Structural Adjustment Programme in 1986 in some sub-African countries the exchange rate volatility has become a major issue which the various governments have been trying to address. Several exchange rate policies have been put in place to curb the fluctuation but according to Opaoluwa, Umeh and Ameh (2010) only little achievement has been made in stabilizing the rate of exchange. The role of manufacturing sector in stimulating and transforming modern economy cannot be overemphasised. According to Fakiyesi (2005) the manufacturing sector is a dominant sector in many respects in advanced countries. It creates an avenue for increasing productivity in relation to import

substitution and export expansion, providing foreign exchange earning capacity, increasing employment, promoting the growth of investment in the economy more than other sectors and efficiently linking different sectors together. But the achievement of these opportunities can be greatly influenced by the exchange rate volatility. This study intends to examine the relationship between manufacturing sector and exchange rate volatility sub-Saharan Africa in other to contribute to the existing literature and as evidence has shown in the existing literatures focused on the single country.

According to UNIDO (2016) manufacturing is a major force that drives the economic growth of major countries around the world through its higher productivity and innovations. In many countries manufacturing has contributed to the reduction of unemployment, poverty and source of income the governments of nations Among developing regions of the world sub-Saharan African is lagged behind in all measures of economic development such as industrialisation, per capital income, agriculture and economic growth. The manufacturing industry in sub-Saharan Africa is operating at average level and at low level of development UNIDO (2004). This can be shown through manufacturing value added as a percentage of GDP in selected sub-Saharan Africa countries in 2015 shown in Figure 1.

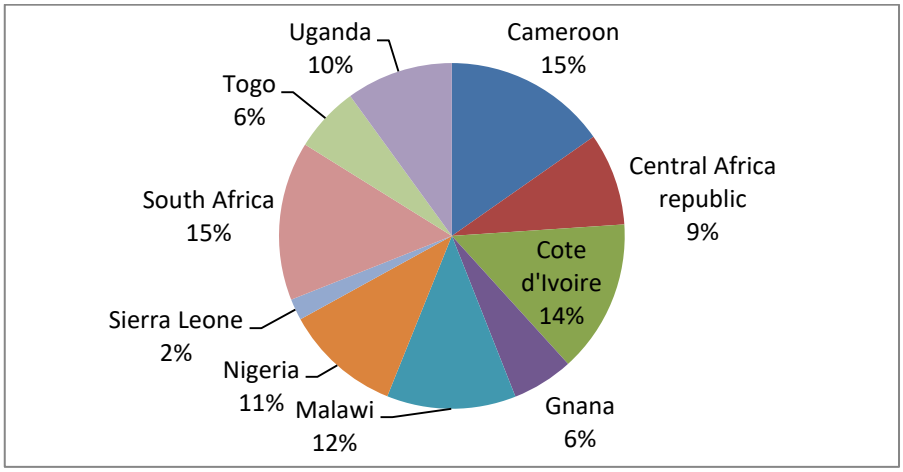

Figure 1. Manufacturing as a percentage of GDP in sub-Saharan Africa

Source: Authors computation based on data from World Bank Development Indicator.

It shows clearly from figure 1 that the percentage contribution of manufacturing sector to the GDP is very low in sub-Saharan Africa. In 2015, manufacturing form only 16 per cent of the total GDP in South Africa and Cameroon which is the highest among the selected countries in sub-Saharan Africa. In Sierra Leone it forms only 2 per cent of the total GDP and 6 per cent of GDP in Togo.

By comparing manufacturing sector in sub-Saharan Africa with other regions of the world, figure 2 shows the trend of manufacturing as a percentage of GDP from 1991 to 2013. From figure 2, it is evident that manufacturing sector in sub-Saharan is the least among the regions of the world. This figure shows that manufacturing sector is doing very well in other regions compare to sub-Saharan Africa region. For example, in East Asia and Pacific region manufacturing sector is doing well though is growing below the level of 1980's. From figure 2 the manufacturing sector was at the peak in early 90's in all the regions. The sharp decline in the manufacturing sector during the period of 2007-2010 might be due to the economic meltdown experienced across the world during that period.

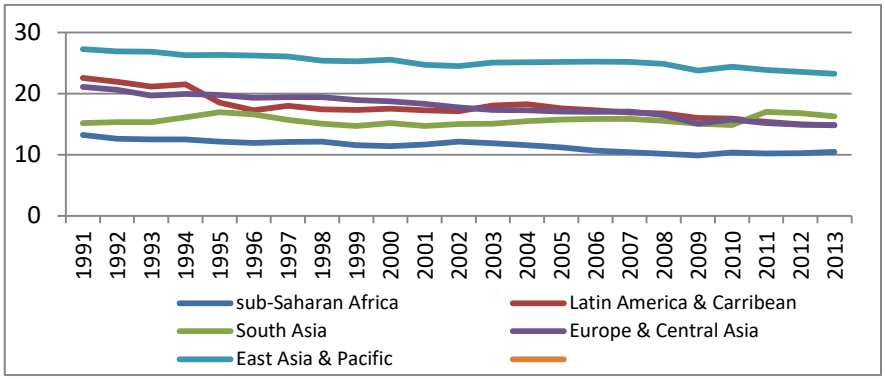

Figure 2: Trend of manufacturing sector among the regions

Source: Authors computation based on data from World Bank Development Indicator.

Figure 3 shows the regional share of value added among the regions of the world. The manufacturing value added consist of 29 per cent of the GDP in East Asia & pacific in the year 2000. While in the same year it forms only 13 per cent of the GDP in sub-Saharan Africa. In Europe and Central Asia the manufacturing value added forms 21 per cent of the total GDP and 17 per cent of the GDP in North America. In the year 2006 the manufacturing value added as a percentage of GDP increased by 1 per cent in East Asia and pacific and Latin America and Caribbean regions. In sub-Saharan Africa it remains the same with that of 2000. But in North America and Europe and Central Asia it reduced by 1 per cent. There are little changes in 2010 as there is increase in manufacturing value added only in one region i.e East Asia & pacific and there is decrease by 1 per cent Latin America and Caribbean. In other regions the percentages remain the same. In 2012 there is no changed in the per cent in all the regions. It is therefore evident that since 2000 there is significant improvement in the manufacturing value added products in sub-Saharan Africa.

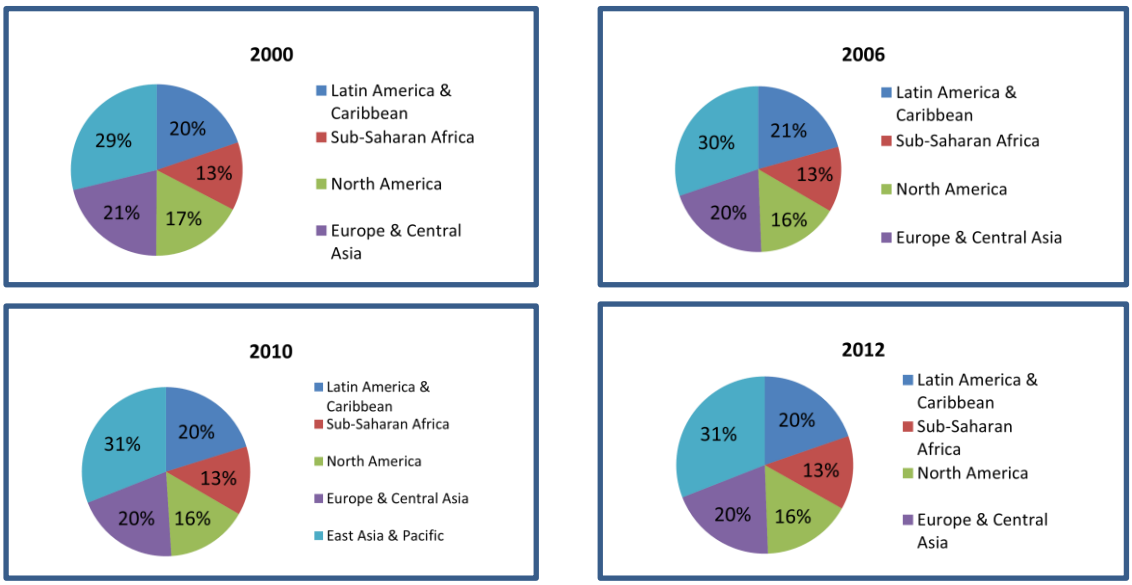

Figure 3. Regional manufacturing value added as % GDP in 2000, 2006, 2010 and 2012.

Source: Authors computation based on data from World Bank Development Indicator.

Table 1. shows the growth rate of manufacturing sector of sub-Saharan Africa region and other regions of the world. In 2003 the rate of growth of manufacturing sector in sub-Saharan Africa is least among all the regions. The sub-Saharan Africa

growth rate is 0.9 while the rate of growth of Europe & Central Asia region is 4.2 which is the highest. Latin America and Caribbean and North America have the same growth rate in 2003. In 2005 there was a significant improvement in the manufacturing growth rate in sub-Saharan Africa. The growth rate of manufacturing sector is 6.3 and is the highest among all the regions. In 2010 the growth rate reduced to 6.0 and third among the regions but in 2013 the sub-Saharan Africa has the highest growth.

Table 1. Growth rate of manufacturing sector by regions

Region	2003	2005	2010	2013
Sub-Saharan Africa	0.9	6.3	6.0	7.9
Latin America & Carribean	2.2	3.4	7.0	2.1
North America	2.2	2.2	5.3	1.4
Europe & Central Asia	2.4	2.4	9.2	0.5

Source: Authors computation based on data from World Bank Development Indicator.

Omojimite and Akpokodje (2010) examined how exchange rate volatility impacted the exports of Communaute Financiere Africaine (CFA) and non-CFA countries during the period of 1986-2006. The authors used GARCH model to generate exchange rate volatility series. Hereafter, the series generated were incorporated into an export equation and regressions were carried out using various estimations techniques including OLS, fixed effect, first difference GMM and systems GMM. The authors stated that the system GMM technique performed better than the other estimation techniques. The results indicated that exchange rate volatility negatively impacted exports of both panels of countries. However, the impact of exchange rate volatility on the panel of the non-CFA countries is greater than the CFA countries. The study recommended the need for appropriate monetary and fiscal policy actions to stem the rising exchange rate volatility.

Olayungbo, Yinusa and Akinlo (2011) focused their study on 40 selected sub-Saharan African countries to investigated the impact of exchange rate volatility on trade. The period of the study was between 1986-2005. This study adopted a gravity model with pooled ordinary least square (POLS) which allowing for fixed effect and panel Generalized Method of Moments (GMM) techniques. A positive impact of net effect of exchange rate volatility was found on aggregate trade in the two approaches used. The study also showed that impact of exchange rate volatility on primary and manufactured trade are very similar and also the results of ECOWAS and non-ECOWAS countries. The study concluded that caution must be exercised while interpreting the results as the history of exchange rate volatility is still relatively young compared with the developed countries.

Danmola (2013) analysed the impact of exchange rate volatility on Macroeconomic variables and the study made use of Ordinary Least Square (OLS) and Granger Causality test. The results of the study showed that exchange rate volatility is positively impacted Gross Domestic Product, Foreign Direct Investment and Trade Openness, but with negative influence on the inflationary rate in the country. The author suggested the need for the country to improve in revenue base in term of increasing number of items meant for export and reduce the dependency on petroleum sector and also lower the importation of non-essential items, in order to improve their term of trade. They further suggested that effort must be made to increase in domestic production as this will minimised the impact of exchange rate volatility.

Sani, Hassan and Azam (2016) critically investigated the effect of exchange rate volatility on the output level of the five English speaking countries in ECOWAS. These

countries include Nigeria, Ghana, Gambia, the Sierra Leones and Liberia, over the period 1991 to 2014. The study used Co-integration test and Error Correction Modelling as the estimation techniques to examine both the short-run and long-run dynamic relationships between the variables for each country. The findings from the results showed that exchange rate volatility has a significant positive impact on output of all the countries considered in the study apart from Liberia where a negative relationship was reported.

Abdul-Mumuni (2016) examined the effect of exchange rate variability on manufacturing sector performance in Ghana. This study made use of time series data covering the period of 1986 to 2013. The study adopted autoregressive distributed lag (ARDL) approach for estimation. The results from the study show that both short and long run relationship exist between exchange rate and manufacturing sector performance. The author stated that in Ghana when the exchange rate appreciates, the manufacturing sector performance improves and as it depreciates, the sector is adversely affected. As a result of this, the author recommended that appropriate policy must be put in place to regulate the importation of goods that could be locally produced so as to improve the performance of the manufacturing sector. Constant electricity supply, good roads, water and a reliable telecommunication system were also recommended to make available by the government for the manufacturing sector so that they can perform effectively and efficiently in order to achieve a considerable rate of economic growth.

Omotola (2016) focused on examining the relationship between exchange rate fluctuations and manufacturing sector output. The study focused on Nigerian economy and span through the period of 1986 to 2014. The study used Autoregressive Distribution Lag (ARDL) technique of estimation to examine the relationship. As the results indicated, exchange rate fluctuations have long run and short run impact on manufacturing sector output. The study further revealed a positive but insignificant impact of exchange rate fluctuations on manufacturing sector output. The author recommended that government should put policies in place that can boost exports and reduce imports so as to achieve a favourable balance of payment. It was also recommended that the government should encourage the use of local materials in production so as to promote international competitiveness and equally increase expenditures on economic services such as manufacturing in order to increase their output

METHODS

Model specification

The study aimed to specify empirical model in order to examine the impact exchange rate volatility on manufacturing sectors in sub-Saharan Africa. The log-linear equation for exchange rate volatility is hereby specified as;

$$lnMAN_{it} = \beta_0 + \beta_1 lnREXCR_{it} + \beta_2 lnGDP_{it} + \beta_3 lnRINT_{it} + \beta_4 TOP_{it} + \beta_5 lnHUM_{it} + \beta_6 lnINF_{it} + \varepsilon_{it} \quad \ldots\ldots\ldots\ldots\ldots\ldots (1)$$

Data sources and variable measurements

All the Data for this study were obtained from World Bank Development Indicator (WDI). The countries included in this study are, Cameroun, Central Africa Republic, Cote d'ivore, Ghana, Lesotho, Malawi, Nigeria, Sierra Leone, South Africa, Togo and Uganda.

Manufacturing sector (MAN) is measured by manufacturing value added (% of GDP); Exchange rate volatility (ECXV) - Exchange rate volatility is a measure that will be used to capture the uncertainty faced by manufacturer sector due to erratic fluctuations in the exchange rates. Due to the unobservable nature of this variable its measure has been generating controversy in the literature. This study therefore, follows recent literature and uses the measures derived from the GARCH (1, 1) model as measures of exchange rate volatility. Following Yinusa (2005), the conditional volatility of exchange rate was extracted and model through a state space representation of the form:

$$Z_t = \delta\varepsilon_t \, e^{\frac{1}{2ht}}, \varepsilon_t \qquad \text{iid (0, 1)} \quad \ldots\ldots\ldots\ldots\ldots\ldots \quad (2)$$

$$h_{t+1} = \pi h_t + \mu_t, \qquad NID \quad (D, \delta^2 \mu) \ /\pi/ \leq 1 \quad \ldots\ldots\ldots\ldots\ldots \quad (3)$$

Z_t is the exchange rate, δ^2 is a scale factor and subsumes the effect of a constant in the regression of h_t, π, is a parameter, μ_t is a disturbance term that is uncorrelated with ε_t is an iid (0, 1) are random disturbances symmetrically distributed about zero. The h_t equation is a transition equation in autoregressive form where the absolute value of π is less than unity to ensure that the process in Equation (2) is stationary (3). These equations generate the conditional volatility of exchange rate. Gross Domestic Product (GDP**)**: This is the productive capacity of an economy. Real Interest Rate (RINT) is measured by Real interest rate

Physical capital is proxied by gross capital formation (% GDP). Trade Openness (TOP) is measured as the sum of import and export as a percentage of GDP. Inflation is the consumer prices (annual %).

EMPIRICAL RESULTS

The analysis of this study started by performing a panel unit root test so as to deal with the problem of heterogeneity biases that are common characteristics of panel data analysis. Specifically, this study used Levin, Lin & Chu, Im, Pesaran and Shin, ADF-Fisher Chi-square and PP-Fisher Chi-square tests. All these tests assume individual unit root process to allow for heterogeneity across cross-sectional units. The results of the panel unit root tests are presented in table 2.

Table 2. Panel unit root tests-individual effects

Variable	Level	LLC	p-v	IPSS	p-v	ADF	p-v	PP	p-v
lnMan	0	0.29	0.61	0.19	0.57	34.46**	0.04	20.08	0.57
	1	-0.65*	0.00	-9.81*	0.00	133.7*	0.00	233.9*	0.00
lnGdp	0	2.11	0.98	2.55	0.99	18.97	0.64	16.06	0.81
	1	-5.27*	0.00	-6.94*	0.00	91.49*	0.00	59.87*	0.00
lnOpen	0	-1.7**	0.03	-1.7**	0.03	37.84	0.08	40.88	0.00
	1	-10.0*	0.00	-11.8*	0.00	165.79*	0.00	253.9*	0.00
lnphy	0	-5.81*	0.00	-5.71*	0.00	79.75*	0.00	58.88*	0.00
	1	10.05*	0.00	12.89*	0.00	182.54*	0.00	105.22*	0.00
lnInt	0	-0.30	0.37	-3.83*	0.00	62.88*	0.00	112.53*	0.00
	1	-8.28*	0.00	-15.9*	0.00	230.77*	0.00	268.92*	0.00
lnExcrv	0	-2.22*	0.00	-10.2*	0.00	140.89*	0.00	293.75*	0.00
	1	-4.28*	0.00	-3.88*	0.00	55.23*	0.00	70.144*	0,00
lnInf	0	-3.19*	0.00	-3.88*	0.00	55.23*	0.00	70.14*	0.00
	1	-9.40*	0.00	-13.6*	0.00	197.75*	0.00	314.19*	0.00

Notes: The null hypothesis (Ho) is that there is unit root, (H1) some do not have a unit process. Significance levels are denoted by *: 1%, **: 5%, ***: 10%: and indicate rejection of the null hypothesis. 0 and 1 represent level and first difference respectively. Probabilities for Fisher tests are computed using an asymptotic Chi-square distribution. All other tests assume asymptotic normality. LLC represents Levin, Lin and Chin, IPS represents Im Pesaran Shin, ADF indicates Augmented Dickey Fuller test, PP denotes Phillip Peron, Hadri Z Stat is also reported, and P-V indicates Probability Value.

The results of the panel unit root tests show that some variables are stationary at levels while others are stationary at first difference. Physical capital, exchange rate volatility and inflation are stationary at levels while manufacturing, gross domestic product, trade openness and interest rate are stationary at first difference.

Based on the properties of the unit root tests, the attention now focused on the estimation of pooled OLS, fixed effect and system Generalised Method of Moment (GMM). The results of the pooled OLS, fixed effect and dynamic GMM are presented in table 3 below. The pooled OLS results is in column 1, fixed effect results in column 2 and the system GMM is presented in column 3.

Table 3. The results of panel data estimates

Variables	Pooled OLS	Fixed Effect	System GMM
C	0.5694	4.2639*	-
	(1.4891)	(7.3878)	
MAN_{it}			-0.0410*
			(-2.7899)
lnGdp	0.2017*	-0.1958**	0.0091
	(6.4474)	(-2.2132)	(1.0540)
lnOpen	-0.0516	-0.2233*	-1.1230
	(-0.8356)	(-3.8408)	(-1.6610)
lnphy	0.3561*	0.1810*	0.0579*
	(6.1840)	(4.2075)	(3.4790)
lnInt	-0.0330	-0.0035	0.0126
	(-1.3142)	(-0.1938)	(1.3080)
Excrv	-0.0293*	-0.0265*	-0.0101**
	(-1.8295)	(-2.6572)	(-2.0317)
lnInf	-0.0539**	0.0234	0.0046
	(-2.4422)	(1.4430)	(0.7559)
R-Squared	0.29	0.76	-
Adjusted R^2	0.28	0.75	-
F- Statistics	23.284	67.26	-
Durbin-Watson	0.12	0.23	-
J-Statistics	-	-	4.3
Instrument Rank	-	-	8
Sargan			0.3811
Observation	343	343	333

*Note: Significance levels are denoted by *: 1%, **: 5%, ***: 10% and the t-statistics in parenthesis. The instrument of dynamic GMM is lagged independent variables.*

The pooled OLS results performed very well, the adjusted R-square is 0.28. The F-statistics is significant. The results also show that GDP is positive and significant at 10 per cent. This implying that Gross Domestic Product (GDP) has significant positive impact on manufacturing sector. The trade openness and interest rates are negative but they are statistically insignificant. The coefficient of physical capital is positive and significant at 1 per cent. The exchange rate volatility negatively impacted manufacturing sector as its coefficient is negative and significant at 10 per cent. The coefficient of inflation is negative and significant at 5 per cent. This is implying that inflation has negative impact on manufacturing sector.

The fixed effect results in column 2 show that Gross Domestic Products (GDP) and trade openness have negatively impacted manufacturing sector and they are statistically significant at 1 per cent and 5 per cent respectively. Physical capital is positive and significantly impacted manufacturing sector at 1 per cent. The coefficient of interest rate shows a negative sign but insignificant. The exchange rate volatility result is not different from the pooled OLS result in column 1 as it is positive and significant at 1 per cent. The inflation is positive but not significant.

The system GMM in column 3 of table 3 which serves as robust check on pooled OLS and fixed effect results show that lagged manufacturing sector has negative and significant impact on current manufacturing sector. The coefficients of Gross Domestic Products (GDP) and physical capital are both positive. However, only physical capital is statistically significant at 1 per cent while gross domestic product is not significant. Trade openness remain negative as in both pooled and fixed effect results but not significant. This is consistent with Ojeyinka and Adegboye (2017) as they also found a negative relationship between trade liberalisation and manufacturing output. The exchange rate volatility is negative and statistically significant. This is consistent with Sani, Hassan and Azam (2016). Inflation positively impacted manufacturing sector but not significant. This is line with Onakoya, Fasonya and Babalola (2012) and Ojeyinka and Adegboye (2017) who found negative relationship between inflation and manufacturing sector.

The negative impact of trade openness on manufacturing sector is not surprising as trade openness open doors for the importation of varieties of manufactured products from developed countries which leads to the low demand for the local manufactured products. The superior quality of imported manufactured products make it more desirable and preferable to local manufactured products in sub-Saharan Africa and this has negatively impacted the manufacturing industries. The coefficients of interest rates are not statistically significant in any of the estimations therefore conclusions can not be drawn. However, Raufu, Morgan and Alan (2018) found in their study a negative relationship between interest rate and industrial output in sub-Saharan African. The positive and significant impact of physical capital on manufacturing sector is an indication that physical capital contributes to manufacturing development of sub-Saharan Africa. The availability of basic infrastructure such as good roads, electricity and other facilities could lead to the increase in output of manufacturing sector. For instance, the availability of constant and regular power supply will reduce the cost of production of the manufacturing sector. The reduction of cost of production enables the industries to lower the price of their products and as a result the demand for their product will increase.

The negative and significant impact of exchange rate volatility on manufacturing sector shows that manufacturing sector is unable to cope with volatility of exchange rate in sub-Saharan Africa. The negative impact of the exchange rate volatility could be traced to two links in sub-Saharan Africa. The first link has to do with raw materials of the manufacturing industries. Most of the manufacturing industries in sub-Saharan Africa depend on imported raw materials and the volatility of the exchange rate affect the prices of the imported raw materials. In case of depreciation of currency, the prices of raw materials will be very high and this will affect the volume of raw materials demanded by the manufacturing industries which in turn reduced their output. Though the depreciation of currencies in sub-Saharan Africa should lead to increase in exportation of manufacturing products because depreciation makes the manufactured products exported to be cheaper but the demand for Africa manufacted products in

developed countries is very low. The second link has to do with the output of the manufacturing sector. The volatility of exchange rate has direct impact on the output of the manufacturing sector. The appreciation of currency in sub-Saharan Africa makes imported manufactured products cheaper which reduces the demand for the local manufacturing products while on the other hand the appreciation of local currency makes the prices of the exported products high and this will lead to decrease in demand for the exported goods.

CONCLUSION AND RECOMMENDATIONS

Conclusion

This study empirically examined how volatility of exchange rate impacted manufacturing sector in sub-Saharan Africa. The results of various studies on the relationship between exchange rate volatility and manufacturing sector have produced mixed results in the literatures. The results of this study indicated that volatility of exchange rate has significant negative impact on manufacturing sector in sub-Saharan Africa during the study period.

Recommendations

Based on the inverse relationship found between exchange rate volatility and manufacturing in this study, it is recommended that the government of sub-Saharan African countries must take the necessary steps and policies to reduce importation particularly the raw materials use by the industries in the region. Since it has been discovered the exchange rate volatility have greater effect on the manufacturing and the economy at large when the importation is high. In addition, all the goods that are being imported but they can be produced locally must be reduced. This will expand the market for the locally produce goods and prevent them from unnecessary competition with imported goods and hence reduced the impact of exchange rate volatility. The government must also provide conducive environment for the smooth operation of the manufacturing sector. Regular electricity supply, good roads, water supply and other infrastructure facilities that will enable the industries to operate at the minimum cost must be provided as all these will lead to increase in output.

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Does stock market development promote economic growth? A bounds testing analysis for Bangladesh

Md. Abu Hasan

Assistant Professor of Economics, Bangladesh Civil Service (General Education), Ministry of Education, Bangladesh

e-mail correspondence: hhafij@yahoo.com

Abstract

The aim of this paper is to investigate the linkage between stock market development and real economic growth in Bangladesh using time series data from 1981 to 2017 employing Autoregressive Distributed Lag (ARDL) bounds testing cointegration procedure and Error Correction Model (ECM). The bounds testing cointegration procedures reveal that stock market size has a significant long run impact on real economic growth in Bangladesh at 5% significance level. The results of the estimated ARDL-ECM models show that a highly significant long-run causality is directing from stock market development to real economic growth. The negative and significant error correction term implies that 81% of the last year's disequilibrium is corrected this year by changes in real economic growth. Finally, we find that there is no causality running between real economic growth and stock market development in the short run. Stock market performance prompts real economic growth in the long run though the contribution of the stock market in Bangladesh related to money market is still in a transition period. Moreover, bank dominating financial system of Bangladesh is nearly seeming close to the catastrophe bring about by massive nonperforming loans and series of banking scams. Thus, policymakers of Bangladesh should give a boost to the stock market as a complimentary financial system with the banking sector such that economic growth will be contributed better than the results of this study demonstrate.

Keywords: *Economic Growth, Stock Market Size, Autoregressive Distributed Lag (ARDL) Model, Error Correction Model (ECM).*

JEL classification: L11, O47, D40.

INTRODUCTION

Researchers and policy makers pay a lot of attention to find out the ways in which economic growth can be enhanced as it is judged as the prime economic objective for any economy. Since stock market is considered as an engine for growth, this study pays a special effort to better understand the relationship between stock market development and economic growth. From the time when the pioneering contributors, such as, Schumpeter (1934), Goldssmith (1969), Shaw (1973) and McKinnon (1973) reveal the positive relationship between financial development and economic growth, the thought generates an important issue of debate. In their literature, Ahmed and Mmolainyane (2014) argue that the causal relationships between financial development and economic growth are sketched along three lines: (i) financial

deepening promotes economic growth, (ii) economic growth stimulates financial development and (iii) financial development and economic growth influence each other. Shaw (1973) and McKinnon (1973) contend the link from financial deepening to growth, while Goldssmith (1969) supports the opposite direction. More interestingly, Luintel and Khan (1999) find the bi-directional causality between financial development and economic growth. Though, the initiatives of relating economic growth to the financial development have performed long ago, that mainly emphasized the role of the banking sector in economic growth.

In the past few decades, the world stock markets obtained more attention in consequence of the growing importance to allocate the necessary capital required for the consistent growth of the economy. The economic theory suggests that the stock market impacts on aggregate demand through aggregate consumption, savings and investment. A well- performed stock market must increase savings, which leads to allocate capital to the industries for productive investments, and it must generate new employment, more output, and finally an increase in the rate of economic growth. Moreover, a substantial body of literature suggests that financial market development plays a significant role in economic growth through fostering savings mobilization, easing risk management, promoting technological transfer and reducing information and transaction costs (Ahmed and Mmolainyane, 2014). Accordingly, researchers have been focused research on the impact of stock market development on economic growth as the issues contain various implications. A handsome amount of study resolve on the ambiguous relationship between stock market development and economic growth for the last two decades. Several studies, such as, Levine (1991), Levine and Zervos (1996), Atie and Jovanovic (1993), Olweny and Kimani (2011), Nurudeen (2009), and Deb and Mukherjee (2008) claim that stock market development significantly promotes economic growth of a country both directly and indirectly. Jahfer and Inoue (2014) find that stock market development causes economic growth, but there is no evidence of causality from economic growth to stock market development in Japan. In contrast, Dritsaki and Melina (2005) reveal a unidirectional causality from economic development to stock market for Greece. Ibrahim (2011) finds a dual-directional causality between the stock market capitalization and real GDP for Thailand. Till date, a few studies in Bangladesh perspective also reveal the ambiguous results. Applying Johansen Cointegration and VECM, Hasan et al. (2017) find a bi-directional causality between real economic growth and stock market development in Bangladesh for the period from 1981 to 2014. They comment that real economic growth leads to stock market capitalization ratio and turnover ratio in Bangladesh, while turnover ratio leads to economic growth. Hossain and Kamal (2010) investigate the causal relationship between stock market development and economic growth in Bangladesh using the Engle-Granger causality and ML tests. They reveal that the stock market development strongly influences the economic growth in Bangladesh economy, but there is no causation from economic growth to stock market development. In contrast, Haque and Fatima (2011) explore the relationship between stock market development and long run per capita growth rate of Bangladesh. Employing two dynamic panel models for the sample period of 1980 to 2007, they find that stock markets in Bangladesh have no influence on the real economic activity.

The present study examines the link between stock market development and the economic growth in Bangladesh as rare studies have been done so far in the context of Bangladesh. Moreover, since 1990 to 2017, average real GDP growth and average stock

market size increased at average 5.51% and 11.29% respectively. Thus, there should a relationship between economic growth and stock market as the economy is growing associated with stock market. Al-Jafari et al. (2011) explore that over the past several decades, emerging countries have experienced persistent and high rates of economic growth. They also comment that while many factors explain economic growth, trade and capital market liberalization have played an important role.

The present study follows this line of thinking and sets the specific objectives are to investigate the existence of long run relationships between stock market development and economic growth, and to examine the direction of causal relationships between stock market development and economic growth. Economic growth is a straightforward concept. It is measured by the growth rate of real GDP at constant prices. Stock market development is a multi-dimensional concept. It is generally evaluated by stock market size, market liquidity, market concentration, market integration and the legal rule in the market. This study uses market size and market liquidity as a measure for stock market development of Bangladesh. The conceptual framework as brought out from the literature review in this study is illustrated in the figure 1 below.

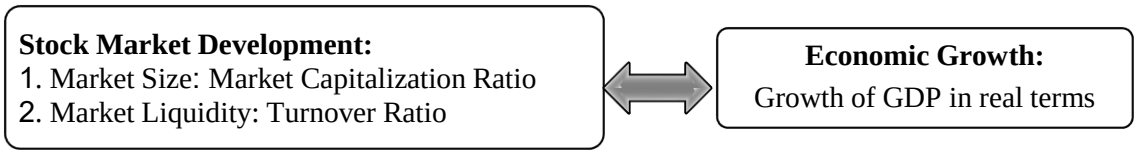

Figure 1. Conceptual Framework

This study contributes to the existing literature in numerous ways. First, to the best of our knowledge, this is the first study to explore the association between stock market development and the economic growth employing ARDL-bounds testing method in reference to Bangladesh. Second, this study uses data since 1981 to 2017, while the Dhaka Stock Exchange (DSE) restarted its trading only in 1976 after the independence in 1971. Thus, this study will provide valuable insights. Finally, the results of the study will add valuable knowledge to the existing literature in terms of an emerging economy.

METHODOLOGY

Data and data sources

Bangladesh has two stock exchanges: Dhaka Stock Exchange (DSE) and Chittagong Stock Exchange (CSE). Dhaka Stock Exchange is the oldest and largest stock exchange in Bangladesh. Thus, the study purposefully selects DSE as a sample of the stock market of Bangladesh. On the other hand, the performance of the overall economy is targeted and measured by the growth in GDP in constant prices. The current study concentrates on Bangladesh economy covering a period of thirty seven years (1981-2017). Any study of stock market development should preferably be based on monthly data. But given the fact that monthly GDP figures in Bangladesh are not available, the study uses yearly data of GDP growth rate and indicators of stock market development.

This study uses market size and market liquidity as a measure for stock market development of Bangladesh. Specifically, we use the following indicators of stock market development:

Market Size: The market capitalization ratio is the main indicator that used as a measure of stock market size and depth. The Market Capitalization Ratio (MCR) is defined as the market capitalization of stocks divided by GDP i.e., Market Capitalization to GDP $= \frac{\text{Stock Market Capitalization}}{\text{GDP in Current Market Price}} \times 100$. In terms of economic significance, market size, i.e., market capitalization ratio is positively related with the ability to mobilize capital and diversify risk on an economy.

Market Liquidity: Stock market liquidity is the ability of a market to easily buy and sell securities without having to reduce its price very much. The turnover ratio is the main indicator that used as a measure of stock market liquidity. The Turnover Ratio (TR) ratio measures stock market trading compared with the size of the Economy. Turnover Ratio $= \frac{\text{Value of Shares Traded}}{\text{Stock Market Capitalization}} \times 100$. A small liquid market generally has a high turnover ratio.

Data of market capitalization, turnover, GDP in current local prices and real GDP growth rate are collected from various issues of the Monthly Economic Trend published by Bangladesh Bank, Bangladesh Economic Review (2017), Arif (2014) and World Development Indicators of World Bank (2017).

Econometric analysis

The study uses quite a lot of econometric analysis to investigate the relationship and the direction of causality between the stock market development and economic growth in Bangladesh. Unit root tests and Autoregressive Distributed Lag (ARDL) bounds testing cointegration analysis are used to test the stationarity and multiple long run relationship respectively. ARDL-Error Correction Model (ARDL-ECM) is employed to test the long run causality, short run to long run dynamic adjustment of the system of cointegrated variables and the short run causality among the variables.

Testing for stationarity

The first step of the econometric analysis requires a test for stationarity considering that the variables selected in this paper are time series which are usually non-stationary. Two extensively used unit root test, namely, Augmented Dickey Fuller (ADF) and Phillips-Peron (PP) test are employed to avoid the problem of spurious regression and to examine the stationarity of the time series. ADF is the augmented form of Dickey Fuller test. The ADF test is performed using the following equation:

$$\Delta Y_t = \alpha + \beta T + \gamma Y_{t-1} + \delta_i \sum_{i=1}^{m} \Delta Y_{t-i} + \varepsilon_t \quad \text{..... (1)}$$

where α is an interecpt (constant), β is the coefficient of time trend T, γ and δ are the parameters where, $\gamma = \rho - 1$, ΔY is the first difference of Y series, m is the number of lagged first differenced term, and ε is the error term.

Phillips and Perron (1988) have developed a non-parametric unit root conception. The PP test is modified from Dickey-Fuller test so that serial correlation does no longer affect their asymptotic distribution. The PP test test is performed using the following equation:

$$\Delta Y_t = \alpha + \beta T + \gamma Y_{t-1} + \varepsilon_t \quad \text{.....} \quad (2)$$

where α is a constant, β is the coefficient of time trend T, γ is the parameter and ε is the error term.

ARDL Bounds Cointegration and Error Correction Model

The ARDL bounds testing procedure of cointegration are sequentially developed by Pesaran and Pesaran (1997), Pesaran and Shin (1999), and Pesaran, Shin and Smith

(2001). Pesaran and Shin (1999) argue that ARDL bounds test method is relatively more efficient and performs better in small data sizes, while Johansen and Juselius cointegration model needs larger samples for the results to be valid. We employ the ARDL model as the variables selected in this study are in mixed order and ARDL model provides robust results for small sample sizes as in the case in this study. We construct the long-run models as follows:

$$GDP_t = \alpha_1 + \beta_1 MCR_t + \beta_2 TR_t + \varepsilon_{1t} \quad \text{..... (3)}$$

$$MCR_t = \alpha_1 + \beta_1 GDP_t + \beta_2 TR_t + \varepsilon_{1t} \quad \text{..... (4)}$$

$$TR_t = \alpha_1 + \beta_1 GDP_t + \beta_2 MCR_t + \varepsilon_{1t} \quad \text{..... (5)}$$

where α_i are intercept terms, β_i are the coefficients and ε_i are the error terms.

Equation (3), (4) and (5) can be written in the following conditional error correction model (ECM) version of the ARDL in order to carry out the bounds testing procedure:

$$\Delta GDP_t = c_1 + \pi_1 GDP_{t-1} + \pi_2 MCR_{t-1} + \pi_3 TR_{t-1} + \sum_{i=1}^{\rho} \theta_i \Delta GDP_{t-i} + \sum_{i=1}^{\rho} \emptyset_i \Delta MCR_{t-i} + \sum_{i=1}^{\rho} \delta_i \Delta TR_{t-i} + u_{1t} \quad \text{..... (6)}$$

$$\Delta MCR_t = c_2 + \pi_1 MCR_{t-1} + \pi_2 GDP_{t-1} + \pi_3 TR_{t-1} + \sum_{i=1}^{\rho} \theta_i \Delta GDP_{t-i} + \sum_{i=1}^{\rho} \emptyset_i \Delta MCR_{t-i} + \sum_{i=1}^{\rho} \delta_i \Delta TR_{t-i} + u_{1t} \quad \text{..... (7)}$$

$$\Delta TR_t = c_3 + \pi_1 TR_{t-1} + \pi_2 GDP_{t-1} + \pi_3 MCR_{t-1} + \sum_{i=1}^{\rho} \theta_i \Delta GDP_{t-i} + \sum_{i=1}^{\rho} \emptyset_i \Delta MCR_{t-i} + \sum_{i=1}^{\rho} \delta_i \Delta TR_{t-i} + u_{1t} \quad \text{..... (8)}$$

where equation (6), (7) and (8) are termed as model 1, 2 and 3 respectively.

The first parts of the above equations represent the long-run dynamics of the models and the second parts show the short-run relationship in which Δ signifies the first difference operator. c_i(i = 1, 2, 3) shows constants, π_i (i = 1..3) denotes coefficients on the lagged levels, θi, ϕ_i and δ_i,(i = 1…ρ) denote coefficients on the lagged variables, and finally u_i(i = 1…3) stands for error terms. ρ signifies the maximum lag length. We estimate the equations (6) to (8) in order to test the long-run relationship where the null and alternative hypotheses are as follows: $H_0 : \pi_1 = \pi_2 = \pi_3 = 0$ (No long run relationship); $H_1 : \pi_1 \neq \pi_2 \neq \pi_3 \neq 0$ (Long run relationship exists). Then we will estimate the long- and short-run coefficients of the same equations only if we find a long-run relationship in the first step.

FINDINGS

Stationarity results

The unit root test results are given in the following Table 1. Both ADF and PP tests are conducted using trend and intercept, intercept, and none term of the models. The findings of the ADF and PP tests yield significantly similar results at level and first difference. Nevertheless, both test provides evidence of stationarity of all variables in their first difference. It can be noticed that the null hypothesis of a unit root at the level are accepted in all cases for MCR and TR as test statistics are lower than the critical values. GDP appears to be stationary in the level with intercept, and intercept and trend, however; nonstationary in the level when none term is considered. Since none of the variables are I(2) and the variables are in mixed order, we are decided to use the ARDL bound testing method to detect the presence of cointegration among the variables.

Table 1. Unit root test results

Variables	Augmented Dickey Fuller (ADF)			Phillips-Peron (PP)		
	None	Intercept	Intercept and trend	None	Intercept	Intercept and trend
GDP	0.53	-1.66	-8.30*	-5.56	-3.84*	-10.61*
	(0.83)	(0.44)	(0.00)	(0.47)	(0.00)	(0.00)
MCR	-0.45	-1.16	-2.24	-5.51	-1.23	-2.24
	(0.51)	(.68)	(0.45)	(0.49)	(0.65)	(0.45)
TR	-0.91	-1.81	-2.36	-5.08*	-1.93	-2.56
	(0.32)	(0.37)	(0.39)	(0.00)	(0.32)	(0.30)
∆GDP	-11.2*	-4.44*	-4.43*	-5.48*	-22.03*	-21.62*
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
∆MCR	-5.49*	-5.49*	-5.42*	-4.65*	-5.48*	-5.40*
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
∆TR	-5.08*	-5.04*	-4.96*	-2.28**	-5.04*	-4.96*
	(0.00)	(0.00)	(0.00)	(0.02)	(0.00)	(0.00)

Note: * and ** indicate stationary at 1% and 5% levels respectively using MacKinnon (1996) critical values. P-values are presented in first brackets. 5% critical value is 1.95 for the ADF and PP statistic at level and first differences of the variables.

ARDL Bounds Cointegration and ECM Results

In order to estimate the equation (6) to (8), an appropriate lag length must be determined. Thus, five different criteria, namely Likelihood Ratio (LR), Final Prediction Error (FPE), Akaike Information Criteria (AIC), Schwarz Information Criteria (SIC) and Hannan-Quinn Information Criteria (HQ) are used to determine the lag lengths used in the VAR. Table 2 presents the results for each criterion with a maximum of 4 lags. It is clear that LR, FPE, SIC and HQ criteria stand in favor of 1 lag, while AIC criteria suggests for 4 lags.

Table 2. Optimal lag lengths of the VAR model

Lags	LogL	LR	FPE	AIC	SIC	HQ
0	-322.87	NA	75806.36	19.75	19.89	19.79
1	-269.13	94.44*	5056.07*	17.04*	17.58*	17.22*
2	-261.43	12.13	5558.65	17.12	18.07	17.44
3	-254.93	9.06	6726.83	17.27	18.63	17.73
4	-241.64	16.10	5598.38	17.01*	18.78	17.60

Note: * indicates lag order selected by the criterion.

The presence of residual serial correlation makes the result less efficient. Thus, we proceed to conduct Lagrange Multiplier (LM) tests for each suggested lags up to maximum 4 lags (Table 3). The p-values associated with the LM tests strongly reject the presence of serial correlation in the estimated residuals generated from VAR (1) and VAR (4) model. Though, we can accept either VAR (1) or VAR (4), we decide to accept VAR (1) model for cointegrating analysis as sample sizes of this study are small.

Table 3. Residual serial correlation LM tests for the VAR model

Lags	4 Lags		1 Lag	
	LM-Stat	P-Values	LM-Stat	P-Values
1	7.91	0.54	14.28	0.11
2	5.52	0.79	5.95	0.75
3	4.53	0.87	9.30	0.41
4	11.97	0.22	11.29	0.26

Table 4 shows that the computed F- statistics for three ARDL(1,1,1) models based on the Schwarz Information Criteria (SIC). The computed F- statistics for model 1 is 6.15 that is higher than the upper bound critical value of 5 at 1% level of significance. The computed F- statistics for model 2 and 3 are 0.59 and 1.41 respectively that are lower than the upper bound critical value of 3.87 at 5% level of significance. Therefore, the long-run relationship among the variables exist when real economic growth (GDP) is dependent on stock market development (MCR and TR).

Table 4. Results of ARDL bounds cointegration test

Model: Dependent variable	Forcing variables	F-Statistics	5% Critical bounds		1% Critical bounds		Remarks
			I(0)	I(1)	I(0)	I(1)	
1: GDP	MCR and TR	6.15*	3.1	3.87	4.13	5	Present
2: MCR	GDP and TR	0.59	3.1	3.87	4.13	5	Absent
3: TR	GDP and MCR	1.41	3.1	3.87	4.13	5	Absent

Note: * denotes rejection of the null hypothesis at the 1% level.

Table 5 illustrates the long run coefficients of model 1. The long-run coefficient of MCR is significant at 5% significance level suggesting that market capitalization ratio has a significant long run impact on GDP. The ARDL results for model 1 (when GDP is a dependent variable) show that stock market development is positively related with economic growth. The result implies that a 100% increase in market capitalization ratio contributes to 7% increase in GDP in Bangladesh.

Table 5. Long-Run coefficients for ARDL (1, 1, 1): model 1

Model	Variable	Coefficient	P-value	Long-run cointegration equation
1: GDP	MCR	0.07**	0.02	GDP = 4.24 + 0.07 MCR + 0.01 TR
	TR	0.01	0.51	

Note: * denotes the coefficients are significant at the 5% level.

The short-run dynamics along with the error correction term (ECT) results are reported in Table 6. The results of the estimated ARDL-ECM models clearly indicate that the coefficients of error correction terms of the model 1 is negative and statistically significant at the 1% level of significance. It suggests that a highly significant long-run causality is also directing from stock market development (MCR and TR) to economic growth (GDP). The error correction term is -0.81, that implies that GDP requires about seven months to converge to equilibrium after being shocked. In other words, 81% of the last year's disequilibrium is corrected this year by changes in economic growth. But, the ECM results also explore that the short-run impact of the variables on GDP is statistically insignificant.

Table 6. Error correction estimates

Variable	Coefficient	Std. Error	t-statistic	P-value
D(MCR)	-0.02	0.05	-0.36	0.72
D(TR)	0.01	0.01	1.01	0.32
CointEq(-1)	-0.81*	0.16	-5.20	0.00

Note: * denotes the coefficients are significant at the 1% level.

In order to verify the robustness of the models, diagnostic checking of the estimated models have been carried out in terms of conventional multivariate residual-based tests for serial correlation, normality and heteroscedasticity (Table 7). At 5%

level of significance, the Lagrange Multiplier (LM) test for autocorrelation indicates the absence of autocorrelation and ARCH Chi-square test for heteroskedasticity indicates the absence of heteroskedasticity. The model also passes the Jarque- Bera normality test at 5 percent suggesting that the error is normally distributed in the models.

Table 7. Results of diagnostic tests

	Diagnostic tests		
	Serial correlation LM	ARCH heteroskedasticity	Jarque-Bera normality
Statistics	3.49	0.48	0.69
P-Value	0.07	0.49	0.71

Finally, cumulative sum of recursive residuals (CUSUM) and cumulative sum of squares of the recursive residuals (CUSUMSQ) tests are employed to test for parameter stability. Figure 2 plots the CUSUM and CUSUM of squares statistics. The plotted points for the CUSUM and CUSUMSQ statistics stay within the critical bounds of a 5% level of significance. Thus, these statistics confirm the stability for all coefficients of the estimated equations.

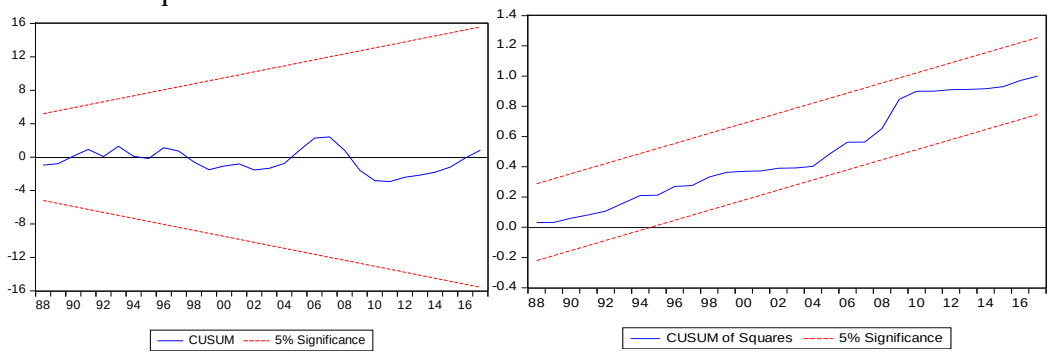

Figure 2. Plots of CUSUM and CUSUMSQ stability test

The long run results of the present study consistent with Shaw (1973), McKinnon (1973), Nurudeen (2009) and Jahfer and Inoue (2014) as well as some other studies that stock market development stimulates economic growth. Our findings are not consistent with the results of Boubakari and Jin (2010) as they reject any direction of causality between stock market and economic growth in the countries where the stock markets are small and less liquid. Contrary to Haque and Fatima (2011), this study finds an evident partially similar to Hossain and Kamal (2010) and Hasan et al. (2017) that stock market development causes economic growth in the long run in Bangladesh.

CONCLUSIONS AND RECOMMENDATIONS

Conclusions

Employing the bounds testing cointegration procedure and ARDL-error correction model, this paper investigates the long run and short run dynamics of stock market development and economic growth in Bangladesh over the period from 1981 to 2017. The bounds testing cointegration procedures reveal that a significant long-run relationship among the variables exist when real economic growth (GDP) is dependent on stock market size (market capitalization ratio-MCR) and stock market liquidity (turnover ratio-TR). The long-run coefficient of MCR is significant at 5% significance level suggesting that stock market size has a significant long run impact on real

economic growth. Specifically, the result implies that a 100% increase in market capitalization ratio contributes to 7% increase in real economic growth in Bangladesh. The results of the estimated ARDL-ECM models show that a highly significant long-run causality is directing from stock market development (MCR and TR) to real economic growth in Bangladesh. The error correction term implies that 81% of the last year's disequilibrium is corrected this year by changes in real economic growth. Finally, we find that there is no short run significant relationship existed between stock market development and economic growth in Bangladesh.

Recommendations

Stock market performance prompts real economic growth in the long run though the contribution of the stock market in Bangladesh related to money market is still in a transition period. Thus, policymakers of Bangladesh should give a boost to the stock market as bank dominating financial system of Bangladesh is nearly seeming close to the catastrophe bring about by massive nonperforming loans and series of banking scams. The studies, such as, Garcia and Liu (1999) and Dima, Dinca and Spulbar (2014) may be a strategic way out for the policymakers of Bangladesh as they uncover that capital markets' development supports a stable evolution in the banking sector. Finally, we can comment that stock market of Bangladesh may be a complimentary financial system with the banking sector such that economic growth will be contributed better than the results of this study demonstrate.

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Competences of municipalities in waste economy

Eva Mihaliková[1)]; Katarína Čulková[2)]; Marcela Taušová[2)]; Tomáš Pavlik[3)]

[1)] Department of Economy and management of public administration Faculty of public administration, University UPJŠ Košice, Slovakia
[2)] Institute of Earth sources, Faculty BERG, Technical University Košice, Slovakia
[3)] Faculty BERG, Research Department, Technical University Košice, Slovakia

e-mail correspondence: katarina.culkova@tuke.sk

Abstract
Healthy living environment is basic factor of modern society, orientated to the sustainable development. Waste economy presents activity, orientated to the avoiding and limitation of waste rising and decreasing of their negative impacts to the living environment. Slovak Republic gives to the tasks of living environment intensive attention from the view of legislative and economic measurements. Every year financial means are invested to the protection of living environment and there is created database and system for monitoring of living environment situation. Contribution is orientated to the competence of municipalities in area of waste economy. The goal is to analyze volume of fees from communal waste that present part of tax incomes for municipalities and to show its development in relation to produced volume of waste. During elaboration of the contribution we resulted first of all from the content law of waste and local taxes and fee for communal waste. Results show presently increasing of environmental awareness of public, resulting in decreasing production of mixed communal waste and increasing separated waste. Such situation could contribute to the support of circular system of economy in the country.

Keywords: waste economy, municipality, communal waste, fees of communal waste, Slovakia.

JEL classification: Q57, Q58

INTRODUCTION

Waste economy presents activity, orientated to the avoiding and limitation of waste rising and decreasing of their negative impacts to the living environment. The concrete tasks of waste economy are to avoid waste rising, limitation of their creation, evaluation of waste by the way of recycling, repeated using or other processes, enabling to obtain secondary raw materials, and to use waste as energy source and to make waste disposal by the way that would not threaten health of people and not damaging living environment over the level determined by the law (Sedláková, 2011).

As the most important strategic document in area of waste economy can be considered Program of waste economy in the country, processed in accord with demands of sustainable development and regarding open negotiations of European Union, connected with closed economy and outlook plan of waste economy strategy to the future in the frame of prepared „waste package“ that has to change considerably the way of waste processing in favor of their recycling and sustainable development of

recycled wastes using with goal to provide rational using of natural sources (www.envipak.sk).

Basic goal of waste economy is therefore increasing of measure of waste evaluation with orientation to their preparation to the repeated using and recycling and support of waste rising avoiding. Mentioned goal is determined in accord with demands, resulting from environmental acquis and in accord with waste economy hierarchy. Hierarchy of waste economy is basis of European policy and legislation in area of wastes. It main aim is to minimize negative influences of waste to the living environment and to increase and optimize effectiveness of sources in area of waste economy. Waste economy hierarchy allows storages only in case when there is no possible to avoid waste rising or waste evaluation. Avoiding of waste rising is at the first rank in hierarchy of waste economy (www.odpady-portal.sk). Program of waste rising avoiding in the country should be defined by measurements that are necessary for this goal achievement. Among important measurements with preventive character belong informing of society and correspondent subjects about necessity and advantages of waste rising avoiding, about living cycle of products, propagation of voluntarily tools of environmental policy, propagation of green public procurement, products and services with claim to use environmental brand, information programs for municipalities, orientated mainly to the obligation of new hierarchy of waste economy and to apply voluntarily tools of environmental policy. At the same time there is necessary to increase environmental awareness and informing in area of materials propagation that will be produced from recycled wastes.

In this connection contribution is orientated to the position of municipalities in area of waste economy, since municipalities have in individual areas to care about living environment through correspondent competences, resulting from their original or transmitted competences.

The current effects of rapid development, high population density in large residential areas and pressures on organizations to protect the environment, create a provocative framework for waste management in modern cities. In this area Mišić et al. (2017) studied possible optimizing of capacity for garbage collection with goal to extract solution with minimal trajectory and maximum capacity utilization of trucks for waste collection. Communal waste can provide sanitation and clean energy co-benefits. In this area Laramee et.al (2018) studied wastewater treatment efficiency, energy production, greenhouse gas (GHG) emissions, and financial costs and benefits of communal waste. They identified conditions under which the greatest benefits are likely to accrue. Communal waste can be used also for biogas production that has become a popular topic and valuable source of renewable energy with a potential application in electricity and heat production (Pawlita-Posmyk and Wzorek, 2017).

Waste must be treated by individual elements, it is recommended also due to the sustainability, which demands wastewater management in settlements by community. Element of waste water studied Bahar et al. (2017), provided sustainability index of wastewater sustainable management.

In European Union it is extremely important to develop an adequate system of waste management together with the development of society and economy as a whole. The economy can be supported by waste-to-energy process that is environmentally, economically and socially sustainable and has a potential to produce energy from communal and industrial waste. Energy potential of waste had been studied by Bajić et al. (2015), which can ensure sustainable development as well as energy security.

Households influence the environment every day by doing various activities and, last but not the least, by producing waste (Prášilová et al., 2015). Due to the waste management household´s behavior searching is very important. Waste management at the municipal level in almost all European countries is financed by local taxes, usually by special charges, sometimes by the property tax. Radvan (2016) deals with these possibilities in the frame of V4 countries. The results allow introducing the optimal system of legal regulation of communal waste taxation (www.finance.gov.sk).

METHODOLOGY

During elaboration of the contribution we resulted first of all from the content analysis of Law No 79/2015 about waste and Law No 582/2004 about local taxes and local fee for communal waste and small construction waste as amended. Generally we can state that in area of waste economy municipalities are responsible for economy with communal waste and small construction waste, which had risen in the municipality locality, they must collect local fee for collection, transport and communal waste disposal, and negotiate trespasses in waste economy, providing owner of the waste information location and activity of facilities for wastes economy at the area of the municipality (Sedláková, 2011), providing also database of communal waste for Statistical Office of Slovakia. Communal waste means wastes from households, rising at the areas of the municipality during activities of physical persons and wastes with similar characteristics and structure, which origin can be legal person or physical person – businessman, except of wastes, rising during instant performing of activities, presenting subject of business or activity of legal person or physical person - businessman; waste from households are considered also as waste from real estate, serving for physical person for their individual recreation or parking. Communal wastes are also all waste, rising in the municipality during cleaning of public communications and spaces that are property of the municipality or its administration, as well as during maintenance of public greenery, including parks and cemeteries and other greenery at the lands of legal persons, physical persons and civic associations (www.envipak.sk).

Resulting from the law about wastes municipality is obligatory in connection with communal waste to make except of duties in accord with Law § 10 ods. 1 and § 14 ods. 1: following activities: a) To provide collection and preparation of mixture communal waste, rising at the territory of the municipality; b) To secure installment and performing of selected collection; c) To provide installment and performing of selected collection of communal wastes for paper, plastic, metals, glass and multi-leveled combined materials on base of cardboard; d) To enable producer of electro equipment and producer of transition batteries and accumulators, correspondent third person or organization of producer responsibility to their costs; e) To enable organization responsibility of producer for packages, its costs, collection of selected elements of communal wastes, to which extended responsibility of producers is applied according agreement; f) To provide data in accord with application from organization of producer responsibility; g) To provide according the need at least twice a year collection and preparation of extensive wastes, small construction wastes with volume to 1 m^3 from one physical person in case in the municipality their quantitative collection had not been installed and separately collected elements of communal wastes from households with content of dangerous elements with aim of their evaluation and disposal; this is not applied to the municipality that has not more than 5 000 inhabitants and its locality has collection yard; h) To publish at web site of the seat detail generally reasonable description of whole system for economy with communal wastes, including separated

collection in the municipality; i) To provide according the need at least once a year information campaign, orientated to the increasing of selected collection of biodegradable communal wastes.

Economy with communal wastes can be considered as public service with obligatory character (since its obligation in the municipality is given by the law), but partially it has also facultative character, since way and organization of this service is solved in the municipalities individually and amended in generally binding regulations (Pavlík et al., 2014, p. 145). Those measurements determine also level of local fee from communal waste and small construction wastes. Collection of fee is amended according Law No 582/2004 about local taxes and local fee of communal waste and small construction waste.

Municipality determines fee as multiplication of collection frequency, tax rate and volume of collection vessel that is used also in case of quantitative collection. In case municipality did not introduced quantitative collection, municipality would determine overall fee for certain period, regularly on year per one inhabitant. Municipality results during determination of local fee of communal waste and small construction waste from real costs of the municipality for economy with communal waste. Also costs for collection vessel and mixture communal waste and cost for providing of collection vessels for selected collection of communal waste elements can be included to the fee, when there is no applied extended responsibility. Revenue from mentioned fee is income of the municipality that must be used exclusively for collection, transport, evaluation and disposal of communal wastes and small construction waste.

Fees from communal waste had become subject of our research. During its processing we resulted from two basic documents, mainly Evaluation of results of budget for municipalities and administrations and generally binding regulations of communities. Data had been compared with results of statistical office in area of recorded number of communal waste in between 2012 – 2016 (www.slovak.statistics.sk). Analysis is realized according data, obtained from Ministry of Economy in Slovakia, resulting that local fee of communal waste is part of further tax incomes of the municipality, namely Taxes from goods and services. The fee presents considerable element of specific service of this tax.

RESULTS AND DISCUSSION

Following table 1 illustrates data about fee of communal waste and small construction waste in Slovakian municipalities (CWaCW) in between 5 years.

Table. 1. Fee of communal waste and small construction waste in Slovakia

Indexes	2012	2013	2014	2015	2016
Fee for CWaCW (eur)	141809000	147666000	146322000	149370000	152050000
Number of inhabitants in Slovakia	5410836	5415949	5421349	5426252	5435343
Fee per one inhabitant per day (eur)	0,0718	0,0747	0,0739	0,0754	0,0766
Change (%)	-	4,03	-1,01	1,99	1,62

Source: own processing

According obtained data about fee of communal waste in municipalities in Slovakia we calculated during regarding of inhabitants number value of average fee correspondent per one inhabitant per one day. After application of trend index we found

out percentage change of this index development and we can state increasing trend, except 2013. Value of the fee per one inhabitant had been compared with determined fee in the individual county cities of Slovakia. Data had been obtained from actual generally binding regulations from individual cities and they are mentioned in following table 2.

Table 2. Fee from CWaCW in county cities

Seats of the counties	Overall fee per one person per day (inhabitants)	Quantitative fee (legal person, physical person-businessman)
Košice	0,0859	0,0189 1 liter
Prešov	**0,0549**	0,0175 1 liter
Banská Bystrica	0,08	0,016 per 1 l per 120 l vessel with export 1x per week
Žilina	0,064	0,024 per 1 liter
Trenčín	0,081	0,018256 per 1 liter per 120 l vessel with export 1x per week
Trnava (developed for inhabitants from number of persons in household)	0,08990 – 1 member in household 0,07766 – 2 members 0,06677 – 3 members	0,03707 per 1 liter per 120 l vessel with export 1x per week
Nitra	0,0685	**0,012 per 1 liter**
Bratislava	Not mentioned – using quantitative fee also for inhabitants	0,03017 per 1 liter per 120 l vessel with export 1x per week

Source: own processing according VZN of analyzed cities

According Law No 582/2004 about local fees and taxes from communal waste and small construction waste, fee is paid in the municipality by: a) Every physical person that has in the municipality permanent or temporary residence or that is authorized to use at the municipality area some residential and non-residential space, garden, vineyard, orchard, etc; b) Legal person that is authorized to use or that is using real estate, existing at the area of municipality, but not for business; c) Businessman that is authorized to use or that is using real estate, existing at the area of municipality for the business.

According mentioned fees in Table 2 had been divided to inhabitants (physical persons) and businessmen (legal and physical persons). For inhabitants overall fee had been determined per person and day in all cities, except Bratislava. For businessmen quantitative fee had been determined that was in many VZN described more in detail. The lowest level of fee is marked in the table, which is lowest in Prešov for inhabitants, and in Nitra for businessmen. Following we calculated from given data average value of the fee per inhabitant and day that presented value 0, 07157 euro.

In comparing with average fee, calculated per one inhabitant in Slovakia, the value is around level in 2012. But the fee is determined overall and from strategic documents it results necessity to install quantitative fees, which means application of principle Pay-As-You-Throw. Application of this principle assumes higher discipline of public in relation to the creation and selection of communal waste. Regarding that produced volume and type of communal waste should be according determined fee, in following Table 3 we analyzed trend of change for two mentioned indexes.

Tab. 3. Trend of change at the volume and fee for communal waste

	2012	2013	2014	2015	2016	Change in %
CW volume per inhabitant in kg	323,76	322,24	337,81	348,33	359,77	11,122
Fee for CW per inhabitant in euro	26,21	27,27	26,99	27,53	27,97	6,715

Data had been calculated per one inhabitant, which means volume of produced communal waste in 2016 against 2012 is growing rapidly in comparing with fee for communal waste, namely by 60% approximately, which does not correspond with principle Pay-As-You-Throw. Value of rising volume of communal waste has therefore rising tendency and from the view of the structure other communal waste has the highest rate, when significant part belongs to mixture waste. Also rate of separated waste on total communal waste cannot be evaluated as positive, as illustrated by following Figure 1.

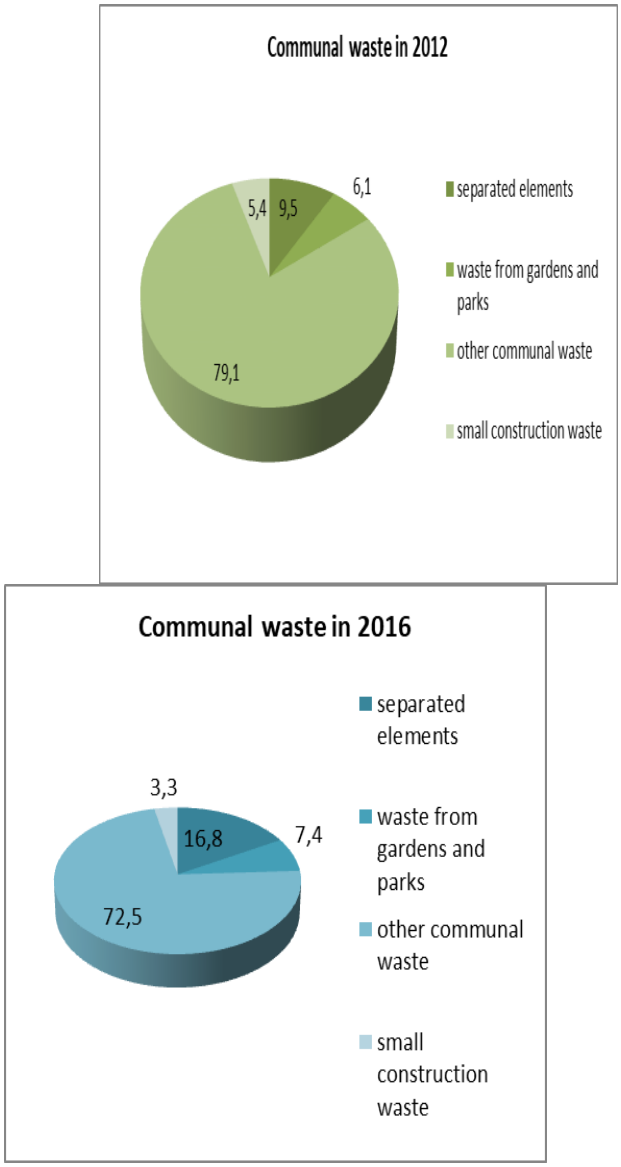

Figure 1 Structure of individual elements on communal waste

From the illustrated graph there is obvious that percentage rate of other communal waste on total volume of communal waste decreased after 4 years by 6,6 % and rate of separated waste on total communal waste increased by 7,3 %, but data are still not satisfied in comparing with other European countries. It is confirmed also by Program of waste economy in Slovakia in 2016 – 2020, which calculates expenses, orientated to the waste economy from 2010 to 2016 to level 414 mil. euro. These expenses had been invested mainly with aim to increase level of separation and evaluation, mainly from communal and biological wastes, but in spite of relatively extended construction of necessary infrastructure Slovakia has still very low measure of separation and recycling of communal waste around the level 16 %.

CONCLUSIONS AND RECOMMENDATIONS

Part of provided public services in municipalities present also services, connected with communal waste. It means mainly activity, connected with collection, separation and transport of communal waste. Mentioned activities present part of program budgets in administration in program „Waste and water economy," belonging to program „Living environment." Programs include limited aims, goals and measurable indexes for given areas. Individual activities must be budgeted with their following and evaluation. Results must be used for leadership of municipalities for decisions – how to decrease waste rising, waste storage, black dumps, how to increase waste separation, how to determine fee, etc.

Contribution was orientated to the analysis of local fee for communal waste that is growing annually, but with slowly trend in comparing with single waste rising. Level of fee is determined for inhabitants mostly overall, for business there is used quantitative fee. Fee for communal waste is part of tax incomes in municipalities, but many times it is not sufficient for financing of all municipality activities in area of waste economy. It assumes that by its increasing and presently increasing of environmental awareness of the public, production of mixture communal waste would decrease and separated waste should increase and it must be evaluated and recycled, which could contribute to the support of circular system of economy in the country.

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Microplastic tracking from Pacific garbage to Northern Indonesia Sea

Agung Ramos[1]; Noir P Purba[1,2]; Ibnu Faizal[2]; Yeni Mulyani[1]; Mega L. Syamsuddin[1]

[1] Marine Science Program, Universitas Padjadjaran km. 21 UBR 40600, West Java
[2] Marine Reseacrh Laboratory (MEAL), Universitas Padjadjaran km. 21 UBR 40600, West Java

e-mail correspondence: noir.purba@unpad.ac.id

Abstract

This study aims to examine the pattern of microplastic waste movement of Pacific Garbage Patch (PGP) that has the potential to enter the north of Indonesia sea. This study very important because microplastic affected the regional tourism activities, water pollution, and economics of fisherman and local society. The impact is very widerange to local and national economics. The method used is a simulation and descriptive analysis. The simulation method used is hydrodynamic simulation and trajectory of particles conducted for 365 days in 2016. The study areas in this study include eastern Indonesia, the Philippines, and the Pacific Ocean. The data used are wind, tidal, bathymetry, microplastic weight, and microplastic flux. The simulation results show the movement of microplastic at point source 1 tends to the northeast with a clockwise circular motion. The simulation results at source point 2 indicate that the microplastic movement tends to revolve around the source point in a clockwise circular motion. The result of simulation of source point 3 shows that the microplastic movement tends to the north with the circular motion and left-right movement. The displacement of microplastic particles within a year is only 0.11 - 8.94 km from the source point. This study showed that within a year, microplastic waste from PGP does not have the potential to enter the waters of Indonesia.

Keywords: *Pasific garbage patch, Microplastic, Modelling*

JEL classification: Q53, O13

INTRODUCTION

Marine debris is a global issue that concerns the world because marine debris causes many adverse effects on the marine environment, marine biota and threaten the life-sustenance of humans. Of the various types of waste in the sea, plastic is the most widely found waste (UNEP, 2016). In 2010, recorded from coastal areas in 192 countries around the world produced 275 metric tons of plastic waste, with 4.8-12.7 metric tons of waste entering the ocean (Jambeck, et al., 2015). In Pangandaraan and Biawak Island found that plastics is the most trash (Purba et al., 2017; Purba et al., 2018). In the world, there are several places that are central to the concentration of marine debris, namely the North Pacific, South Pacific, North Atlantic, South Atlantic and the Indian Ocean. Of all the marine debris in the world's oceans, 55.6% of the total particles and 56.8% of the total

plastic waste are in the ocean in the northern hemisphere, where 37.9% of the particles and 35.8% of the plastic mass located in North Pacific Ocean. The North Pacific Ocean is the region with the largest concentration of marine waste in the world as there are 199 x 1010 pieces of plastic with a total weight of 96,400 tons (Eriksen, et al., 2014), and the number of plastic pieces categorized as microplastic already exceeds the number of planktons in the Ocean with a ratio of 6: 1 (Moore, et al., 2001). This causes the North Pacific Ocean to be nicknamed the "Great Pacific Garbage Patch" (PGP). While in the southern hemisphere, the concentration of marine debris is mostly in Hindia Ocean. The number of garbage particles in the Indian Ocean is more than the combined garbage particles in the South Atlantic Ocean and the South Pacific Ocean.

The important of this research because the microplastic will flows to Indonesia water via several circulation. The first impact is to Coral Triangle area include Raja Ampat and Maluku Sea. Coral Triangle (CT) have sixteen ecoregions of the world have >500 species; these define the CT and reveal its internal components to the level or resolution (Veron, et.al 2010). Coral Reef as Ecosystem give many economy benefit to society such as resource for food and tourism. Many groups and cultures rely on local resources for food, livelihoods and raw materials (Pilgrim, et. al 2008). Biodiversity loss and food insecurity are two of the greatest challenges of the 21st century (Rockstrom, et.al 2009).

Coral reef based tourism in the Coral Triangle region is responsible for economic benefits. Tourism, directly or indirectly, accounts for around 10 percent of the world's gross domestic product (US$7.6 trillion annually), (Huang & Coelho, 2017). These two issues had related correlation with marine debris. marine debris can disturb waters column, alter the acid or even cover the coral reefs. the coral reef will deaths that result in the decline of the biota that leaves the ecosystem, one of which is the fish as a source of food. The presence of marine debris also disrupt the aesthetic elements of the waters which can reduce the interest of tourists from visiting because the waters are polluted by marine debris.

Laws exist on land and at sea related to litter and debris, as well as other pollution forms. The problems exist and continue due to human-influenced activities that result in pollution being introduced into the environment and economic problem (Sheavly, 2004).

METHODS

Area of study

The study areas cover the western Pacific Ocean to the northern waters of Indonesia. This area of research includes coordinates of 32^{o} N - 1^{o} S and 120^{o} - 163^{o} E as shown in Figure 1. The North Pacific Ocean Region became the beginning of the study area because this region is the center of the largest concentration of marine waste in the world or better known as Great Pacific Garbage Patch (UNEP, 2016).

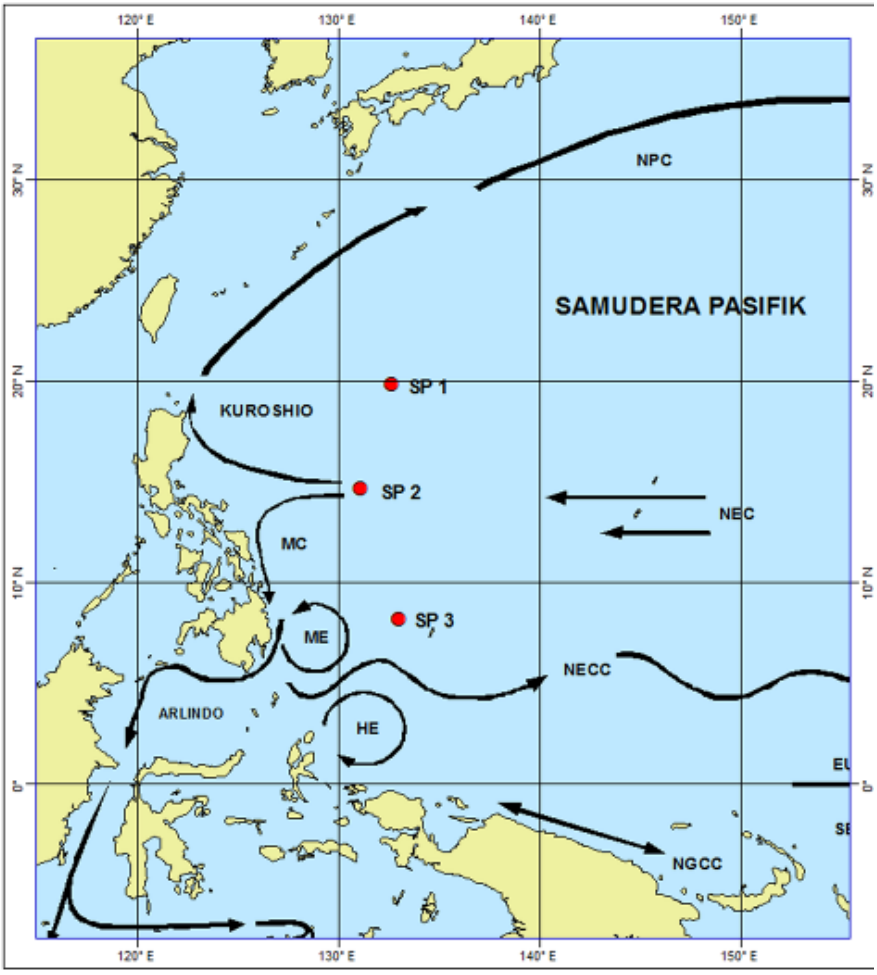

Figure 1. Area of study

Modelling data

The materials used in this research include marine physical parameter data consisting of current data, bathymetry data, tidal and wind data, and garbage data covering waste type, waste weight and flux of microplastic waste. These data are secondary data obtained from several sources.

Table 1. Data of modelling

Data	Source
Bathymetri	*General Bathymetric Chart of The Oceans* (GEBCO)
Tide	*Intergovernmental Oceanographic Commission of UNESCO* (IOC-UNESCO)
Wind	*European Centre for Medium-Range Weather Forecasts* (ECMWF)
Marine Debris	*United Nation Environment Programme* (UNEP)

Modeling in this research is done in 2 (two) modeling stage, Hydrodynamic modeling, and Particle Tracking modeling. The first stage is the modeling of hydrodynamics to model the dynamics of seawater in the West Pacific Ocean, Sulawesi

Seas to Makassar Strait. The second stage is modeling to track the movement of trash particles moving from the Western Pacific Ocean to Indonesian waters. Modeling is done within one year, throughout 2016 with intervals every six hours. Furthermore, modeling results will be analyzed by a descriptive method to see the description of a marine waste phenomenon that occurred within the scope of the research area.

RESULTS AND DISCUSSION

Oceanography

In making the modeling of the study area, there are several treatments so that the results of the modeled region may differ from the actual situation. Philippines comprising archipelagic clusters, engineered into a single unity of large islands and some small islands were eliminated. It aims to see the microplastic same movement of the Pacific Ocean without anyone entering the Philippines archipelago and focusing on its northerly movement (Kuroshio influx) and the southward movement (the influence of Mindanao Stream).

The Indonesian archipelago is also undergoing an engineering process, one of which is the removal of several small islands leaving only the major islands, namely Kalimantan, Sulawesi, Papua, and Maluku. Unlike the Philippines, the archipelago is not united as a single island. It aims to not close the path of microplastic waste from the Pacific Ocean to Indonesian waters. The water mass from the Pacific Ocean assumed to carry microplastic waste can enter Indonesia through the ARLINDO line that includes the Maluku Sea, Sulawesi Sea and Makassar Strait (Feng et al., 2018).

Since early 2016, the wind speed at an average 3 - 10 m/s blown from the northeast. The graph shows the peak of West Monsoon occurred at the end of January 2016 with wind speed reaching 10.95 m / s. The average speed of the wind began to decline from February to May, then the average wind speed began to rise again in June. The graph shows the wind blowing hard to reach its peak in early August with wind speeds reaching 10.83 m / s. This may indicate an East Monsoon peak early in August, but then the wind speed weakens to just blowing at a rate of 0.05 m / s, which is the lowest instantaneous wind speed in 2016. This is in line with research (Wyrtki, 1961), which states that the peak of Western Monsoon an-gin formation occurred in January, while the peak of the East Monsoon wind formation occurred between July and August.

Particle trajectory

The trajectory simulation of microplastic particles is carried out for 365 days with a span of time every 6 hours. A microplastic particle is assumed to have a weight of 0.01 mg. During simulation, the source point is assumed to emit particles as much as 50 mg per second.

The Trajectory of particles on Start Point (SP) 1 can be seen in Figure 2. The point of SP1 is at coordinates 18^{o} N 132^{o} E. The simulation results show that the pattern of microplastic movement on SP1 moves predominantly to the northeast and southwest and forms a vortex clockwise (anti-cyclone). This circular motion pattern occurs continuously throughout the year. The microplastic in SP 1 is more dominantly moving towards the northeast because the Pacific Sub-tropical Flow Flow plays a dominant role in driving the microplastic movement, the dominant movement to the southwest as it is influenced by the Pacific Wind, whereas the circular motion pattern that occurs because SP 1 is still affected by the intersection between the Pacific Sub-Tropical Flow of the Pacific and the Pacific Equatorial Flow so as to form the vortices clockwise.

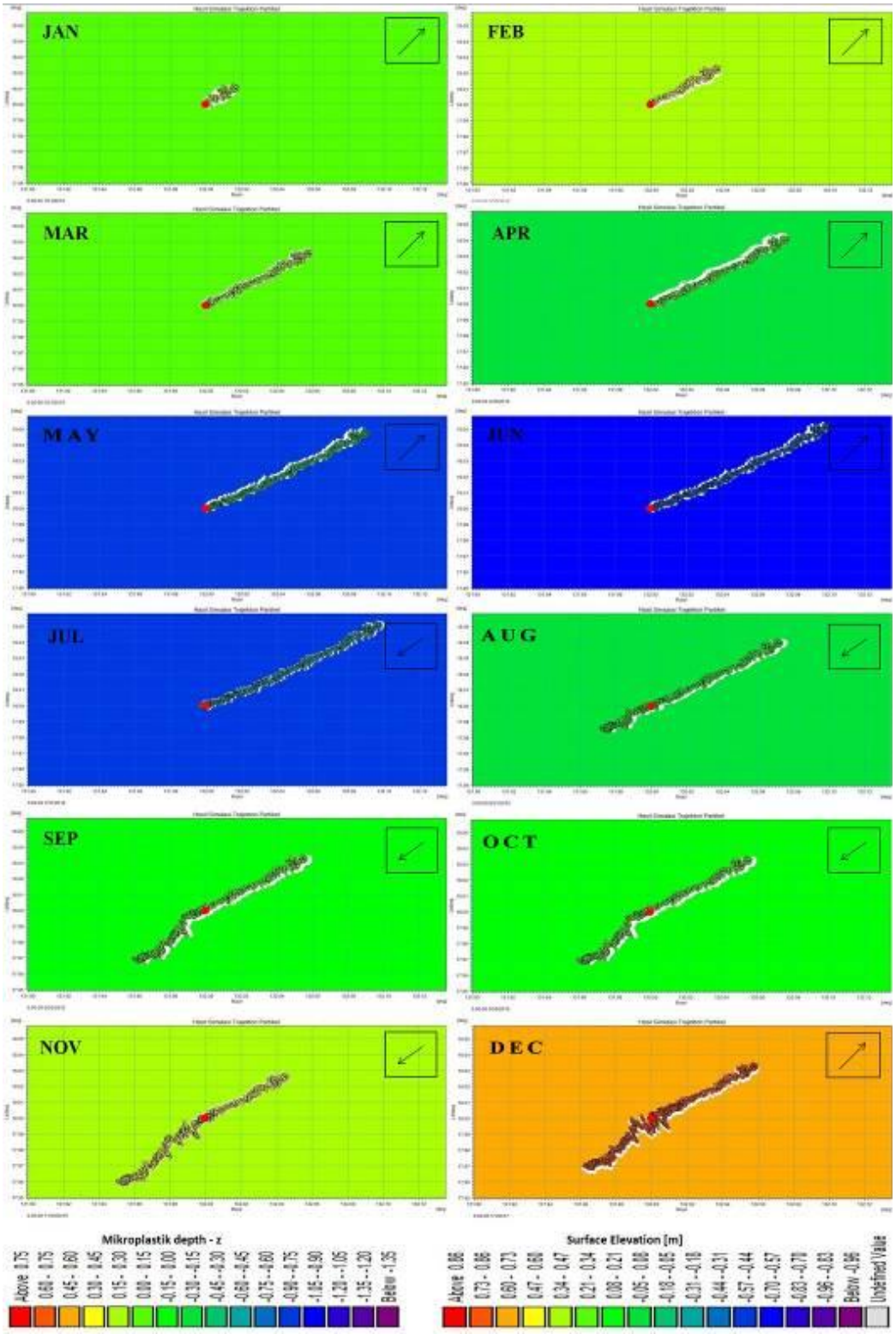

Figure 2. SP1 Simulation Result on Jan-Dec 2016

Start Point 2 (SP2) is the source point located at coordinates 14^{o} N - 131^{o} E, where this point represents waste from the most western Great Pacific Garbage Patch. The visualization of the result of the simulation of the particle trajectory on SP2 can be seen in Figure 3.

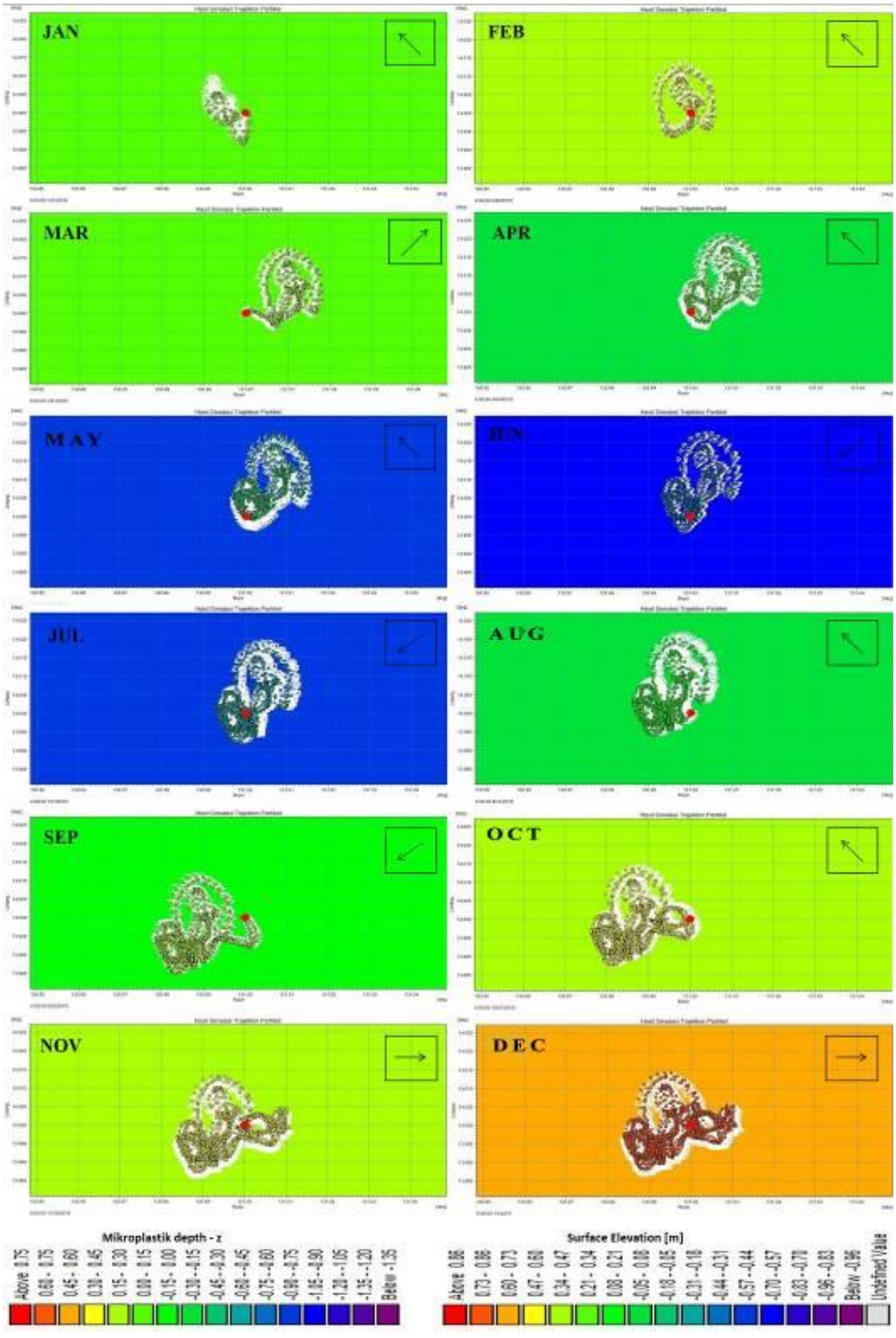

Figure 3. SP2 simulation result on Jan-Dec 2016

The simulation results show that the pattern of microplastic movement in SP 2 forms a vortex clockwise (anti-cyclone). This circular motion occurs continuously throughout the year. This is because SP 2 is in the path of the current 2 currents, the Pacific Equatorial Flow and the Pacific Sub-Tropical Flow Flow. The Pacific Equatorial Current takes the mass of water to the west, whereas the Pacific Sub-Tropical Flow Flow brings the mass of water to the east so that the crosses between these two currents

will create a clockwise whirlpool. This affects the pattern of microplastic movement in SP 2 to be circular motion.

Start Point 3 (SP3) is a source point located at coordinates 8^{o} N 132^{o} E, where this point represents trash coming from the southernmost Great Pacific Garbage Patch. Visualization of simulation result of particle trajectory on SP 3 can be seen in Figure 4.

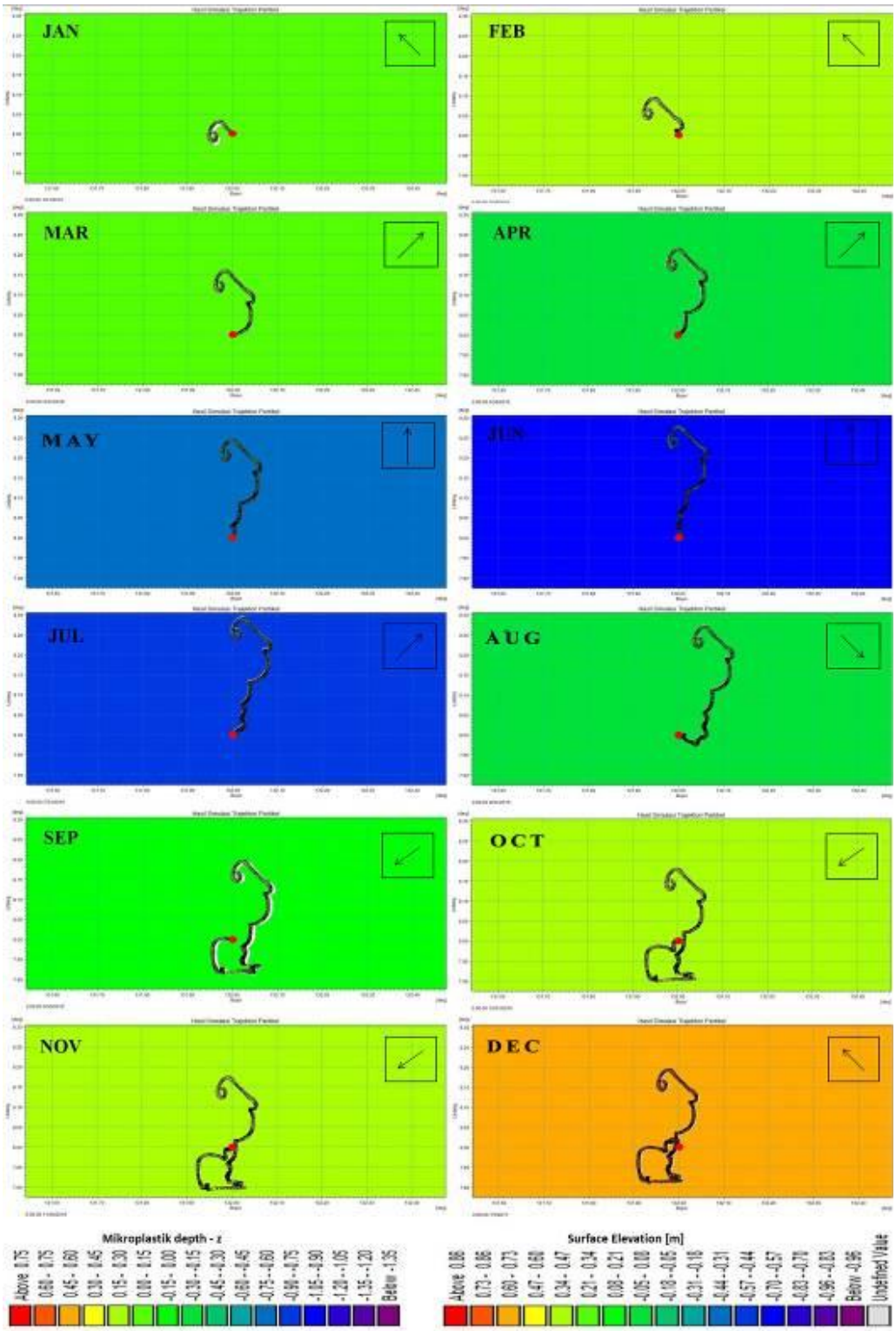

Figure 4. SP3 simulation result on Jan-Dec 2016

The simulation results show that the pattern of microplastic movement in SP 3 shows a fluctuating movement. In January - July, the microplastic tends to move northward. Then in August - November, microplastic particles tend to move towards the southwest. The direction of fluctuating movement is due to the microplastic movement following the different changes of wind direction each season, ie West Wind Monsoon, East Monsoon Wind and Pacific Wind.

The results of the particle trajectory simulations illustrate very different trajectories and movement patterns at each source point of microplastic waste. This is because each source point is on a different path of ocean currents. Point SP 1 is in the path of the Pacific Sub-tropical Backflow, the point SP 2 is at the point of intersection between the Sub-tropical Flow with the Pacific Equatorial Flow, and the point SP 3 is on the Mindanao swirl trajectory. This shows that ocean and wind currents are very influential in the movement and pattern of marine waste distribution (UNEP, 2016).

Ocean debris could ended up in shoreline and makes unattractive and hazardous, and can inhibit tourism. it can also reduce local community's finances, with increased beach maintenance costs. The indirect costs, though, are perhaps even greater. Its presence discourages people from partaking in coastal activities, such as recreational fishing, boating, swimming, or beach going. It even reduce tourists from visiting coastal areas. Most coastal communities rely on seaside businesses for their economic survival (Sheavly, 2004). The presence of debris can losses economy revenue from national and local activities and the marine environment. These impacts can be costly, in case of Goeje Island in Korea loses 29-37 million euro in 2011, from fishing activities 250 million US Dollar from global catch per year (Watkins et al., 2015)

CONCLUSIONS AND RECOMMENDATIONS

Conclusions

Based on the results of the research and discussion conducted, the conclusions can be taken, ie Simulation of the trajectory of the particles shows the furthest microplastic displacement from the source point on the SP 1 is 3.17 km, the SP 2 is 1.35 km and the SP 3 is 8, 94 km. Simulation of the trajectory of microplastic particles for 1 year showed that the microplastic waste sourced from Great Pacific Garbage Patch did not reach the northern waters of Indonesia. But, with the widespread of research in marine debris, the impact of marine debris would be impacted into tourism, fisherman activities, local income especially in east Indonesia with the high diversity of fish and ecosystem.

Recommendations

More complete data is needed, including the data of marine debris found in Pasific Garbage Patch so the determination process of Start Point in the model can be closer to real condition. Longer timelapse modeling and more Start Points are needed to see the comprehensive movement of marine debris. Also, the comprehensif review and research aboout economic loss from marine debris in coastal area.

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Performance evaluation of cocoa marketing in Osun State, Nigeria

Joseph Olumide Oseni[1]; Adewale Isaac Olutumise[2]; Boluwaji Olusola Olutumise[1,3]

[1] Department of Agricultural and Resource Economics, Federal University of Technology, Ondo State, Nigeria.
[2] Department of Agricultural Economics and Extension, Adekunle Ajasin University, Ondo State, Nigeria.
[3] Procurement Department, Engineering Materials Development Institute, Ondo State, Nigeria.

e-mail correspondence: adewale.olutumise@aaua.edu.ng

Abstract
This paper appraised cocoa marketing performance in Osun State, Nigeria. The study specifically examined the costs and returns associated with cocoa marketing, and determined factors affecting cocoa marketing performance in the area. Primary data were used and collected through a well structured questionnaire and focus group discussion session. A multistage sampling procedure was employed to randomly select 120 respondents for the study. The analytical tools used were: descriptive statistics, budgetary analysis and Seeming Unrelated Regression Equation (SURE).The results of costs and returns using budgetary analysis showed that cocoa marketing is a profitable enterprise with a Return on Investment (ROI) of 1.36 which implies that cocoa marketer will realize 36Kobo on each naira expended. Again, percentage profit of over 35% further confirmed that cocoa marketing is a highly profitable venture in the study area. The SURE results showed that age of the cocoa marketers, marital status, household size, years of education, years of marketing experience, marketer institution group, depreciation cost on fixed inputs, number of stores, cost of labour, cost of transportation, season of sales, cocoa bean quality and incidence of theft were statistically significant factors affecting performance of cocoa marketing in the study area.

Keywords*: Cocoa beans, marketing, SURE, profitability, Nigeria*

JEL classification: M31, Q13

INTRODUCTION

Cocoa (*Theobroma cacao*) is one of the promising enterprises that could have the potential opportunities for economic growth and development in Nigeria. It is a key product among the less than 5% exportable products from Nigeria that is officially available in the world market (Nigerian Export Promotion Council [NEPC], 2001).

Based on its numerous benefits, it is one of the options for diversification of the economy from predominantly mono-cultural, which largely depends on crude oil for its foreign exchange earnings (Owofemi, 2008). Again, the value chains in cocoa which ranges from production through marketing to processing can be a good strategy to revitalize Nigeria's economy.

Due to recurrent economic recession and meltdown always experience by

Nigeria's government over the years, the Federal and State Governments in the past have made it a matter of policy to diversify the present over dependence of the country's economy on oil, by focusing on tree crops such as: cocoa and food crop production which is a reflection of the setup of the presidential initiative on the production of these crops (Folayan, Oguntade and Ogundari, 2007). As recorded by Nwachukwu, Ezeh and Emerole (2012), the production capacity of cocoa in Nigeria has reached about 385,000 metric tonnes per annum, an increase of 215,000 metric tonnes from year 2000 production level.

According to International Cocoa Organisation (ICCO) (2016), this increase in production places Nigeria as the fourth largest cocoa producer in the world in the 2013/2014 season based on its production output of 230,000 metric tonnes after Côte d'Ivoire, Ghana and Indonesia. Nigeria further falls from four to seven in the 2015/2016 season with the production output of 190,000 metric tones. However, this is in sharp contrast to 1964, when Nigeria was the second largest cocoa producer in the world. This implies that Nigeria can still compete favourably with other leading world cocoa producers in supplying cocoa to the world market.

As reported by Oladosu and Yekini (2008), in the early forties, the cocoa industries contributed on the average 21.5% of all foreign exchange earned by Nigeria in the world market. Taphee, Musa and Vosanka (2015) also reported that 154,275 tonnes of cocoa were exported in 1993 at the rate of $926 per tonne; thereby contributing a total amount of 71.4297 million naira to the Nigerian economy. Annual production stood at 240,000 tonnes in 2009; about 98% of the cocoa produced were exported. According to the Nigerian Export Promotion Council (NEPC), in 2014 alone, Nigeria recorded the highest export of cocoa and its products valued at ₦ 131.2 billion.

In terms of employment generation, a sizeable number of people either directly or indirectly have been gainfully employed in the cocoa subsector. In addition, it is an important source of raw materials for the industries as well as a source of revenue to the governments of the various cocoa producing states in the Nigeria. Again, the thorough knowledge and understanding of the distribution chain, market trends and developments, and the special characteristics of trading and the exchanges are very germane for anyone to succeed in cocoa business (Ogunleye and Oladeji, 2007).

In spite of the significance of cocoa marketing in terms of employment opportunities, income generation and foreign exchange earnings cum contribution to Nigeria's Gross Domestic Product (GDP), it has been noted by Folayan *et al*. (2006) and Fadipe *et al*. (2012) that cocoa production in Nigeria has witnessed a downward trend after 1971 season. It was therefore observed that its export declined to 216,000 metric tonnes in 1976 and 150,000 metric tonnes in 1986. As a result of this decline, the country's market share reduced to about 6% and to fifth largest producer to date due to a combination of labour shortages and low producer prices.

In recent time, the Federal Government's concern at diversifying the nation's export base has placed cocoa in the centre-stage as the most important export tree crop. However, with the continued decline in the fortunes of the sub-sector an empirical insight into marketing performance and factors affecting level of returns in the sector would be of immense importance to government, policy makers and cocoa marketers. The general objective of this study is to appraise performance of cocoa marketing in Osun State, Nigeria. The specific objectives are to estimate the costs and returns associated with cocoa marketing; determining factors affecting cocoa marketing performance; and identify main constraints to cocoa marketing in the study area.

RESEARCH METHODOLOGY

The study was carried out in Osun State, Nigeria. According to the National Population Census conducted in 2006, Osun State has a population of 3,423,535 people (NPC, 2006). The State consists of thirty Local Government Areas (LGAs). The major ethnic group in Osun State is Yoruba with sub-ethnic groups such as Ife, Ijesha, Oyo, Ibolo and Igbomina and there are also people from other parts of the country. The people of the State are mostly traders, artisans and farmers. The farmers produce food crops such as yam, maize, cassava, beans and cocoyam. The cash crops produced in the State include: cocoa, kola nut and palm produce. Osun ranks the second largest cocoa producing State in the Southwest after Ondo State (Taphee *et al.,* 2015).The State is also rich in mineral resources such as gold, clay, limestone and granites.

Primary data were used for this study which was obtained using a well-structured questionnaire. Multistage sampling procedure was used in selecting the sample size. In stage one, purposive sampling was used to select five Local Government Areas (LGAs) based on their prominence in cocoa production and marketing in the State: Ife South, Ife North, Ife East, Obokun and Atakunmosa East. They were also recognized as major cocoa producing areas where cocoa farmers and marketers can be found. The second stage of the sampling involved random selection of two communities from each LGA and they were: Garage-Olode (a.k.a Awolowo town) and Mefoworade in Ife South; Edunabon and Moro in Ife North; Afeki and Iyanfoworogi in Ife East; Esa-Odo and Ilase in Obokun; Iwara and Igangan in Atakunmosa East. Stage three involved random selection of twelve respondents from each of these communities, making a total of one hundred and twenty (120) cocoa marketers. However, one hundred and twenty (120) copies of the questionnaire were administered but one hundred and seventeen (117) were properly filled and returned.

The data were analysed using descriptive statistics, budgetary analysis and SURE. The budgetary analysis was used to determine the cost and returns from cocoa marketing in the study area. The tool was used to determine the overall gross margin and the Net Market Income (NMI). The Gross Margin and Net Market Income will be estimated using equations 1 and 2:

$$\sum_{i=1,\ldots,n}^{n} GM_i = \mathrm{TVM}_i - \mathrm{TVC}_i$$

$$\sum_{i=1,\ldots,\mathrm{n}}^{n} NMI_i = \mathrm{GM}_i - \mathrm{TFC}_i$$

Where:
GM = Gross Margin
TVM = Total Value of Market (₦)
TVC = Total Variable Cost (₦)
NMI = Net Market Income (₦)
TFC = Total Fixed Cost (₦)
i = 1, 2,3,……,n
n = number of marketers sampled for the study
If GM > 0, then cocoa marketing is considered profitable.

Furthermore, marketing efficiency (ME) of cocoa marketers was evaluated by dividing value added by marketing by total marketing cost multiply by 100 as specified by Olukosi and Isitor (2004) and Farayola *et al*. (2013).

$$ME = \frac{value\ added\ by\ marketing}{total\ marketing\ \mathrm{cost}} x100 \quad or \quad ME = \frac{profit}{total\ market\ \mathrm{cost}} x100$$

Again, the seemingly unrelated regression equation (SURE) of the linear generalized least squares (GLS) system equations approach (Green, 2000) was employed to perform determinants of cocoa marketing performance in the study area. The equation modelled gross margin, profit, benefit cost ratio, market efficiency and total revenue for comparative purpose using socioeconomic characteristics, marketing characteristics and other factors as the independent variable. The equations for marketing performance (gross margin, profit, returns on investment, marketing efficiency and total revenue) were estimated simultaneously using Seemingly Unrelated Regression with homogeneity and symmetry restrictions imposed.

According to Shalabh (1998), Green (2000) and Gujarati and Potter (2009),the basic philosophy of the SURE model is as follows. The jointness of the equations is explained by the structure of the SURE model and the covariance matrix of the associated disturbances. Such jointness introduces additional information which is over and above the information available when the individual equations are considered separately. So it is desired to consider all the separate relationships collectively to draw the statistical inferences about the model parameters.

Implicitly, the equation was expressed as:

$y^* = f(X_1, X_2, X_3, X_4, X_5, \ldots, X_{12}, e_i)$

Therefore, using matrix notation, the system of equations was explicitly expressed as:

$$\begin{bmatrix} y_g \\ y_p \\ y_b \\ y_m \\ y_t \end{bmatrix} = \begin{bmatrix} \alpha_1 \\ \alpha_2 \\ \alpha_3 \\ \alpha_4 \\ \alpha_5 \end{bmatrix} + \begin{bmatrix} X_{11} \ldots X_{15} \\ X_{21} \ldots X_{25} \\ X_{31} \ldots X_{35} \\ X_{41} \ldots X_{45} \\ X_{51} \ldots X_{55} \end{bmatrix} + \begin{bmatrix} \beta_1 \\ \beta_2 \\ \beta_3 \\ \beta_4 \\ \beta_5 \end{bmatrix} + \begin{bmatrix} \varepsilon_1 \\ \varepsilon_2 \\ \varepsilon_3 \\ \varepsilon_4 \\ \varepsilon_5 \end{bmatrix}$$

The equations can be written individually as:

$y_g = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \ldots + \beta_{15} X_{15} + \beta_{16} X_{16} + e_i$
$y_p = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \ldots + \beta_{15} X_{15} + \beta_{16} X_{16} + e_i$
$y_b = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \ldots + \beta_{15} X_{15} + \beta_{16} X_{16} + e_i$
$y_m = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \ldots + \beta_{15} X_{15} + \beta_{16} X_{16} + e_i$
$y_t = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \ldots + \beta_{15} X_{15} + \beta_{16} X_{16} + e_i$

where:
y^* is the dependent variables and they are y_g, y_p, y_b, y_m and y_t for gross margin (₦), profit (₦), return on investment (value), marketing efficiency (%) and total revenue (₦) respectively.
X_1 = Age of marketers (years)
X_2 = level of marketer's education (years)
X_3 = Household size (number)
X_4 = Marital status (married =1 and 0 otherwise)
X_5= Sex (male=1 and female= 0)
X_6= Producer price (₦)
X_7 = Marketing experience (years)
X_8= Marketers' institution group (1= Cocoa Exporters and 0 otherwise)
X_9= Depreciation cost on fixed input (₦)
X_{10} = Access to credit (access = 1 and 0 otherwise)
X_{11}= Number of store/warehouses

X_{12}=Labour cost (₦)
X_{13}= Transportation cost (₦)
X_{14} = Season of sales (1= main crop, 0 = light crop)
X_{15}= Quality of cocoa beans (1=good quality and 0 otherwise)
X_{16} = Incidence of pilfering/theft (1 = yes and 0 = no)

Finally, in order to examine and identify main problems encountered by the cocoa marketers in the study area, descriptive statistics such as frequencies and percentages were used to identify the problems, while four-point likert rating scale (LRS) was used to opine how serious the problems are to the cocoa marketers. Finally, RII was used to determine the problem that needs serious attention should there be any intervention from government, NGOs and stakeholders in cocoa business. RII method is usually used to determine the importance of factor relative to others. It is used to determine the most preferred factor or option based on the response of the respondents.

The four-point scale ranging from 1 (Not at all) to 4 (Very serious) was adopted and transformed to relative importance indices (RII) for each problem or factor or option or effect or solution as the case may be. In case of this study, problem encountered by the cocoa marketers is the factor.

The equation is as follow:

$$RII = \frac{\sum W}{A\ X\ N}$$

where:
*W*is the weighting given to each problem by respondents (1 to 4); *A* is the highest weight (4 in this case); *N* is the total number of respondents.

Therefore, RII value ranges from 0 to 1 (0 not included). The higher the value of RII, the more important the factor (problem) to the respondents in the study area.

RESULTS AND DISCUSSION

This section explains the summary of data analysis and interpretation of findings in terms of costs and returns associated with cocoa marketing, factors affecting cocoa marketers' performance in the area and main constraints to cocoa marketing in the study area.

Costs and returns associated with cocoa marketing in the study area

In estimating how buoyant a business is, total cost incurred in the production of a commodity (which comprises costs incurred from fixed items and variable items) and the total receipt (which is the unit price multiply by quantity sold) needs to be carefully examined.

Returns from cocoa market sales

According to Table 1, it was revealed that many (39.3%) of the marketers earned between ₦1 and ₦2 million naira per season, while about 29.9% of the marketers earned less than ₦1 million per season. Nearly 23.9% of the marketers earned between ₦2 and ₦8 million per season. It was attested that 6.8% of the sampled cocoa marketers earned at least 8 million naira per season in the study area. The income accrued by the marketers in the area ranges from ₦200,000.00 to ₦90,000,000.00 with mean and standard deviation of ₦4,013,677.18 and 10,709,721.16 respectively. The result implies that the variates were widespread from the mean value and therefore, the income is not normally distributed in the data set.

Table 1. Distribution of respondents by marketers' income

Total Revenue (₦)	Frequency	Percent
≤ 1,000,000	35	29.9
1,000,001 -2,000,000	46	39.3
2,000,001 – 4,000,000	17	14.5
4,000,001 – 6,000,000	7	6.0
6,000,001 – 8,000,000	4	3.4
> 8,000,000	8	6.8
Total	117	100.0

Mean = ₦4,013,677.18; Standard deviation =10,709,721.16; Minimum = ₦200,000.00; maximum = ₦90,000,000.00

Source: Field Survey, 2017

The total receipt accrued from cocoa marketing is a reflection of how viable the enterprise is. Going by the revenue of the respondents, it can be deduced that the business is yielding substantial proceeds capable of sustaining livelihood in the area.

Measures of profitability of cocoa marketing in the area

The budgetary analysis comprises total revenue and total cost of marketing. The total cost of marketing comprises total variable cost and total fixed cost. According to Fatuase, Oparinde and Aborisade (2015), budgetary analysis is a germane exercise in production and marketing process in order to assess and determine the financial capability and marketing performance of the enterprise.

It was shown in Table 2 that the total variable cost formed about 51.73% of the total cost of marketing, while the total fixed cost contributed 48.27% of the total cost of marketing. Transportation cost accounted for about 23.10% of the total cost of marketing followed by 21.11% of cost of maintenance on fueling, repair of engines and office stationeries. The costs of storage (1.93%), cost of grading (2.38%) and cost of labour (3.21%) also formed the total cost of marketing. In addition to this, depreciation costs on weighing scale and aquaboy accounted for nearly 14.12% and 24.42% respectively of the total cost. Other depreciation costs on warehouse, tarpaulin, jute bags, ropes, needles, pallets, cutting knives, baskets, counter scale, scoop, rakes, spade and shovel accounted for 9.72% of the total cost of marketing in the area.

The results of the cost of marketing were similar to the findings of Ada-Okungbowa, Ogborodi and Omofonmwan (2013), and Fatuase, Oparinde and Aborisade (2015) who reported that variable costs always take more than 50% of the cost of marketing of most agricultural enterprises. In contrast to this finding, Emokaro and Ugbekile (2014) reported about 57.7% of variable cost and 42.3% of fixed cost, while labour cost (32.4%) formed the highest cost in their study carried out in Edo State, Nigeria. Therefore, given the values of gross margin and profit to be ₦2,484,968.12 and ₦1,058,658.51 respectively indicated that cocoa marketing business is a profitable business in the study area.

Again, the value of Return on Investment (ROI) of 1.36 implies that cocoa marketer will realize ₦1.36 on each naira expended. Again, percentage profit of over 35% further confirmed that cocoa marketing is a highly profitable venture in the study area. *Ceteris paribus*, marketers should be able to pay back loans even at commercial bank interest rate of at least 18% per annum. The value of Expense Structure Ratio (ESR) of 0.93 indicated that the variable cost incurred in the business is greater than money expended on fixed cost by 7%, while gross ratio (0.74) also revealed that total

revenue accrued from cocoa marketing is greater than total cost expended in the course of the business by 26%. All these profitability measures confirmed and reiterated the profitability of cocoa marketing in the area.

The results of this study were similar to the findings of Adebo, Ayodele and Olowokere (2015) who found out a positive gross margin with a ROI of 1.57 in their study carried out among small-scale oil palm marketers in Ekiti State, Nigeria. In the same vein, this result concurs with the findings of Gotsch and Burger (2001), Folayan *et al*. (2006) and Taphee *et al*. (2015). They all reported that market performance analysis revealed that cocoa marketing is profitable.

Folayan *et al*. (2007) opined that positive and size of profit obtained for each cocoa marketing institution is an indication that these institutions were able to recover their operating expenses; hence post-deregulation cocoa marketing era is profitable and efficient in their studies carried out in Nigeria. In addition to this, Oseni and Adams (2013) observed and reported similar results in both conventional cocoa production and certified cocoa production in their studies carried out in Ondo State, Nigeria, all the profitability indices (NPV, BCR, IRR and the GM) indicated that cocoa business is profitable.

Table 2. Results of profitability measures of cocoa marketing in the area

Items	**Mean (₦)**	**Percentage**
Fixed Input		
Depreciation cost on Weighing scale	417,360.98	14.12
Depreciation cost on Aquaboy	721,517.65	24.42
Depreciation cost on warehouse	89,054.55	3.01
Depreciation cost on tarpaulin	72,378.94	2.45
Depreciation cost on pallets	6,636.36	0.22
Depreciation cost on jute bags, ropes and needles	63,110.68	2.14
Depreciation cost on cutting knives and baskets	12,233.34	0.41
Depreciation cost on counter balance	27,435.00	0.93
Depreciation cost on scoop	4,640.00	0.16
Depreciation cost on rakes, spade	11,942.11	0.40
Total Fixed Cost (TFC)	**1,426,309.61**	**48.27**
Variable Input		
Cost of labour	94,840.70	3.21
Transportation	682,705.68	23.10
Cost of storage	56,892.14	1.93
Grading fees	70,473.91	2.38
Cost of maintenance	623,796.63	21.11
Total Variable cost (TVC)	**1,528,709.06**	**51.73**
Total Cost of Marketing (TCM) = TFC + TVC	2,955,018.67	100.00
Total Revenue (TR)	4,013,677.18	
Gross margin = TR – TVC	2,484,968.12	
Profit = TR – TCM	1,058,658.51	
% profit or ME = (profit/TCM)*100	35.83	
ROI = TR/TCM	1.36	
ESR = TFC/TVC	0.93	
Gross ratio = TCM/TR	0.74	

Source: Field Survey, 2017.

It was also observed from the results that more profits can still be made if the marketers could reduce expenses on labour, transportation and maintenance by embracing modern technologies that increase efficiency and thereby the productivity in the business.

Determinants of cocoa marketing performance in the study area

The results of the Seemingly Unrelated Regression Equation (SURE) in determining marketing performance were presented in Table 3. The chi-square statistic ranges from 16.00 to 22.24 and they are all significant at 1% level. This implies that the null hypothesis of the restrictions of valid homogeneity and symmetry for the system equations were accepted. The R-squared of the estimated gross margin, profit, Return on Investment, market efficiency and total revenue equations were 0.735, 0.834, 0.727, 0.725 and 0.911 respectively with the total sales equation having the highest R-squared value. This implies that 73.5%, 83.4%, 72.7%, 72.5% and 91.1% of the variability in cocoa marketer's performance (gross margin, profit, Return on Investment, market efficiency and total revenue respectively) were explained by the sixteen (16) explanatory variables included in the model.

Generally, the coefficients of variables that were positive with the regressands (i.e. gross margin, profit, Return on Investment, market efficiency and total revenue) imply that increase in the value of any of these variables will increase and have upward relationship with the dependent variable and vice-versa.

According to Table 3, the coefficients of age and marital status of the marketers were all positive with the regressands except total revenue which had negative coefficient. The result further showed that the coefficient of age and marital status were statistically significant in affecting gross margin and profit respectively at 5% levels apiece. This implies that older and married cocoa marketers increase gross margin and profit by ₦948.95 and ₦128,123.40 respectively, but their total revenue may be reduced. Except in total revenue, this study agrees with Anyoha (2010) and Farayola *et al*. (2013) who viewed that older farmers are more experienced and efficient in taking decisions regarding agricultural production and marketing.

The coefficient of household size was positive and statistically significant ($P< 0.05$) with all the dependent variables. The results showed that a unit increase in the number of family size will increase gross margin, profit and total revenue by ₦45,989.48, ₦51,993.12 and ₦282,044.00 respectively in the area. Added to this, for every naira expended on cocoa marketing as a result of family size will yield ₦1.91 with an increased market efficiency of 29.11%. According to Farayola *et al.* (2013), the household members may help in providing some marketing functions at a reduced cost which is an incentive to an efficient marketing system. The result is in agreement with that of Quartey (2005) who stated that household size affects efficiency since there may be synergies from larger household size in both production and consumption.

The coefficient of year of education was also positive and statistically significant at most 5% level with all the dependent variables. This implies that increase in year spent in school will cause a positive increase in the value of gross margin, profit and total revenue by ₦66,761.06, ₦22,304.78 and ₦164,992.70 respectively in the area. In the same vein, as the marketers' year of education increases, 62kobo will be gained on every naira expended on cocoa marketing business with an increased market efficiency of 56.12% in the area. The result supports Idowu *et al*. (2007) who found out positive and significant relationship with total revenue in examining the effect of market deregulation on cocoa production in Southwest, Nigeria.

The coefficient of year of cocoa marketing experience was statistically

significant (P < 0.05) and positive with the dependent variables. This indicated that more experienced cocoa marketers increases gross margin, profit and total revenue by ₦67,670.49, ₦1,126.20 and ₦66,189.75 respectively. Furthermore, increase in year of experience will contribute 56kobo to every naira expended on cocoa marketing business with market efficiency of 16.17% in the area.

Marketer's category showed a positive and significant association with the dependent variables. It was observed that exporters made positive contributions of ₦152,023.10, ₦1,121.89 and ₦978,631.77 to the gross margin, profit and total revenue respectively, relative to other marketers' groups. The ROI and market efficiency values revealed that for every naira expended by the exporters, ₦8.87 was gained from the cocoa marketing business with the efficiency of 23.89% in the area.

The depreciation cost on fixed inputs had a negative coefficient with all the dependent variables but statistically significant (P < 0.05) for profit, ROI and market efficiency. This is an indication that a naira increase in the value of fixed inputs will reduce profit by ₦376.97. Moreover, the value of fixed inputs will reduce profit by 68k for every naira expended in the cocoa marketing enterprise with a reduced market efficiency of 0.88% in the area.

Number of stores had a positive coefficient with all the dependent variables but statistically significant at 5% level with total revenue. This implies that a unit increase in the number of stores will increase total revenue by ₦6,658.98 in the area.

Cost of labour had negative coefficients but was statistically significant at most 5% level. It means that increase in the cost of labour will reduce gross margin, profit and total revenue by ₦93.79, ₦37,697.39 and ₦937.91 respectively. Again, for every naira expended on cocoa marketing business as a result of labour cost, reduce the gain accrued by 87k with a reduced market efficiency of 2.21%.This is in contrast to the research findings by Taphee *et al*. (2015) who reported that the coefficient of labour was found to be positive and significant at 1% level, implying that as labour cost increases, so also the profit.

Cost of transportation's coefficient was negative but statistically significant with all the dependent variables. This implies that a naira increase in the cost of transportation will decrease gross margin, profit and total revenue by ₦39,819.88, ₦54,112.90 and ₦2,459.65 respectively. At the same time, for every naira spent as a result of transportation, will reduce gain accrued by ₦1.10 with a reduced market efficiency of 13.22% in the area.

Season of sales had positive coefficients and they are statistically significant in addressing gross margin, ROI and total revenue. It was revealed that main season of sales increases gross margin and total revenue by ₦21,081.01 and ₦19,723.93 respectively, and for every naira expended during the main season, a gain of 77kobo was accrued by the marketers in the area.

The cocoa bean quality had a positive coefficient with all the dependent variables but statistically significant with total revenue. This implies that quality of cocoa bean increases the total revenue by ₦345.23 in the area.

The incidence of theft/pilfering had negative coefficient with all the dependent variables but statistically significant with gross margin and total revenue. This is an indication that the incidence of pilfering will reduce the values of gross margin and total revenue by ₦912.45 and ₦9,345.23 respectively in the area. Therefore, Akinfolarin *et al.* (2012) examined the operational activities of cocoa export processing factories in Ondo State, Nigeria and found out that cocoa export processing factories are operating at a loss partly due to the highly capital intensive nature of cocoa processing.

Table 3. Determinants of marketing performance using Seemingly Unrelated Regression Equation (SURE)

Variables	Gross margin	Profit	ROI	ME	TR
Age	948.95* (1.98)	2729.32 (1.45)	0.14 (1.78)	13.97 (0.99)	-5634.09 (1.29)
Sex	23389.03 (1.71)	30484.64 (1.87)	9.60 (0.87)	19.60 (1.09)	53422.57 (1.00)
Marital status	7677.36 (1.01)	128123.40* (2.12)	0.94 (1.02)	1.61 (1.39)	-1256.88 (0.99)
Household size	45989.48* (2.01)	51993.12* (2.22)	2.91* (2.11)	29.11* (2.05)	282044.10** (3.78)
Education	66761.06** (4.09)	22304.78** (2.49)	1.62* (2.08)	56.12* (2.01)	164992.70** (3.97)
Experience	67670.49** (5.12)	1126.20** (7.01)	1.56* (2.02)	16.17* (2.09)	66189.75** (4.01)
Producer price	542.17 (1.23)	212.76 (1.39)	0.06 (0.09)	1.02 (0.34)	367.98 (1.56)
MIG (exporter)	152023.10** (2.45)	1121.89* (2.27)	9.87* (2.33)	23.89* (2.23)	978631.77** (4.56)
Cost of fixed input	-24.59 (1.80)	-376.97* (2.10)	-1.68* (2.02)	-0.88* (2.00)	-24596.11 (1.19)
Credit	40546.34 (1.36)	38354.41 (1.00)	1.01 (1.01)	0.76 (1.23)	405463.40 (0.98)
Number of stores	4712.98 (1.77)	234.43 (1.37)	0.81 (1.56)	0.43 (0.99)	6658.98* (1.99)
Labour cost	-93.79** (3.12)	-37697.39* (2.11)	-1.87* (2.21)	-2.22* (1.99)	-937.91* (2.00)
Transportation cost	-39819.88* (1.99)	-54112.90* (2.30)	-2.10** (4.71)	-13.22* (2.01)	-2459.65** (3.67)
Season of sales	21080.01* (2.09)	893.87 (1.02)	0.77** (2.89)	0.02 (1.79)	19723.93** (3.54)
Cocoa quality	234.87 (1.11)	123.56 (1.55)	1.10 (1.76)	0.71 (0.99)	345.32** (2.50)
Incidence of theft	-912.45* (2.00)	-3343.45 (1.21)	-0.88 (1.63)	-0.07 (1.24)	-9345.23* (2.10)
Constant	39072.19 (1.31)	18566.26 (2.15)	31.67 (1.33)	30.67 (2.06)	184814.50 (1.81)
R^2	0.735	0.834	0.727	0.725	0.911
Chi^2	17.76**	17.85**	17.76**	17.74**	22.24**

*,** means significant at 5% and 1% levels respectively. ROI = Return on Investment; ME (%profit) = Market efficiency; TR = Total revenue; Figures in parentheses are the calculated t-values, MIG = marketer's institution group

Source: Field Survey, 2017

The results ascertained that different factors are responsible for the behaviour of market performance in the area. It was noted that some variables significantly influenced all the parameters of cocoa performance and this needs to be carefully addressed for policy recommendations. The costs of labour and transportation had a negative relationship with all the performance's parameters and this reiterated the findings from costs and returns analysis.

Constraints militating against cocoa marketers in the study area

The responses on the main problems encountered by the marketers were structured from "Not at all" to "Very serious" with a weight scale of 1 to 4 respectively. The statement with highest percentage of the responses in each of the statement items were used as the general opinion of the respondents and Relative Importance Index (RII) was used to determine the most serious problem that need urgent attention in the study area.

According to Table 4, inadequate capital to invest in cocoa marketing business has been observed as a serious problem in the study area where 43% of the respondents formed the majority that agreed with the statement. The value of RII (0.73) ranked it to be the fifth most serious problem that needs urgent attention in the study area. Observations from the field survey revealed that some of the players could still expand their market volume if there are adequate and available funds. It was also reported that some have backed out as a result of inadequate capital for the business.

This result shared the view of Jaeger (1999) who stated that turbulent trading conditions have deterred a number of players entering the market, and the export and purchase are usually left to specialists. Again, it was shown that about 53.6% of the respondents saw environmental hazards such as extreme weather behaviours and pests and diseases infestation as a serious problem in the area. The value of RII (0.65) ranked it as eighth problem that needs attention.

Rainfall has been identified as the main environmental factor that affect cocoa marketing and this happens during the light season of sales. Despite the problem of rainfall, most of the rich marketers had artificial dryers but they still prefer natural dryers (sunshine) due to cost implications.

Government policies most especially taxation and grading fees have been ranked fourth given the RII value of 0.80. It was also revealed that many (50%) of the sampled respondents saw it as a very serious problem. The respondents complained on how government increases their tax and made it unpleasant to most of the marketers.

Poor road network most especially the feeder roads that lead to the producers is nothing to be written home about. This problem was ranked first given the RII value of 0.89 with nearly 57% of the respondents viewed it as a very serious problem that needs urgent attention in the area. They complained that they find it hard to purchase cocoa beans from the producers due to bad roads that lead to the producer's farms. This has also caused damages to the cocoa beans thereby reducing its quality.

What majority of the marketers do in this case was to use motor cycle (bike or "okada") transportation which is limited in terms of its carrying capacity to the nearest motorable road where vehicle can be used. High cost of transportation was noticed to be the second most serious problem given the value of RII to be 0.86. This problem was linked to bad roads and hike in fuel prices over the years. They also complained that this has also increased the cost of maintaining their mode of transportation such as bike and

vehicle. Incidence of theft and pilfering was mild in the study area as about 40.6% of the respondents formed the majority that attested to the problem.

The value of RII (0.58) ranked it to be the least (ninth) in the area that needs urgent attention. The marketers stated that theft was only rampant whenever there is an increase in price and during the peak season. In effect, majority of them hired security men (night guard) to curb the act in the area during the peak seasons.

About 51.8% of the respondents attested that inadequate information about cocoa marketing most especially price movement in the global market and the likely effect on the marketers has been a serious problem in the area. This was ranked as seventh problem that needs attention in the study area given the value of RII as 0.67. Lack of trust was seen as a serious problem and about 55.2% of the respondents attested to it.

This was ranked as sixth problem that need attention by the marketers given RII of 0.69. Majority of the marketers complained that most of the producers do fail to sell their products to them despite the assistance the marketers have rendered such as agrochemicals and loan in exchange of cocoa beans.

Cocoa price fluctuation/instability was ranked to be the third problem that needs urgent attention in the study area, given the value of RII to be 0.81. Majority (64.2%) of the sampled respondents observed it as a very serious problem that needs to be attended to urgently. Since the price is unpredictable, the marketers find it hard to buy in stock most especially during the light season. This study shared the view of Jaeger (1999) who opined that the price of cocoa responds to a number of influences including the availability of beans at present and as expected in the future, as well as more technical issues of the analysis of price movements. It is particularly sensitive to sentiment among the major players and detailed analysis of supply and demand only covers part of the story.

The research findings concur with the view of Daniel (2009) who stated that fluctuations in market price, lack of market information as well as spoilage and low quality products, which reduce market prices, are critical constraints that adversely affect the upstream activities in cocoa marketing and processing. Again, the results of this study were similar to the findings of Farayola *et al*. (2013) that was carried out among small-holder cocoa marketers in Oyo State, Nigeria. They found out that pests and diseases, inadequate storage facilities, price instability, high cost of transportation, poor infrastructure, high taxation cost, high cost of preservation and low access to finance are the main constraints to cocoa marketing in the study area.

In addition, Anyanwu *et al.* (2003), stated that cocoa are perishable produce and the farmers may not have the technology to process and preserve them, the entire products are offered for marketing immediately, price are forced down and the farmers may not be adequately rewarded for their labour. Again, Akinfolarin *et al.* (2012) examined the operational activities of cocoa export processing factories in Ondo State, Nigeria and revealed that cocoa processing companies are confronted with a variety of challenges ranging from high cost of production including that of unpredictable and fluctuating prices of raw cocoa beans, inevitably high and additional cost of generators and diesel resulting from epileptic power supply to lack of funds when needed.

Table 4. Distribution of respondents according to problems in cocoa Marketing (n=117)

Constraints	Very serious (%)	Serious (%)	Mild (%)	Not at all (%)	RII	Rank
Poor road network	66.7	33.3	-	-	0.89	1st
High cost of transportation	57.0	39.5	3.5	-	0.86	2nd
Price fluctuations	64.2	32.1	-	3.8	0.81	3rd
High grading fees	50.0	31.6	14.9	3.5	0.80	4th
Inadequate capital	35.5	42.7	19.1	2.7	0.73	5th
Lack of trust	27.6	55.2	13.3	3.8	0.69	6th
Incidence of theft	19.1	51.8	22.7	6.4	0.67	7th
Environmental hazards	13.6	53.6	30.0	2.7	0.65	8th
Inadequate information	15.8	39.6	40.6	4.0	0.58	9th

Note: RII means Relative Importance Index
Source: Field Survey, 2017

The above results affirmed that cocoa marketers are facing several challenges that are negatively affecting the performance of cocoa marketing in the area. All the stated problems threaten the sustainability of the cocoa marketing business in the area and it will continue to deteriorate if not given adequate attention for a decisive solution.

CONCLUSION AND RECOMMENDATIONS

This section draws out conclusion and recommendations based on the findings of this study.

Conclusion

Based on the findings of this study, it was concluded that cocoa marketing enterprise is a highly profitable enterprise. It is an enterprise that accrues much income and profit that could sustain family standard of living if properly and effectively managed. Despite the challenges faced by the marketers such as poor road networks, hike cost of transportation and price fluctuation, marketers were still able to pay back loans even at commercial bank interest rate of at least two digits per annum. Mostly, the variable cost incurred in the business is relatively greater than the money expended on fixed cost which also means that total revenue accrued from cocoa marketing is greater than total cost expended in the course of the business. It was also concluded that some of the socio-economic factors and inputs used determined the performance of the cocoa marketers.

Recommendations

The following policy recommendations were proffered based on the findings of this study: Government should construct roads most especially the feeder roads that lead to the producers to reduce the problem of high transportation cost. This will help the marketers to have easy access to the producers in the most interior part of the rural areas. The cost of fuel should be drastically reduced by the government. This has a significant effect on the performance of the cocoa marketers in the area. Government charges most especially grading fees on cocoa marketers should be reviewed. It should be reduced in order to encourage people of low income to venture into the business.

Government should also help in stabilizing cocoa prices and give credit to the marketers in order to boost their sales. This can be achieved through the Bank of Agricultural (BOA) and the Bank of Industry (BOI). The interest rate should not be more than a digit so that the more marketers would be encouraged and the bureaucratic bottle-neck of accessing funds should be reduced so as to encourage the marketers to access the funds.

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Socio-demographic problems of the development of united territorial communities of the Eastern Regions of Ukraine

Boichenko Elina; Vasilchuk Nataly

Department of problems of inter-regional cooperation issues
Institute of Economic and Legal Studies of the National Academy of Sciences of Ukraine, Kyiv, Ukraine

e-mail correspondence: economicaukraina2017@gmail.com

Abstract

Taking into account the comprehensive decentralization reform in Ukraine, which began in 2014 and the ambiguity of the situation in the East of Ukraine, there is an increased interest in the study of decentralization processes in these regions. Since the process of unification of local communities involves, above all, taking into account the interests of the population, the authors decided to consider the socio demographic problems of local communities united by the example of the Donetsk region. The article substantiates the expediency of choosing as an example of the Liman City United Territorial Community. The dynamics of distribution of population by the communities of Donetsk region is presented. The dynamics of changes in the population of the Liman city UTC before and after the merger are analyzed. Revealed changes in the age structure of the population of the community and founded the main causes and consequences of these changes. In addition, it has been found that, contrary to changes in the territorial structure of the country, the existing form of submission of statistical information remains unaltered (statistics are provided in the traditional way, namely, in cities and rayons of the region), which in turn does not allow to trace all social and economic changes and requires an immediate reformatting of statistical forms.

***Keywords**: reproduction, migration, mortality, natural population movement, decentralization, united territorial community*

JEL classification: J10, J11, O15

INTRODUCTION

Considering the process of decentralization and association of territorial communities as a possible key factor in the economic and social development of Ukraine, it is necessary to pay attention to the fact that this process is very tightly overlapping with the existing demographic problems. The deterioration of reproductive processes, as a whole in Ukraine and separately in each region, has become a legacy of newly formed territorial communities. The problem is not only the general reduction of the rural population, but also changes in its structure.

The low fertility rate, high mortality of the working-age population, the search for better living conditions, which in turn contribute to the intensification of labor migration mainly among young people and families with children, cause a decrease in the population, which is accompanied by an increase in the number of people of older

age groups, that is, its aging. Strengthening of these processes significantly changes the structure of expenditures in the budgets of territorial communities. The increase in the proportion of persons of retirement age in the structure of the population requires an increase in expenditures in the budget of the united territorial communities aimed at their social security. Given the limited financial resources, prerequisites for the proliferation and deepening of poverty in old age are created, and the demographic burden on the able-bodied population increases. In this case, particularly important theoretical and methodological and practical study of the structure and dynamics of socio-demographic trends combined development of local communities and establishing the causes that affect it.

Proceeding from the text above, the purpose of the article is to reflect the socio-demographic problems of the development of the united territorial communities of the Eastern regions of Ukraine.

Based on the aim of the study, the following tasks were set and solved: a) the dynamics of distribution of population by the communities of Donetsk region is investigated; b) the number of the existing population of the Liman city community for years, before and after the association is presented; c) analyzed the structure of the population of the Lima united territorial community in 2015; d) set trends vital Limanskaya city united local community for the period 2009-2015 years; e) the dynamics of migratory flows of the population of the Liman Municipal Joint Territorial Community for the period 2010-2015 is reflected; f) the conclusions are drawn up and the vector of further socio-economic development of the community is outlined.

Exploring the socio-demographic problems of the development of the united territorial communities of the Eastern regions of Ukraine, it should be noted that the vital activity of the united territorial community in Ukraine takes place in the specific historical conditions that have developed in a certain territory and are determined by a system of diverse activities in all spheres of community life; social, political and spiritual.

The development of united territorial communities is possible under the conditions of the existence of a suitable environment, both external and internal, which consists of many components. So, the external environment is formed by the presence of natural geographic, political, legal, economic, social, informational, educational, cultural, religious, ethnic and other space. The components of the internal environment is advisable to consider reproduction, state public health level and quality of life, education, culture, marital status, professional activity and more.

In addition, it should be noted that the process of association of territorial communities in Ukraine began in 2014, against the background of decentralization reform. The transition from centralized to decentralized management involves first and foremost the reform of the administrative-territorial system (ATS), that is, the division of the state's territory into certain parts of it for the purpose of organizing local management, which in turn is carried out by created newly formed administrative-territorial units of all levels – villages and settlements, districts, cities, and oblasts by public authorities Koliushko, I. & Tymoshchuk, V. (2005).

Thus, in this study under the administrative-territorial system is understood the system of the internal territorial structure of the state, the main purpose of which is to form, organize and provide the territorial basis for the implementation of local public authorities, according to which the organization of the functioning of local bodies of state power and local self-government and the development of regions, which contributes to the balanced development of the state as a whole.

Statistical data are also evidenced by changes in the administrative territorial structure of the country. According to official data, the decentralization in Ukraine placed on the site as of December 8, 2017 in Ukraine has created 697 united territorial communities. According to the forecast calculations at the beginning of 2018 as a result of administrative-territorial reform expected formation of about 1,500 wealthy communities. The newly formed united territorial communities will comprise about 15% of the total number of local government local governments and will live about 3.1 million people. The territory of the now generated united territorial communities in the regions of Ukraine - is about 600 thousand hectares, which makes about 9,5% of the total area of the country 60 million 362 thousand 800 hectares Current state and use of land resources of Ukraine (2017).

Due to such radical steps, there is a need for systematic tracking of the trends of socio-economic development of communities on the basis of which it will be possible to predict and respond quickly to risks, as well as to develop well-considered operational, strategic decisions on the management of the territory.

RESEARCH METHOD

The methodological basis of the study is the dialectical method of knowledge, a systematic approach to the study of social and economic phenomena, developments of domestic and foreign scholars on issues of decentralization and united communities. In the article methods of absolute, relative and average values, analysis of the series of dynamics and structural changes (in the analysis of national and regional socioeconomic processes), comparison (in the establishment of violations in community development processes), graphic (in the study of sex-age structure population of communities), visualization (for presentation of results of community development).

Analytical results of the article are based on the use of official statistical information of the State Statistics Service of Ukraine and the Main Department of Statistics in Donetsk region.

In addition, the method of logical generalization (in determining the socio-economic status of the development of the combined territorial communities), the method of absolute, relative and mean values, the analysis of the series of dynamics and structural changes (in determining the dominant trends in the formation and development of UTC) is used, method economic analysis and synthesis (in determining the content content of socio-economic problems), the method of comparison (with the establishment of violations in the processes of socio-economic development of UTC), the graphical method (for constructing the trend of the number of existing population of the Liman city community before and after the association), the method of visualization

(to present the results of the structure of the population of the Liman united territorial community in 2015 year, dynamics of migration flows).

RESULT AND DISCUSSION

At the beginning of 2018 in the Donetsk region were formed 10 united territorial communities, and in five communities elections were scheduled for the end of the year. The population of united territorial community is amounted to 139,0 thousand people (3,24% of the total population of the Donetsk region). The distribution of population in the communities is given in Table 1 Official site Decentralization in Ukraine (2017).

According to the results of the study, it can be argued that in almost all communities there was a decrease in the population, despite such a short observation period. Regarding the Cherkasy community, the population growth was not due to its natural growth, and for the registration of internally displaced persons.

Table 1. Dynamics of distribution of population by the communities of Donetsk region in 2015 and 2018

Community	Year of creation	The population of the community when it was created	The population of the community as of 1.04.2018	Deviations	
				Absolute (+/-)	Relative (%)
Andreevskaya	29.10.2017	1942	2413	+471	24,25
Zvanivska	29.10.2017	3303	2576	-727	-22,01
Illinivska	18.12.2016	11171	9553	-1618	-14,4
Limanskaya	25.10.2015	48570	43594	-4976	-10,25
Mykolaiv (city)	18.12.2016	18747	17470	-1277	-6,81
Aleksandrovskaya	29.04.2018	16147	13628	-2519	-15,60
Siverska (city)	30.04.2017	15383	13962	-1421	-9,24
Soledarska (city)	18.12.2016	23494	20891	-2603	-11,08
Cherkassy	25.10.2015	9512	11963	2451	25,77
Shakhivska	25.10.2015	3065	2964	-101	-3,29

Source: Compiled by the authors according to the sources official site decentralization in Ukraine (2017)

It is important to note that the decrease in the population is occurring almost throughout Ukraine. There are many reasons for this. This is the level and quality of life of the population, the existing level of wages, political instability in the country, the presence of a military conflict in the East, etc. This trend is observed in communities. The consequences of these events are, above all, changes in the age structure of the population communities.

The transformation of the sex-age structure of the population and the narrowed type of it's reproduction cause an increase in the proportion of people over the able-bodied age in the structure of the population of the community, which, in turn, increases the burden on the able-bodied population. For united territorial communities, this may be an obstacle to their development. Identified negative effects cause a chain effect and influence on almost all aspects of life of united the territorial community. For example,

in the social life of the community, aging affects the composition of the family, the epidemiological situation, needs and types of medical care. In the ebconomic life of the united territorial community, the aging of the population negatively affects, first of all, the formation of community budgets and the definition of social policy directions. In addition, these processes affect the structure of consumption of tangible and intangible benefits, services and savings of the community. In the political life of the aging population, communities can influence the results of elections not only of city authorities, but also of presidential and parliamentary ones, due to the historical, educational, cultural and mental environment in which a generation of older age groups was raised.

It should also be noted that contradicted changes in the territorial structure of the country, the current form of presenting statistical information remains variable, which in turn prevents trace all social and economic change. To date, statistics are provided in the traditional way, namely in the cities and districts of the region. Taking into account the fact that the process of creation of united territorial communities in Ukraine contributed to the change of the administrative-territorial system, there is a need for new forms of statistical information provision. This need is also due to the systematic and incomplete disclosure of statistical information on the official sites of the combined territorial communities and decentralization in Ukraine. The lack of timely response, including the state service of statistics, to changes taking place in the territorial structure of the country, doesn't allow fully trace the dynamics of the processes of development of territorial communities, which complicates not only the formation of scientifically grounded conclusions, but also makes it impossible to predict the indicators of development of UTC.

Proceeding from the foregoing, the coverage of socio-demographic problems of the development of UTC was carried out on the example of the Liman city united territorial community, since this very community completely united the existing Krasnoliman district, that is, became the successor of this territory. The existence of comparable statistical information made public (before and after the merger), makes it possible to analyze the trends that occurred after the reform of the decentralization of power in the area.

In addition, it is necessary to overlook that today, the community chosen as the example, it is the largest in Ukraine. In the long run, with the proper allocation of resources and a clear definition of vectors of economic development, it can reach heights and become an example of the successful implementation of decentralization in the region.

The formation of Liman UTC was dated on November 17, 2015. The reason was the decision of the Krasnoliman City Council "On the Suspension of the Activities of Village and Village Councils", which was eliminated by joining the Krasnoliman City Council. Subsequently, 12 village and settlement councils became part of Krasnolimanskaya UTC. Thus, in the territory of Krasnolimansky district in November 2015 the UTC with the center in the city of regional subordination - Krasny Lyman – appeared. Subsequently, according to the Resolution of the Verkhovna Rada of Ukraine dated February 4, 2016, the Krasny Liman of the Donetsk Region was renamed into the

city of Liman, and the UTC in the Liman City Municipal Unified Territorial Community, which included 40 settlements Official site Decentralization in Ukraine (2017).

The most important problem of the development of almost all the united territorial communities of the East of Ukraine is the rapid reduction of the population. It should be noted that under the reproduction of the population of the united territorial communities, the authors understand the totality of three types of population movement: natural (continuous restoration during the change of generations), spatial (migration) and social (social mobility), expressing the decisive line of the entire population movement, its inextricable connection with the process of reproduction and development of society as a whole. Each component of reproduction of the population (population, settlement, sex-age, national, confessional, marriage and family structures) characterizes the demographic processes that occur in the community.

So long-term changes in the age structure of the population could become irreversible and significantly change the structure of its reproduction. In this case, research of the problems of reproduction of the population of the united territorial communities becomes of special importance. This problem is not an exception for the Liman City UTC (Figure 1 and Figure 2).

The dynamics of the change in the size of the existing population of the Liman City Integrated Territorial Community suggests that there is a long-term trend of its natural decline.

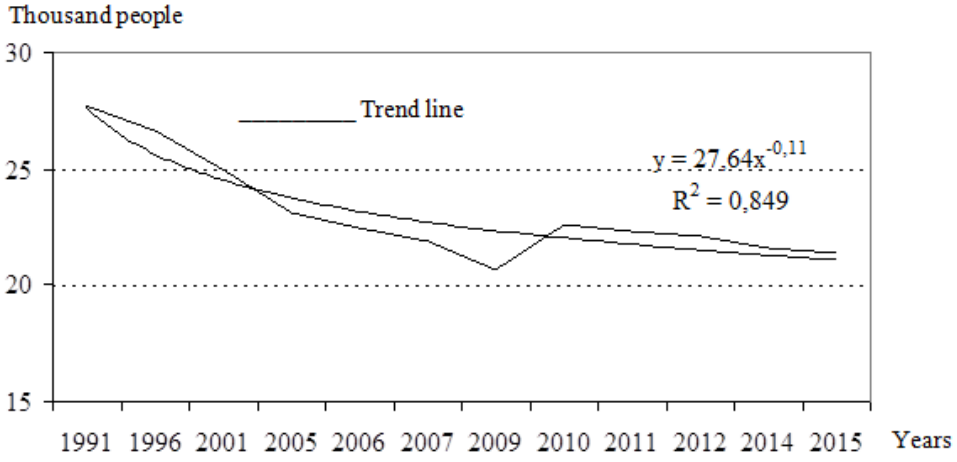

Figure 1. Dynamics of available population Limanskaya united territorial community before and after the merger.

Source: *Compiled by the authors according to the sources population (1990-2014). State Statistics Service of Ukraine.*

So, from 1991 to the time of the formation of UTC and after the merger, the trend remains unchanged. So, in early 2016, the population declined by almost a quarter, from 27.7 thousand people to 21.38 thousand people.by 23%. According to the results of the obtained trend model, it can be concluded that on average, the population of the community annually decreased by almost 500 people. As noted, the negative social and demographic processes by the way, causing changes in the age structure of the population (Fig. 2).

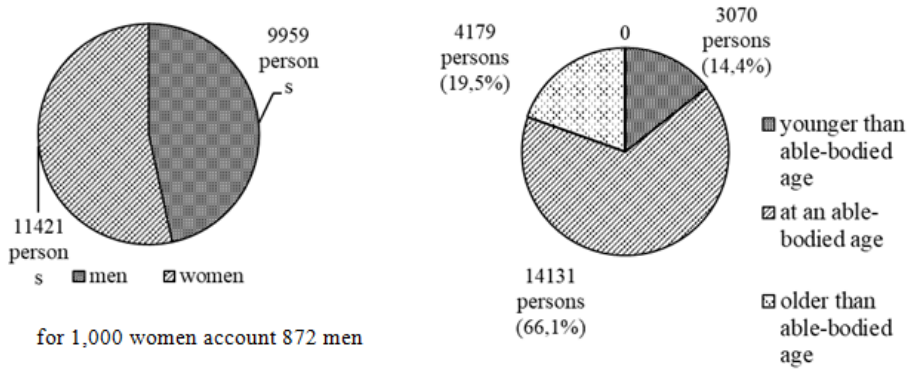

Figure 2. The structure of the population of Liman united territorial community in 2015.
Source: Compiled by the authors according to the sources State Statistics Service of Ukraine population (1990-2014), demographic yearbook "Population of Ukraine for 2015" (2016)

It should be noted that the demographic aging of the UTC population of the East of Ukraine is conditioned by an increase in the proportion of older people in the total population (aging from above), the reasons for which are the changes in the nature of its reproduction. Recall that the "bottom-aging" occurs by gradually reducing the number of children due to fertility decline, it is not a characteristic of the eastern territories.

Changes in the age structure of the population of the Liman city united territorial community are marked by a steady increase in the proportion of older people in the context of a significant reduction in the proportion of children in total. So, in 2015, the demographic burden on the able-bodied population (15-64 years) by older people was 295 ‰ and that of the working age –218 ‰ demographic yearbook "Population of Ukraine for 2015" (2016). Therefore, given the current dynamics is likely that in the future the community will be narrowed characteristic type of population reproduction over a long period will increase the negative effects such as depopulation and aging population.

Furthermore, it should be noted that the aging population deepens gender asymmetry, which appears to increase the proportion of women in both working and non working age. The current situation exacerbates the reduction in men's life expectancy compared to women. High mortality and low life expectancy of men. This led to the fact that in Ukraine men (life expectancy of men 66.3 years) live almost ten years less than women (76.2 years) the statistical bulletin "Birth rate tables of the expected life expectancy" (2017). The increase in the mortality rate of men of working age in the Eastern regions is the result of the complex action of many processes. In particular, it may be due to the fact that men are engaged in activities that are characterized by a high risk of injury and mortality. So, for the community rapidly aging population dynamics characterized by a continued increase in women, especially retirement and retirement age, which makes special needs to ensure women's life. Special needs are manifested in the impossibility of fulfilling a certain household work by women. In turn, this requires additional attention and assistance to this category of people on the side of the municipal authorities of the united territorial communities.

There is no doubt that the more the age structure of the population of able-bodied youth, the easier it is to fulfill the task of providing the elderly. Thus, particular concern is the reduction in the number of young people, due to which, first of all, there

is a replenishment of labor resources. The low fertility rate and its sustainability over a long period of time significantly affect the natural reproduction of the population of the Liman City Integrated Territorial Community (Table 2).

Table 2. Dynamics of the natural movement of the population of the Liman city united territorial community

Indexes	**2009**	**2015**
Number of births, persons	233	172
Number of deceased persons	479	435
Natural increase (decrease) of population, persons	-246	-263
Fertility rate (per 1,000 population)	11,3	8,0
Mortality rate (per 1,000 population)	23,2	20,35
Natural increase (decrease) population (per 1000 population)	-11,9	-12,4

Source: Compiled by the authors according to sources demographic yearbook "Population of Ukraine for 2015" (2016), statistical bulletin "Natural Movement of Population for 2016" (2017)

It is proved that the birth rate as any other demographic process reflects the laws of reproduction of social life. The structure and the natural movement of the population depends primarily on decisions made by households. So on the decision to have one or more children, and vice versa, the "childfree family" affects household incomes, their material and living conditions, and the development of the social infrastructure of the territory. Also, this level is conditioned by the current social policy of the state, which concerns the support of families with children, the level of health care, the existing system of education and culture, etc.

Statistical observation suggests that in recent years Limanskaya city united territorial community was a significant decrease in the number of births, from 233 persons in 2009 to 172 people in 2015, nearly 26,2% (61 person); the total fertility rate decreased accordingly from 11.3 ‰ to 8.0 ‰ demographic yearbook "Population of Ukraine for 2015" (2016), statistical bulletin "Natural Movement of Population for 2016" (2017), while the mortality rate is rising.

Another negative processes that affect the population structure Limanskaya city united territorial community, is a high mortality rate, especially of working age, which instead trends to increase the statistical bulletin "Birth rate tables of the expected life expectancy" (2017).

A comparative analysis of the sex-age structure of mortality suggests that high rates are recorded among the able-bodied population (mortality in the age group from 20 to 59 years is 35%, at the age of 19 years–6,8%) the statistical bulletin "Birth rate tables of the expected life expectancy" (2017), while in European countries - this older age group. It should also be noted that in this age range, male mortality significantly exceeds this figure in women (78,4:21,6%, respectively), which results in the development of disproportions between the number of men and women in older age groups.

Investigating socio-demographic problems of the development of the united territorial communities of Ukraine's east, attention should be paid to such phenomenon as migration of population (Fig. 3).

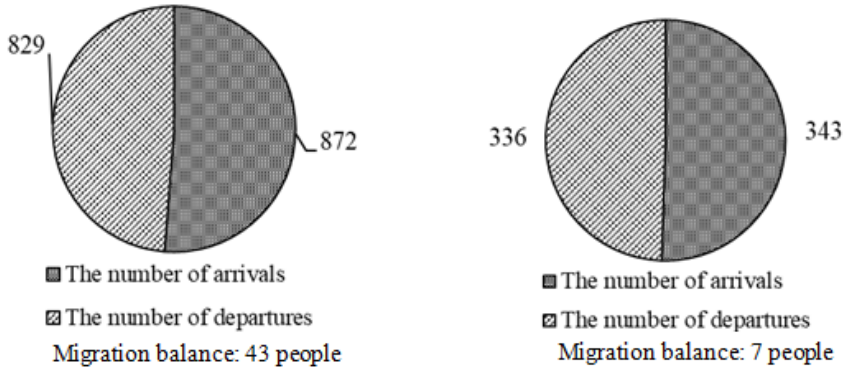

Figure 3. The dynamics of migratory flows of the population of the Liman city united territorial community in 2010 and 2015.

Source: The authors compiled according to sources demographic yearbook "Population of Ukraine for 2015" (2016),

The impact of migration on the demographic situation is ambiguous. Migration processes of the population of the community can actively and quickly influence the reduction or increase of the population, changing its gender and age structure. It is established that the migration activity of the population is formed according to certain laws. The first one that forms a positive balance of migration, which indicates the attractiveness of the united territorial community for life. The second one, which characterizes the negative balance, shows that there are both social and economic problems in the area.

The analysis of the migration structure of the population of the Liman City UTC shows that in recent years there have been no significant changes in the migration flows of the population. Thus, according to the data released by the State Statistics Service of Ukraine, it turns out that there is no loss of population due to migration. However, it should be noted that the State Statistics captures only a tiny fraction of migrants which receives data from the police.

Given that the institution of "residence" in Ukraine was canceled and replaced by the place of registration of residence or stay, it turns out that the presence of the place of registration for employment is not mandatory. These events created the conditions for activation of human population movements, especially youth captured. Note that these flows of labor migration are within Ukraine, and the overall change in the population of the country is not affected. The vector of these streams is aimed at cities where there is a demand for labor. Also, the priority for internal migrants are those settlements where the average salary of workers is higher than the average in Ukraine.

The analysis of the dynamics of the migration processes of Donetsk region according to the age structure of the population shows that the bulk of the participants in these processes falls on the able-bodied part of the population. The intensity of migration processes of people of different ages is not the same. The most mobile group was mostly youth aged 15 to 24 (48,48% of the total number of migrants state Statistics Service of Ukraine population (1990-2014), demographic yearbook "Population of Ukraine for 2015" (2016) just when the school ends and plans for vocational education or employment. However, one should also take into account the fact that migration

processes are reflected not only in the size of the population, but also in its gender-age structure. Thus, it can be argued that the young and competitive population of the Liman City United Territorial Community participates in these flows of labor migration, being registered in the community.

Interstate migration also influences changes in the population of both Ukraine and the Liman city united territorial community. The problems of population accounting participating in interstate labor migration do not allow to create a reliable model of these displacements, as well as to determine the consequences of the impact of these flows on the reproduction of the social life of the community.

In the context of the study of UTC of the Eastern regions, it should be noted that the high migration activity of the population is due to the consequences of the ATO. So, the aggravation of the situation in the East of the country can lead to a new wave of forced migration of the population. In connection with the resettlement of part of the inhabitants of the affected areas, the average population density has decreased by 20%, state Statistics Service of Ukraine population (1990-2014), demographic yearbook "Population of Ukraine for 2015" (2016), statistical collection "The number of available population of Ukraine as of January 1, 2017" (2017), which is critical given the prospects for restoring the potential of settlements in the Donbass. Separate monofunctional cities are on the verge of irreversible degradation due to the closure of city-based enterprises. The high proportion of settlements in the settlement structure of these areas against the background of much of the population losses due to internal displacement complicates their future recovery Gorbulin VP., Vlasyuk AS., Libanova EM. & Lyashenko AM. Donbass and Crimea: the price of return (2015).

So, the proximity of the ATO from the city of the location of the Liman Municipal Unified Territorial community increases the risk of activating the labor movements of its inhabitants, which can be assessed as very high.

Taking into account the prospects for the development of the Liman City Territorial community as reflected in its development strategy, in particular, the development of an industrial park, the creation of conditions for investors, for the development of business, tourism, the creation of recreation areas and the formation of a positive image of the community, with a competent allocation of resources and a clear determining vectors of economic development community can reach the heights and become a model of successful implementation of decentralization in the Eastern region.

CONCLUSIONS AND RECOMMENDATIONS

Conclusions

Thus, summing up the results of the study, it came to the conclusion that the vital activity of the united territorial community proceeds in the specific historical conditions that have developed in a certain territory. It is determined by various system activities in all areas of community life: economic, social, political and spiritual.

The major problem of almost all local communities united East Ukraine is the rapid population decline. The dynamics of the size of the existing population of the Liman city united territorial community suggests that there is a long-term tendency for

its natural decline, as well as the fact that negative socio-demographic processes affect changes in the age structure of the population.

It was proved that the transformation of the sex-age structure of the population of the Liman city united territorial community and the narrowed type of its reproduction leads to an increase in the proportion of people over the working age in the structure of the population of the community, which, in turn, increases the burden on the able-bodied population.

Considering the dynamics and structure of migration flows, set the probability narrowed type reproduction of the population over a long period in the future of the community. Outlined the consequences of this situation, including the depopulation and aging population.

Taking into account the aforementioned, it was stated that special attention and analysis is required for the issues of socio-economic consequences of aging of the population, in particular, the impact of these processes on production, consumption, health care, social assistance, investment, and, in turn, on the general contemporary socio-economic conditions characterized by an increase in the burden on the able-bodied population.

In addition, the need to focus on the study of the peculiarities of demographic processses has proved necessary, since the latter are characterized by persistence and inertia which leads to irreversible changes in the economy and politics. So long-term changes in the age structure of the population can significantly change the structure of its reproduction.

Recommendations

According to the authors, the solution of socio-demographic problems of the combined territorial communities is possible, first of all, due to the improvement of the quality of life of the inhabitants. Thus, the priority should be to ensure stable employment due to the economic development of these areas, the introduction of new technologies (such as solar and wind power, etc.), new construction and restoration of the existing social, transport, information and so on. infrastructure. It is also necessary to ensure an appropriate level of secondary education for adolescents. The fact that the state grants rural youth benefits in admission to higher educational institutions is a recognition that it is unable to provide the proper quality of education that would be sufficient for entry into budget places at universities.

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Appraisal of the preparedness of ECOWAS towards a common currency

Louis Sevitenyi Nkwatoh

Economics Department, Yobe State University, Nigeria

e-mail correspondence:sevinkwatoh@gmail.com

Abstract

This study appraised the preparedness of Economic Community of West African States (ECOWAS) towards the adoption of a common currency by analysing the degree of symmetry and sizes of identified shocks across member countries. The analysis was situated within the framework of the Optimum Currency Area (OCA) theory and the structural vector autoregressive (SVAR) model was employed on secondary data from 1975 to 2015. The findings reveal that external supply shocks across ECOWAS countries are symmetric except for Sierra Leone, while demand, supply and monetary shocks among member countries are asymmetric. The absolute relative sizes of the different shocks across member countries are high and different in sizes. This implies that ECOWAS countries are not fully prepared to adopt a common currency and the fixed exchange rate as a stabilization policy for the entire West Africa. Hence ECOWAS governments should further shift the targeted date beyond 2020 to create ample time for member countries to get fully prepared.

Keywords: *monetary union, optimal currency area, symmetry of shocks, structure VAR, ECOWAS*

JEL classification: F36, F42, E52, R11

INTRODUCTION

The desire to strengthen economic integration and regional stability has motivated economic blocs across the World to assess the possibilities of establishing a common market and introducing a common currency that will facilitate economic transactions. This is achievable only if a group of countries are willing to sacrifice their monetary autonomy and implement a common stabilization policy.

Inspired by the benefits of a monetary union, the ECOWAS Heads of States adopted a two-track approach to set up a common Central Bank for the entire region with the introduction of a common currency. The creation of a second monetary union called the West African Monetary Zone (WAMZ- Gambia, Ghana, Guinea, Nigeria, Liberia and Sierra Leone) in 2003 was considered as the first tract, while the rebirth of a broader monetary union that will merge the existing West African Economic and Monetary Union (WAEMU- Benin, Burkina Faso, Côte d'Ivoire, Mali, Niger, Senegal and Togo) and the newly created WAMZ is considered as the second track.

The standard framework that examines the desirability of a monetary union is premised on the Optimum Currency Area (OCA) theory introduced by Mundell (1961), extended by McKinnon (1963) and further enriched by Kenen (1969) and Ishiyama (1975) emphasizes on the symmetry of shocks that resonate across a group of countries

contemplating to form a monetary union. Symmetric shocks are crucial because they provide information on the costs and desirability of a union's monetary policy (Tsangarides & Qureshi, 2008; Karras, 2006; De Grauwe, 2005). Thus, countries that exhibit high co-movements in their economic activities can proceed to a monetary union because they are likely to experience similar economic shocks with less cost.

Even though the key issues enshrined in the OCA theory among other strategies have been frequently discussed by ECOWAS governments and ratified in the various Treaties, member countries still remain vulnerable to high asymmetric shocks. Tsangarides & Qureshi, (2008) and Karras, (2006) observed that the shocks that resonate across ECOWAS countries are uncorrelated implying that the adoption of a common stabilization policy will be costly for member countries. The asymmetry of shocks across ECOWAS is due partly to the differentials in their major exports. IMF Report (2007) reveals that Nigeria is the largest Country and the greatest oil exporter in the region while prospective union members' international trade is heavily skewed towards commodity exports, thus making the terms of trade shocks highly uncorrelated across the region.

The vulnerability to asymmetric external and domestic shocks in the entire region portents a high cost of forfeiting monetary autonomy by member countries to a common Central bank, yet ECOWAS countries have expressed their desire to introduce a common currency for the entire region by the year 2020. Therefore, the main objective of this study is to appraise the preparedness of ECOWAS towards the adoption of a common currency for West Africa.

The structure of the study is as follows: Section 1 ushers in the introduction; Section 2 discusses the theoretical underpinnings as well as the empirical literature. Section 3 presents the methodology and sources of data. Section 4 presents the results and analysis, while the conclusion and recommendations are contained in Section 5.

LITERATURE REVIEW

Theoretical framework

The discourse on the costs and benefits of establishing a monetary union is rooted in the Optimum Currency Area (OCA) theory introduced in the early 1960s by Robert Mundel and further enriched by McKinnon (1963), Kenen (1969) and Ishiyama (1975). The theory proceeded from the debate on the importance of fixed versus flexible exchange rate regimes and was also motivated by the malfunctioning of the Bretton Woods System of fixed exchange rates. While Friedman (1953) emphasizes on the relative importance of the floating regime as a basic condition for free trade because it has the ability to ease the process of adjustment to external shocks, Krugman (1990) rather submits that the fixed exchange rate regime confers a degree of stability between the participants and the numéraire country (countries), as well as between the participants. Proponents of the OCA theory go beyond the two contending views, stating clearly the conditions that must be fulfilled by countries wishing to form a monetary union.

An important perquisite entry condition for an optimum currency area according to Robert Mundell is that member countries should allow the '*free movement of factors of production'* (i.e. labour, wages, or capital) across the region. Mundell's (1961) submission underscores the appropriateness of a common currency predicated on the symmetry of both supply and demand shocks in a regional bloc. Thus, mobility of factors of production balances the surpluses and deficits of member countries (Alturki, 2007) and automatically stabilizes asymmetric shocks (Kochanová, 2008). In 1973,

Robert Mundell complimented his earlier proposition, acknowledging that candidates for a monetary union should also promote '*portfolio diversification'* for international risk sharing. The simple reasoning here is that countries are not hit by severe asymmetric shocks when they share portfolio diversification in capital markets (Ling, 2001) since financial capital moves much more easily than physical capital and labour (Broz, 2005 and McKinnon, 2004).

Extending the OCA theory, McKinnnon (1963) propounded that *'trade openness'* is a decisive criterion for a monetary union and not factor mobility as initially proposed by Mundel (1961). Robert McKinnon argued that economies are more likely to adopt a fixed exchange system, the moment they become more open to one another. An important criterion that adds credence to the OCA theory is a country's '*diversification of production*' propounded by Kenen (1969). More diversified economies according to Kenen, are less prone to different types of shocks; provide more job opportunities and posses a high candidacy level for a monetary union. Consequently, diversification of production in a regional bloc can maintain internal stability of prices; thus, omitting the need of exchange rate as an adjustment mechanism. Kenen also underscores the need for a well coordinated fiscal and monetary policy in guaranteeing the success of monetary integration. Sheik's (2014) supporting Kenen's view submits that fiscal policy integration would allow countries of a monetary union to redistribute funds to a member country affected by an adverse country-specific disturbance thereby guaranteeing the stability of the monetary union. Ishiyama's (1975) contribution to the OCA theory cited in Broz (2005) suggests that candidate countries of common currency should possess "*inflation and wage stability"* as this would signal similarities in economic structure and policies. These similarities foster a more balanced current account and trade among member countries, and therefore curbs the need for nominal exchange rate adjustment (Mougani, 2014).

The key criteria for an optimum currency area advanced by Mundell (1961), McKinnon (1963) and Kenen (1969) are factor mobility, trade openness, product diversification and similarity of inflation rates and wage stability. However, Krugman (1993) and Mongelli's (2002) Tavlas (1993), Tavlas (2009), Dellas and Tavlas (2009) submit that a successful monetary integration is incumbent on the *"political will and interregional compensation"* schemes of member countries.

Analyzing the preparedness of ECOWAS towards a common currency is situated within the framework of the Optimum Currency Area theory because key issues ratified in various ECOWAS Treaties are enshrined in optimum currency area theory.

Empirical literature review

A plethora of studies have evaluated the viability of a currency union by identifying the degree of symmetry of shocks among a group of economies using the structural vector auto regressive (SVAR) approach, introduced by Bayoumi and Eichengreen (1992), premised on the Blanchard-Quah decomposition of shocks between supply side and demand side to operationalize the optimum currency area theory.

Based on the Blanchard-Quah framework, Bayoumi and Eichengreen (1992) explored the size of shocks and the speed of adjustment to these shocks to the results from US annual regional data from 1970 to 2008. They found that the underlying shocks are significantly more idiosyncratic across EC countries than across US regions, In another related study, Bayoumi and Eichengreen (1994) found that currency unions were feasible among clusters of regional blocs in East Asia countries, Western

European countries, Latin American countries and North American countries including Canada and United States. Many studies across Europe have produced similar results using the SVAR: Ramos and Suriach (2004); Frenkel and Nickel (2002); Broz (2008) and Marinas (2012). Ramos and Suriach (2004) showed that shocks are more asymmetric in candidate countries than in current Euro-zone members. Similarly, Horvath and Rátfai (2004) showed that the shocks of EMU members and candidate countries wishing to join the EMU were idiosyncratic, implying that the enlargement of the EMU will require a costly process.

Many studies have ex-rayed the feasibility of the Asian and Latin American monetary unions by evaluating the degree of symmetry in macroeconomic disturbances of member countries predicated on the Blanchard and Quah methodology. Almost all the studies are unique in their conclusion suggesting that shocks among member countries were asymmetric. For instance, Sato, Zhang and McAlee (2005), Koh and Lee (2010); Ling (2001); Tang, (2006); Jeon and Zhang (2007); Huang and Guo (2006) using the SVAR, reached the conclusion that a fully-fledged currency union in the Asian region is not necessary but rather smaller sub-groupings could possibly form a monetary union. The strand of literature on Latin American (LM): Bayoumi and Eichengreen (1994), Licandro (2000), Hallwood, Marsh and Scheibe (2006), Foresti (2007), McKnight and Sánchez (2014) among others havee a unique conclusion - the formation of a LM monetary union is not feasible.

Literature on the feasibility of the Gulf Cooperation Council (GCC) monetary union using the AD-AS framework is vast. Abu-Bader and Abu-Qarn (2008) found that GCC demand shocks were asymmetric implying that they were not good candidates for a successful monetary union. Al-Turki (2007), Benbouziane, Benhabbib, and Benamaar (2010), Louis, Balli and Osman (2010) among others Alshehry and Slimane (2012), Kandil and Trabelsi (2012) and Arfa (2012), also reach a similar conclusion.

Studies in Africa that have used the AD-AS framework to analyse the viability of a monetary union among different regional sub groupings have little nuances. Buigut and Valev (2005) established that economic shocks of SADC economies were not highly correlated across the entire region, hence they may benefit from a currency union. Njoroge, Opolot, Abuka and Okello (2011) submitted that a monetary union for Common Market for Eastern and Southern Africa (COMESA) was possible but might however make member countries more vulnerable to shocks, thereby limiting the potential benefits of monetary integration. Sheikh, Zarina and Aslam (2013) and Mafusire and Brixiova (2013) in their studies concluded that macroeconomic convergence was impossible for EAC countries.

Few studies have analysed the degree of symmetry of shocks across West African States using the SVAR mode. Addison, Opoku-Afari and Kinful (2005) found very low cross country correlations of terms of trade shocks and real exchange rate shocks across WAMZ countries. Unlike Addison et al. (2005) who used the typical Blanchard and Quah (1989) model, Chuku (2012) and Onye et al. (2012) in separate studies extended the previous model to a four-shock VAR model for ECOWAS. Their results are consistent showing that the relative responses of the economies to external disturbances are highly asymmetric as well as the correlations of supply, demand and monetary shocks among the countries. They suggested that for main time, ECOWAS should not proceed with the eco, since the costs will outweigh the benefits. Their results agree with an earlier finding by Houssa (2008) who used a dynamic factor model

METHODOLOGY

Source of data

The data sets for the analysis are extracted from various issues of the International Financial Statistics published by the IMF, World Development Indicators published by World Bank and WAMA indicators published by the West African Monetary Agency. The study covered the period 1975 to 2015 to considerably take into account all the protocols and agreements meted out by ECOWAS and also, to fully capture the behaviour of the macroeconomic variables with respect to the convergence criteria. The variables used in the study are: World oil prices (WOP) global GDP (GGDP), real gross domestic product (RGDP), real effective exchange rate (REER) and domestic prices proxied by inflation (INF). Annual data for 14 ECOWAS economies, namely Benin, Burkina Faso, Cape Verde, Cote d'Ivoire, Gambia, Ghana, Guinea, Guinea-Bissau, Mali, Niger, Nigeria, Senegal, Sierra Leone, and Togo. Liberia was not considered due to paucity of data.

Model specification

The study employed the SVAR premised on Blanchard and Quah (1998) AD-AS framework extends the 2-variable VAR and 4-variable VAR model used in the literature to a 5-variable VAR model to examine the degree of symmetry and/or asymmetry of macroeconomic shocks among ECOWAS economies. Based on this analytical framework, countries will adopt a common currency if the shocks affecting the participating economies are positively correlated (symmetric) and vice versa.
The structural model is decomposed by specifying the five shocks world oil price (WOP), global GDP *(GGDP)*, domestic real GDP *(DRGDP)*, real effective exchange rate *(REER)* and inflation (INF*)*, as follows:

$$\Delta WOP_t = A_{11}(L)\varepsilon_t^{s*} \ldots \qquad (1)$$

$$\Delta GGDP_t = A_{21}(L)\varepsilon_t^{s*} + A_{22}(L)\varepsilon_t^{s*} \ldots \qquad (2)$$

$$\Delta DRGDP_t = A_{31}(L)\varepsilon_t^{s*} + A_{32}(L)\varepsilon_t^{s*} + A_{33}(L)\varepsilon_t^{s} \ldots \qquad (3)$$

$$\Delta REER_t = A_{41}(L)\varepsilon_t^{s*} + A_{42}(L)\varepsilon_t^{s*} + A_{43}(L)\varepsilon_t^{d} + A_{44}(L)\varepsilon_t^{m} \ldots \qquad (4)$$

$$\Delta INF_t = A_{51}(L)\varepsilon_t^{s*} + A_{52}(L)\varepsilon_t^{s*} + A_{53}(L)\varepsilon_t^{s} + A_{54}(L)\varepsilon_t^{d} + A_{55}(L)\varepsilon_t^{m} \ldots \qquad (5)$$

The 5x5 matrix (A_i) provides the impulse responses of endogenous variables to structural shocks. ϵ = [$\epsilon_t WOP$, $\epsilon_t GGDP$, $\epsilon_t DRGDP$, $\epsilon_t REER$, $\epsilon_t INF$], comprising of external world supply shock ($\epsilon_t WOP$, $\epsilon_t GGDP$) domestic supply shock ($\epsilon_t DRGDP$), domestic demand shock ($\epsilon_t REER$), and monetary shock $\epsilon_t INF$), respectively and are assumed to be serially uncorrelated. The long run restrictions are as follows:

World oil price is considered to be strictly exogenously, implying that $A_{11}(L) \neq 0$, while $A_{12}(L) = A_{13}(L) = A_{14}(L) = A_{15}(L) = 0$. Global real GDP strictly evolves exogenously implying that $A_{21}(L) \neq 0$ *and* $A_{22}(L) \neq 0$, while $A_{23}(L) = A_{24}(L) = A_{25}(L) = 0$.

Domestic real GDP is affected exclusively by supply shocks in world oil prices and global real GDP. Thus, $A_{31}(L) \neq 0$, $A_{32}(L) \neq 0$, $A_{33}(L) \neq 0$, while $A_{34}(L) = A_{35}(L) = 0$.

Real effective exchange rate is assumed to be affected only by shocks from the world oil price, global output, domestic supply shocks and domestic demand shocks, $A_{41}(L) \neq 0$, $A_{42}(L) \neq 0$, $A_{43}(L) \neq 0$, $A_{44}(L) \neq 0$, while $A_{45}(L) = 0$.

Lastly, domestic price is assumed to be strictly endogenous, meaning that prices are affected by shocks from the world oil price, in global GDP, domestic supply,

demand shocks as well as monetary shocks. Thus, $A_{51}(L) \neq 0$, $A_{52}(L) \neq 0$, $A_{53}(L) \neq 0$, $A_{54}(L) \neq 0$ *and* $A_{55}(L) = 0$.

The new decomposed model with restrictions can be represented in the matrix form:

$$\begin{bmatrix} \Delta WOP_t \\ \Delta GGDP_t \\ \Delta DRGDP_t \\ \Delta REER_t \\ \Delta INF_t \end{bmatrix} = \begin{bmatrix} A_{11}(L) & 0 & 0 & 0 & 0 \\ A_{21}(L) & A_{22}(L) & 0 & 0 & 0 \\ A_{31}(L) & A_{32}(L) & A_{33}(L) & 0 & 0 \\ A_{41}(L) & A_{42}(L) & A_{43}(L) & A_{44}(L) & 0 \\ A_{51}(L) & A_{52}(L) & A_{53}(L) & A_{54}(L) & A_{55}(L) \end{bmatrix} \begin{bmatrix} \varepsilon_t^{S*} \\ \varepsilon_t^{S*} \\ \varepsilon_t^{S} \\ \varepsilon_t^{d} \\ \varepsilon_t^{m} \end{bmatrix} \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots (6)$$

The long run restrictions have been imposed to identify the structural underlying shocks. World oil prices (WOP) and global GDP are exogenous to country-specific domestic shocks, while all domestic variables are affected by shocks in world oil prices and global GDP.

PRESENTATION AND ANALYSIS OF RESULTS

Before implementing the multivariate SVAR model, the variables were screened in order to avoid spurious regression and ascertain the order of integration (stationarity) of the series by employing the Augmented Dicky-Fuller (ADF), Phillips Perron tests and the correlogram approach[1] *(Appendix 1)*. The results indicate that the variables of all the countries except Seirra Leone and Senegal have unit roots at levels. But after differencing the series once, all the variables became stationary at various levels of significance. Both ADF and PP tests provide conflicting results for the global GDP of Sierra Leone and domestic price for Senegal. However, this was settled with the use of spectra analysis which shows that both variables are integrated of order one. All the results satisfy the diagnostic tests.

Diagnostic tests

Appendix 2 shows the optimal lag lengths and serial correlation LM tests for the different VAR models. The different optimal lag lengths were chosen in order to ensure that the estimations of the structural VAR are consistent. The result reveals that only the VAR estimates of Benin, Ghana, Sierra Leone and Togo are in conformity with the Akaike Information Criterion (AIC) and the Swartz Information Criterion (SIC) lag selection criteria. The estimated SVAR models for the rest of the countries exhibited serial correlation at their original lags and thus, the appropriate lag lengths were selected based on the absence of the serial correlation test as indicated on Table 2 The results of the serial correlation LM tests indicate that all the models at the chosen lags are free from serial correlation because the p-values in the brackets are greater than 0.05. Hence, the models are robust at their chosen lags.

Stability test

The next important test that follows the serial correlation LM-test is the VAR stability test. The estimated VAR model is stable (stationary) if all roots have modulus

[1] ADF test: $\Delta X_t = a + bt + \rho X_{t-1} + \sum_{i=1}^{k} \Delta X_{t-i} + \mu_t$: ΔX_t is the first difference of the series *X*, *k* is the lag order, *t* is the time.

PP test: $\Delta X_t = a + bX_{t-1} + c(t + \frac{T}{2}) + \mu_t$: *a*, *b*, and *c* are the coefficients and *T* is the total number of observations. Therefore, the *ADF* and *PP* unit root tests posits a null hypothesis $\beta = 0$ versus an alternative hypothesis $\beta < 0$, where the *ADF* and *PP* statistics is compared with the observed Mackinnon critical values.

less than one and lie inside the unit circle (Agung, 2009). Certain results (such as impulse response standard errors) are not valid if the VAR is not stable, (Eviews Help Menu, version 9.5).

Appendix 3 presents the VAR stability test for ECOWAS in the study sample. The results show that all the roots of the VAR model have a modulus less than one. Thus, the estimated VAR models of all the ECOWAS countries under consideration fulfil the stability condition. All initial preliminary VAR diagnostics have been fulfilled which permits the study to proceed with further analyses.

Identification and correlation of structural shocks

The traditional OCA theory lays emphasis on the importance of symmetric shocks for countries contemplating to form a monetary. The decision criterion is that a positive and significant correlation indicates that the shocks are symmetric, while negative or not statistically significant implies that the shocks are asymmetric. The results of the correlations of both external and domestic supply shocks, demand and monetary shocks among the ECOWAS economies are analysed in the following subsections.

Correlation of external supply shocks

World oil price

Appendix 4 presents the correlation coefficients of supply shocks across ECOWAS countries, with respect to world oil prices from 1975-2015. The results indicate that the correlations of external supply shocks are positive and highly significant for all ECOWAS countries. This implies that all ECOWAS countries respond to changes in World oil prices in almost the same manner (symmetric). The reason for the high correlation is because the price of oil in the world market affects the economies of all countries in the ECOWAS region irrespective of whether they are oil producing countries or not. Thus, higher correlation of shocks from world oil prices will increase the benefits of forming a monetary union by ECOWAS countries.

Global Gross Domestic Product

Appendix 5 presents the correlation coefficients of external supply shocks across ECOWAS countries, with respect to global GDP from 1975-2015. The results indicate that the correlations of external supply shocks are positive and significant across ECOWAS countries except for few pairs of countries: Guinea Bissau-Cape Verde; Nigeria-Cape Verde, Senegal-Cape Verde; Senegal- Gambia; Togo-Nigeria; Togo-Senegal. The positive correlations of external shocks across ECOWAS countries show that their economies' respond to global shock is similar. Chuku (2012) attributes this similarity in shocks to the primary export-oriented structure of most West African economies. Thus, higher correlations from an external source suggest more benefits to ECOWAS countries because the adoption of a common currency will greatly reduce bilateral exchange rate distortions brought about by external disturbances. However, the correlations coefficients of Sierra Leone are negative. This implies that Sierra Leone's response to global shocks is asymmetric to other ECOWAS countries.

External sources of disturbance greatly affect ECOWAS countries. That notwithstanding, the response to these disturbances in the region are similar, but for Sierra Leone that displays a different response pattern with respect to global GDP. The implication is that Sierra Leone may be worse-off in a monetary union based on these criteria.

Correlation of domestic supply shocks (Domestic real GDP (DGDP)

Appendix 6 presents the correlation coefficients of domestic supply shocks across ECOWAS. Among the pairs of countries studied, 17 pairs have insignificant correlation coefficients while 17 pairs have negative coefficients, making a total of 34 pairs of countries that have uncorrelated domestic supply shocks. This implies that domestic supply shocks across ECOWAS countries are largely asymmetric. The degree of asymmetry is justified because of the differences in the core primary export commodities among ECOWAS countries. However, the remaining 57 pairs of countries display positive and significant correlations. In a nut shell, ECOWAS countries exhibit different responses to domestic supply shocks and therefore, require different adjustment policies.

Domestic demand shocks

Appendix 7 provides the correlation coefficients of demand shocks among ECOWAS countries. The responses to demand shocks across ECOWAS countries are different because out of the 91 pairs of countries examined, only 38 have significant symmetric correlations in domestic demand shocks, while the rest display asymmetric responses. The results are similar to the findings of Fielding and Shield (2001) for the CFA zone. Chuku (2012) attributed the prevalence of asymmetric correlation in demand shocks to the weak inter-demand relationships among ECOWAS economies.

Monetary shocks

Appendix 8 shows the correlation results of monetary shocks among ECOWAS countries. Out of the 91 pairs of countries investigated, only 25 pairs of the countries have symmetric correlations in monetary shocks. The symmetry of monetary shocks is significant among WAEMU countries, whereas WAMZ countries have an asymmetric correlation of monetary shocks. The symmetry of monetary shocks among the WAEMU countries is due to the fact they belong to an already existing monetary. Hence, the response to a common monetary policy is likely to be similar. The other 66 pairs of ECOWAS countries either display negative or insignificant correlations between monetary shocks; implying that the potentials for symmetric adjustments within the context of a monetary union may not feasible.

Homogeneity of shocks

A one-way ANOVA analysis is used to categorize the nature of the shocks (symmetric/asymmetric) across ECOWAS countries. It is informative to know whether these shocks are heterogeneous (implying that forming a monetary union is costly) or homogeneous (implying that implying that forming a monetary union is costly). The basic idea is that if the identified shocks among ECOWAS countries have the same mean, then the shocks are homogeneous, otherwise heterogeneous. Secondly, it is important to measure the extent of volatility of supply and demand shocks because of policy stabilization. This is because smaller shocks imply less reliance to stabilization policies such as nominal exchange rate adjustments thereby making regional economies better candidates for a monetary union (Sheik, 2012). The size of the shock is measured using the coefficient of variation (CV). A CV value of less than one implies homogeneity among sub groups, whereas a CV value of more than 1 signifies heterogeneity among sub groups suggesting that the degree of variability among them is wide (Fischer, 2000; Palmer & Reid, 2001).

Table 1 shows a summary result of both the one-way ANOVA test and coefficient of variance test.

Table 1. One-way ANOVA test and Coefficient of Variance

Source of Disturbance	One-way ANOVA (F-test)		Coefficient of Variance (Levene-test)	
	Value	p-value	Value	p-value
World Oil Price Shock	39.48	0.0000	4.33	0.0000
Global GDP Shock	70.74	0.0000	3.22	0.0003
Domestic Supply Shock	118.8	0.0000	3.02	0.0007
Demand Shock	43.83	0.0000	6.8	0.0000
Monetary Shock	103.46	0.0000	7.4	0.0000

The probability values are zero, implying that the means of the supply, demand and monetary shocks differ across ECOWAS countries. Hence, the identified shocks are heterogeneous. Furthermore, the CV values are greater than 1 with the monetary shock having a relatively higher degree of variation from other shocks. This implies that policy responses will be different across ECOWAS countries; hence, the formation a monetary union in the region will be costly.

Size of identified shocks

Table 2 reports the absolute average sizes of both external and domestic shocks across ECOWAS economies. The different relative sizes of the shocks indicate whether the different stabilization policies will be synchronous or whether a common stabilization will address different macroeconomic disturbances across West Africa. This implies that a common stabilization policy will be rendered ineffective if the identified shocks are larger. The impulse response coefficients are used to evaluate the size of the shocks since it traces the effect of a one-unit shock in each of the five endogenous variables.

Table 2. Size of external and internal shocks (*100)

Country	External Supply Shock (WOP)	External Supply Shock (GGDP)	Domestic Supply Shock	**Average Supply Shock**	Demand Shock	Monetary Shock
Benin	0.0011	0.0001	0.0006	**0.0018**	0.0266	0.1355
Burkina Faso	0.0003	0.0011	0.0040	**0.0053**	0.0478	0.2296
Cape Verde	0.0020	0.0006	0.0004	**0.0030**	0.0468	0.1418
Cote D'Ivoire	0.0012	0.0021	0.0027	**0.0060**	0.0939	0.0807
Gambia	0.0013	0.0004	0.0017	**0.0034**	0.0048	0.0025
Ghana	0.0004	0.0011	0.0244	**0.0259**	0.0223	0.0055
Guinea	0.0015	0.0010	0.0101	**0.0126**	0.0062	0.0089
Guinea Bissau	0.0021	0.0005	0.0036	**0.0062**	0.1885	0.2229
Mali	0.0011	0.0009	0.0007	**0.0028**	0.0549	0.0530
Niger	0.0009	0.0013	0.0001	**0.0023**	0.0732	0.0574
Nigeria	0.0023	0.0024	0.0110	**0.0156**	0.0023	0.0169
Senegal	0.0013	0.0005	0.0015	**0.0034**	0.2690	0.1828
Sierra Leone	0.0061	0.0011	0.0017	**0.0089**	0.1216	0.1236
Togo	0.0029	0.0014	0.0054	**0.0096**	0.2768	0.0867
Average	**0.0018**	**0.0010**	**0.0048**		**0.0882**	**0.0963**

Among the various economies, Benin, Mali, Niger and Niger have the smallest size of supply shocks at 0.18%, 0.23% and 0.28% respectively, while Guinea, Nigeria, Togo and Sierra Leone have the largest sizes of 1.26%, 1.56, 0.96 and 0.89% respectively. For the average demand shocks, Togo, Senegal, Guinea Bissau and Sierra Leone have the largest sizes of 27.68%, 26.9%, 18.55 and 12.1%, while Nigeria, Gambia and Guinea have the smallest sizes of 0.23%, 0.48% and 0.62% respectively. On average, the size of monetary shock is high for Guinea Bissau (22.29%), Burkina Faso (22.96%), Senegal (12.36%) and Cape Verde (14.18%) respectively, while

Gambia (0.25%), Ghana (0.54%), Guinea (0.89%) and Nigeria (1.69%) respectively. The results indicate that the average supply shock cutting across ECOWAS appear to be smaller than the average demand and monetary shocks with values 0.76%, 8.8% and 9.6% respectively.

Comparatively the average sizes of the disturbances are larger than the already established sizes for other monetary regions. For example, the average supply sizes for the following: Americas (0.06%), Western Europe (0.03%), East Asia (0.032%), SAARC (0.023%). The average demand sizes of demand shocks from other regions are: Americas (0.145%), Western Europe (0.022%), East Asia (0.44%) and SAAR (0.037%) (see Chuku, 2012). Thus, the absolute relative sizes of the different shocks across West Africa are high, indicating that the fixed exchange rate as a common stabilization will not address the macroeconomic disturbances of respective ECOWAS economies.

Discussion of results

One of the key issues highlighted in the optimum currency area theory clearly spelt out by Mundell (1961) is that a group of countries opting for a monetary union should not be hit by asymmetric shocks. The findings of this study reveal that the responses to changes in external shocks by ECOAWS countries are symmetric. The findings are similar to that of Allegret Sand-Zantman (2007) for the case Mercosur countries.

Just like Addison et al. (2005); Houssa (2008); Chuku (2012) and Ekong and Onye (2012), the findings of this study reveal that the demand, supply, monetary and shocks are among ECOWAS countries are asymmetric. Studies similar to the above findings: Ramos and Suriach (2004); Frenkel and Nickel (2002); Broz (2008) and Marinas (2012). Ramos and Suriach (2004) found that the enlargement of the EMU would require a costly process because they have idiosyncratic shocks. Kar (2011) argued that shocks across EU countries are different due to low labor productivity, lack of competitiveness, illicit flow of capital etc. On the contrary, the asymmetry of shocks across ECOAWS is characterized by weak inter-demand relationships among ECOWAS economies, low immobility of factors of production, non-diversification of their economies etc.

Though the findings of Sato, Zhang and McAlee (2005); Ling (2001); Tang, (2006); Jeon and Zhang (2007) among others Huang and Guo (2006); Koh and Lee (2010) etc suggest that a fully-fledged currency union in East Asia is not necessary, they however established that smaller sub-groupings could possibly form a monetary union. Their findings are analogous to this study because only WAEMU sub-set economies displayed similar responses to economic shocks. Therefore, smaller sub-regional groupings tend to validate the OCA theory as also evidenced in the work (Bayoumi & Eichengreen, 1994) who submitted that currency unions are only feasible among clusters of regional blocs in East Asia. Lastly, the sizes of the shocks are bigger and differ from that of other studies due to the time frame of the study as well as the inclusion of the oil price variable in the estimation model.

CONCLUSIONS

This study evaluated the preparedness of ECOWAS towards a single currency by analysing the degree of symmetry and sizes of the identified shocks across member countries. The analysis was situated within the framework of the OCA theory. The SVAR was employed on secondary data from 1975 to 2015. The findings reveal that external supply shocks across ECOWAS countries are positive and symmetric except for Sierra Leone. This implies that the adoption of a single currency with a common

stabilization policy by all ECOWAS countries with the exception of Sierra Leone will greatly reduce bilateral exchange rate distortions caused by external disturbances, hence making them fit for a monetary union. However, the sizes of the shocks vary (higher for smaller economies and lower for larger economies) which might become asymmetric in the long run.

Secondly, domestic supply, monetary and demand shocks are asymmetric implying that ECOWAS countries for now require different adjustment policies because the potentials for symmetric adjustments within the context of a monetary union are not feasible. Thirdly, the absolute relative sizes of the different shocks across ECOWAS countries are high and different in sizes. The different relative sizes of the shocks indicate that adopting the fixed exchange rate as a common stabilization policy will not address the macroeconomic disturbances of respective ECOWAS economies. The recommendations that ensue from the findings are as follows:

ECOWAS governments should search their beam light on policies that will facilitate the diversification of their exports. The birth and re-birth of new quality products predicated on diversification will increase the export capacity of respective economies, reduce the rate of import demand across West Africa and strengthen the weak inter-demand relationships among ECOWAS economies which will in turn reduce the variability of demand shocks across ECOWAS economies.

Since factor mobility is an important perquisite entry condition to forming a currency union, ECOWAS countries need to relax policies that restrain factor mobility, payment of high custom duties and transit charges, high tariffs and delay in the process of documentation and requirements for product registration. Also, the governments need to improve and expand the network infrastructure across the entire region. All these will encourage the fast flow of capital from stronger economies to weaker economies across the region making the entire region to adjust faster and evenly to shocks. Secondly, the regulatory laws guiding the labour markets across West Africa need to be harmonized and made flexible. This will encourage labour mobility, easy resolution of labour conflicts, provide incentives for higher labour participation and foster better working conditions.

Thirdly, ECOWAS governments need to strengthen the intra-regional trade links among member countries by re-enforcing the already existing trade Treaties, ensuring that all trade barriers across the region are abolished. All these will increase the trade volume of respective economies and fast-track the creation of the expected common market that will greatly minimize the degree of macroeconomic disturbances across West Africa. However, governments of ECOWAS countries need to enforce the laws that govern cross-border transactions and put stringent measures to deter illegal trade transactions of goods and services across the entire region. This is because illegal trade is highly associated with macroeconomic disturbance and policy inconsistency.

The of asymmetry and different sizes of shocks among ECOWAS underscores the need for ECOWAS governments to further shift the targeted date beyond 2020 to create ample time for member countries to get fully prepared. Most importantly, WAEMU sub-set economies display similarity in the identified shocks, implying that English speaking West Africa countries (WAMZ) should be compelled to first of all form a second monetary union in the region. This will make them to fully understand the dynamics of how a common stabilization policy can reduce the variability of macroeconomic disturbances among member countries and how a one-size-fit all exchange rate policy facilitates economic and trade activities.

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APPENDIX

Appendix 1. Unit Root Test Result

Augmented Dickey Fuller (ADF) Test		Phillips Perron (PP) Test			
Trend and Intercept. Test Critical Values 1% = -4.2050; 5% = -3.5298; 10% = -3.1946					
Series	**Levels**	**1st Difference**	**Levels**	**1st Difference**	**Order**
Benin					
WOP	-1.869	-5.547	-1.874	-5.572	(I)
GGDP	-2.351	-4.886	-2.443	-4.895	(I)
DGDP	-2.902	-7.240	-2.908	-7.212	(I)
REER	-1.886	-6.555	-1.929	-6.554	(I)
INF	-2.539	-9.054	-2.559	-8.935	(I)
Cape Verde					
DGDP	-1.471	-4.211	-1.966	-4.699	(I)
REER	-1.349	-5.291	-1.345	-5.339	(I)
INF	-3.171	-7.716	-3.177	-7.547	(I)
Gambia					
DGDP	-1.245	-7.026	-1.383	-7.498	(I)
REER	-2.684	-6.576	-2.694	-6.570	(I)
INF	-3.241	-8.304	-3.231	-8.240	(I)
Guinea					
DGDP	-1.410	-8.477	-1.419	-8.105	(I)
REER	-2.221	-8.735	-2.223	-5.944	(I)
INF	-2.878	-7.727	-2.888	-7.727	(I)
Mali					
DGDP	-3.045	-4.592	-3.045	-7.646	(I)
REER	-2.059	-7.235	-2.068	-7.233	(I)
INF	-3.322	-6.832	-11.232	-7.727	(I)
Nigeria					
DGDP	-1.215	-4.687	-1.267	-4.687	(I)
REER	-2.696	-4.803	-2.917	-4.813	(I)
INF	-3.359	-6.515	-3.424	-6.860	(I)
Seirra Leone					
DGDP	-2.410	-3.481	-4.015	**correlogram**	(I)
REER	-2.433	-5.757	-2.437	-6.214	(I)
INF	-3.391	-6.854	-3.413	8.309	(I)
Burkina Faso					
DGDP	-1.349	-6.177	-1.413	-6.179	(I)
REER	-2.025	-7.215	-2.025	-7.252	(I)
INF	-2.315	-8.114	-3.412	-11.298	(I)
Cote D'Ivoire					
DGDP	-2.011	-4.904	-2.262	-4.974	(I)
REER	-2.579	-6.546	-2.590	-6.546	(I)
INF	-3.134	-0.723	3.151	-8.208	(I)
GHANA					
DGDP	-1.498	-4.393	-2.141	-4.443	(I)
REER	-2.326	-3.807	-2.688	-4.203	(I)
INF	-3.126	-11.244	-3.134	-11.000	(I)
Guinea Bissau					
DGDP	-3.049	-8.294	-3.092	-8.250	(I)
REER	-1.887	-4.177	-1.887	-5.247	(I)
INF	-2.275	-2.174	-2.787	-9.405	(I)
Niger					
DGDP	-0.386	-6.043	-0.465	-6.049	(I)
REER	-1.668	-6.553	-1.677	-6.540	(I)
INF	-3.212	-8.449	-3.132	-8.248	(I)
Senegal					
DGDP	-2.026	-7.938	-2.085	-7.753	(I)
REER	-2.149	-6.621	-2.160	-6.614	(I)
INF	-6.654	**Correlogram**	-6.554	**correlogram**	(I)
Togo					
DGDP	-1.607	-5.324	-1.634	-5.325	(I)
REER	-1.932	-7.288	-1.941	-7.284	(I)
INF	-3.415	-6.464	-3.422	-8.855	(I)

Source: Author's computation using Eviews 9.5

Appendix 2. SVAR lag length selection criteria/serial correlationtest

Country	Lag Length	LM - Test
Benin	1	21.34(0.6737)
Burkina Faso	1	26.54(0.6068)
Cape verde	2	7.89(0.99000)
Cote D'Ivoire	2	22.59(0.6014)
Gambia	2	34.06(0.1066)
Guinea	1	25.03(0.4609)
Guinea Bissau	1	26.2390.3956)
Ghana	3	19.91(0.7515)
Mali	3	23.05(0.5673)
Niger	1	26.55(0.3785)
Nigeria	2	13.76(0.9657)
Senegal	2	26.37(0.3879)
Sierra Leone	3	22.98(0.6079)
Togo	1	35.09(0.0865)

(*) represent the probability Values of the LM test

Source: Author's computation using Eviews 9.5

Appendix 3. Eigen value stability test

Eigen Value	Modulus	Eigen Value	Modulus	Eigen Value	Modulus	Eigen Value	Modulus
Benin		**Guinea**		**Ghana**		**Sierra Leone**	
0.554278 + 0.353482i	0.657399	-0.042733 - 0.754932i	0.75614	0.007801 + 0.711052i	0.7111	-0.016393 - 0.750291i	0.75047
0.554278 - 0.353482i	0.657399	-0.042733 + 0.754932i	0.75614	0.007801 - 0.711052i	0.7111	-0.016393 + 0.750291i	0.75047
0.119947 + 0.566748i	0.579302	0.567346 + 0.311451i	0.64721	0.694142	0.6941	0.547701 - 0.416176i	0.68788
0.119947 - 0.566748i	0.579302	0.567346 - 0.311451i	0.64721	-0.586702 - 0.160775i	0.6083	0.547701 + 0.416176i	0.68788
-0.539103	0.539103	-0.367462 + 0.488236i	0.61107	-0.586702 + 0.160775i	0.6083	0.336884 - 0.494706i	0.598519
-0.202457 + 0.474957i	0.516307	-0.367462 - 0.488236i	0.61107	0.495932 - 0.276168i	0.5676	0.336884 + 0.494706i	0.598519
-0.202457 - 0.474957i	0.516307	0.078410 - 0.563875i	0.5693	0.495932 + 0.276168i	0.5676	-0.39503	0.39503
-0.422600 + 0.135493i	0.44379	0.078410 + 0.563875i	0.5693	-0.063931 + 0.224422i	0.2334	-0.182078 - 0.340505i	0.38613
-0.422600 - 0.135493i	0.44379	-0.328337	0.32834	-0.063931 - 0.224422i	0.2334	-0.182078 + 0.340505i	0.38613
0.0542	0.0542	-0.242868	0.24287	0.202611	0.2026	0.234024	0.234024
Burkina Faso		**Guinea Bissau**		**Togo**		**Nigeria**	
-0.343063 - 0.454031i	0.569067	-0.010830 + 0.631864i	0.63196	0.083682 + 0.720029i	0.7249	0.808062 + 0.308190i	0.864839
-0.343063 + 0.454031i	0.569067	-0.010830 - 0.631864i	0.63196	0.083682 - 0.720029i	0.7249	0.808062 - 0.308190i	0.864839
0.519176	0.519176	-0.200146 - 0.576269i	0.61004	0.549376 + 0.261341i	0.6084	0.560399 + 0.607904i	0.826798
0.065931 - 0.512600i	0.516822	-0.200146 + 0.576269i	0.61004	0.549376 - 0.261341i	0.6084	0.560399 - 0.607904i	0.826798
0.065931 + 0.512600i	0.516822	-0.599737	0.59974	-0.521351 - 0.123648i	0.5358	-0.189669 + 0.804581i	0.826635
-0.222273 - 0.458397i	0.509444	0.403724 - 0.385867i	0.55847	-0.521351 + 0.123648i	0.5358	-0.189669 - 0.804581i	0.826635
-0.222273 + 0.458397i	0.509444	0.403724 + 0.385867i	0.55847	-0.166271 - 0.482588i	0.5104	-0.567353 + 0.567183i	0.802238
0.311860 - 0.391729i	0.500708	-0.201655	0.20166	-0.166271 + 0.482588i	0.5104	-0.567353 - 0.567183i	0.802238
0.311860 + 0.391729i	0.500708	0.024226 + 0.171096i	0.1728	-0.006645 + 0.283191i	0.2833	0.255006 + 0.733190i	0.77627
-0.341224	0.341224	0.024226 - 0.171096i	0.1728	-0.006645 - 0.283191i	0.2833	0.255006 - 0.733190i	0.77627
Cape verde		**Mali**		**Gambia**		**Senegal**	
-0.693945 + 0.313852i	0.761618	-0.144745 + 0.773233i	0.78666	-0.136608 + 0.641655i	0.656	-0.379520 - 0.490034i	0.619813
-0.693945 - 0.313852i	0.761618	-0.144745 - 0.773233i	0.78666	-0.136608 - 0.641655i	0.656	-0.379520 + 0.490034i	0.619813
0.319485 + 0.656406i	0.730027	-0.432826 + 0.498445i	0.66014	-0.579897 + 0.247470i	0.6305	0.609	0.609
0.319485 - 0.656406i	0.730027	-0.432826 - 0.498445i	0.66014	-0.579897 - 0.247470i	0.6305	0.158809 + 0.564269i	0.586191
0.667121	0.667121	0.061592 - 0.462672i	0.46675	0.358816 - 0.424664i	0.556	0.158809 - 0.564269i	0.586191
-0.108838 - 0.613419i	0.623	0.061592 + 0.462672i	0.46675	0.358816 + 0.424664i	0.556	-0.039477 - 0.497978i	0.49954
-0.108838 + 0.613419i	0.623	0.344943 + 0.261037i	0.43258	0.153256 - 0.365128i	0.396	-0.039477 + 0.497978i	0.49954
-0.612532	0.612532	0.344943 - 0.261037i	0.43258	0.153256 + 0.365128i	0.396	-0.271949	0.271949
0.232740 - 0.144067i	0.273721	-0.36128	0.36128	0.019941 + 0.160729i	0.162	-0.013770 + 0.091512i	0.092542
0.232740 + 0.144067i	0.273721	-0.056964	0.05696	0.019941 - 0.160729i	0.162	-0.013770 - 0.091512i	0.092542
Cote D'Ivoire		**Niger**					
-0.544820 + 0.462679i	0.714773	0.012491 + 0.686613i	0.68673				
-0.544820 - 0.462679i	0.714773	0.012491 - 0.686613i	0.68673				
0.129163 + 0.632396i	0.645452	0.615408 + 0.165390i	0.63725				
0.129163 - 0.632396i	0.645452	0.615408 - 0.165390i	0.63725				
0.491089 - 0.227585i	0.541261	-0.418547 - 0.384687i	0.56848				
0.491089 + 0.227585i	0.541261	-0.418547 + 0.384687i	0.56848				
-0.112022 + 0.446895i	0.460721	-0.103397 + 0.461391i	0.47284				
-0.112022 - 0.446895i	0.460721	-0.103397 - 0.461391i	0.47284				
0.418008	0.418008	-0.46545	0.46545				
-0.20296	0.20296	-0.214183	0.21418				

Source: Author's computation using Eviews 9.5

Appendix 4. Correlations of external supply shocks (world oil price) 1975 to 2015

	BENIN	BURKINA	CAPE	COTED	GAMBIA	GHANA	GUINEA	GBISSAU	NIGER	MALI	NIGERIA	SENEG	SIERRA	TOGO
BENIN	**1.0000**													

BURKINA	**0.7273**	**1.0000**												
t-value	2.9973	-----												
CAPE	**0.8797**	**0.9546**	**1.0000**											
t-value	5.2322	9.0655	-----											
COTED	**0.9785**	**0.8467**	**0.9576**	**1.0000**										
t-value	13.4303	4.5010	9.3971	-----										
GAMBIA	**0.6435**	**0.9892**	**0.9192**	**0.7839**	**1.0000**									
t-value	2.3781	19.0855	6.6037	3.5715	-----									
GHANA	**0.6532**	**0.9922**	**0.9200**	**0.7858**	**0.9889**	**1.0000**								
t-value	2.4399	22.4804	6.6390	3.5933	18.7916	-----								
GUINEA	**0.7866**	**0.9622**	**0.9289**	**0.8703**	**0.9279**	**0.9528**	**1.0000**							
t-value	3.6030	9.9968	7.0953	4.9977	7.0416	8.8747	-----							
GBISSAU	**0.9250**	**0.9270**	**0.9918**	**0.9832**	**0.8837**	**0.8803**	**0.9226**	**1.0000**						
t-value	6.8879	6.9914	21.9386	15.2171	5.3392	5.2488	6.7664	-----						
NIGER	**0.6085**	**0.9849**	**0.8927**	**0.7504**	**0.9949**	**0.9918**	**0.9358**	**0.8556**	**1.0000**					
t-value	2.1689	16.1099	5.6037	3.2113	27.8813	21.9451	7.5051	4.6744	-----					
MALI	**0.6742**	**0.9285**	**0.9285**	**0.8073**	**0.9423**	**0.9115**	**0.8164**	**0.8895**	**0.9053**	**1.0000**				
t-value	2.5823	7.0727	7.0741	3.8694	7.9577	6.2700	3.9982	5.5054	6.0280	-----				
NIGERIA	**0.8309**	**0.7930**	**0.8062**	**0.8459**	**0.7282**	**0.7497**	**0.8822**	**0.8438**	**0.7429**	**0.5882**	**1.0000**			
t-value	4.2242	3.6814	3.8545	4.4866	3.0051	3.2045	5.2986	4.4478	3.1388	2.0573	-----			
SENEG	**0.9668**	**0.8752**	**0.9614**	**0.9942**	**0.8123**	**0.8177**	**0.9037**	**0.9861**	**0.7877**	**0.8050**	**0.8853**	**1.0000**		
t-value	10.6984	5.1167	9.8794	26.0952	3.9394	4.0175	5.9713	16.8090	3.6163	3.8378	5.3842	-----		
SIERRA	**0.7791**	**0.9895**	**0.9587**	**0.8788**	**0.9639**	**0.9705**	**0.9679**	**0.9432**	**0.9626**	**0.8911**	**0.8549**	**0.9116**	**1.0000**	
t-value	3.5151	19.3568	9.5298	5.2089	10.2438	11.3816	10.8949	8.0330	10.0541	5.5548	4.6611	6.2740	-----	
TOGO	**0.6521**	**0.9931**	**0.9258**	**0.7883**	**0.9935**	**0.9983**	**0.9396**	**0.8846**	**0.9919**	**0.9320**	**0.7321**	**0.8172**	**0.9695**	**1.0000**
t-value	2.4329	23.9714	6.9272	3.6233	24.6694	48.2499	7.7637	5.3637	22.1215	7.2705	3.0402	4.0100	11.1904	-----

Correlation coefficients are in bold, while t-values are un-bold and the value of 2.0 and above indicates the significance of the coefficient at 5%. Positive and statistically significant correlation coefficient indicates symmetry, while negative shows asymmetry.

Source: Author's computation using Eviews 9.5

Appendix 5. Correlations of external supply shocks (Global GDP) 1975 to 2015

	BENIN	BURKINA	CAPEV	COTED	GAMBIA	GHANA	GUINEA	GUINEAB	MALI	NIGER	NIGERIA	SENEGAL	SIERRAL	TOGO
BENIN	**1.0000**													

BURKINA	**0.9599**	**1.0000**												
t-value	9.6879	-----												
CAPEV	**0.7083**	**0.8184**	**1.0000**											
t-value	2.8381	4.0289	-----											
COTED	**0.9603**	**0.9868**	**0.8702**	**1.0000**										
t-value	9.7410	17.2572	4.9960	-----										
GAMBIA	**0.8593**	**0.9538**	**0.9367**	**0.9638**	**1.0000**									
t-value	4.7520	8.9822	7.5694	10.2237	-----									
GHANA	**0.9514**	**0.9808**	**0.7033**	**0.9455**	**0.8987**	**1.0000**								
t-value	8.7428	14.2254	2.7982	8.2139	5.7970	-----								
GUINEA	**0.9951**	**0.9520**	**0.7354**	**0.9613**	**0.8604**	**0.9272**	**1.0000**							
t-value	28.5382	8.7964	3.0698	9.8727	4.7761	7.0010	-----							
GUINEAB	**0.9728**	**0.8797**	**0.5392**	**0.8716**	**0.7191**	**0.8942**	**0.9661**	**1.0000**						
t-value	11.8800	5.2328	1.8107	5.0279	2.9273	5.6484	10.5804	-----						
MALI	**0.9667**	**0.9803**	**0.8529**	**0.9925**	**0.9481**	**0.9361**	**0.9729**	**0.8877**	**1.0000**					
t-value	10.6833	14.0289	4.6201	22.9519	8.4296	7.5246	11.9005	5.4532	-----					
NIGER	**0.9835**	**0.9136**	**0.5749**	**0.8984**	**0.7631**	**0.9310**	**0.9719**	**0.9956**	**0.9088**	**1.0000**				
t-value	15.3722	6.3543	1.9872	5.7857	3.3393	7.2120	11.6788	30.1065	6.1610	-----				
NIGERIA	**0.7191**	**0.6904**	**0.3400**	**0.6195**	**0.5518**	**0.7206**	**0.7214**	**0.7443**	**0.6773**	**0.7469**	**1.0000**			
t-value	2.9267	2.6993	1.0224	2.2324	1.8716	2.9398	2.9462	3.1518	2.6042	3.1768	-----			
SENEGAL	**0.7596**	**0.7438**	**0.2540**	**0.6569**	**0.5713**	**0.8593**	**0.6993**	**0.7829**	**0.6470**	**0.8166**	**0.6883**	**1.0000**		
t-value	3.3030	3.1476	0.7427	2.4641	1.9686	4.7529	2.7667	3.5593	2.3998	4.0008	2.6840	-----		
SIERRAL	**-0.7476**	**-0.6175**	**-0.1036**	**-0.5679**	**-0.3706**	**-0.7183**	**-0.7048**	**-0.8529**	**-0.5649**	**-0.8478**	**-0.5580**	**-0.8656**	**1.0000**	
t-value	-3.1842	-2.2205	-0.2947	-1.9513	-1.1285	-2.9203	-2.8104	-4.6202	-1.9363	-4.5226	-1.9021	-4.8901	-----	
TOGO	**0.8310**	**0.8934**	**0.9782**	**0.9425**	**0.9560**	**0.7937**	**0.8553**	**0.6969**	**0.9325**	**0.7226**	**0.4448**	**0.3758**	**-0.2871**	**1.0000**
t-value	4.2258	5.6242	13.3161	7.9781	9.2115	3.6901	4.6690	2.7483	7.3021	2.9565	1.4047	1.1471	-0.8477	-----

Source: Author's computation using Eviews 9.5

Appendix 6. Correlations of domestic supply shocks (GDP), 1975 to 2015

	BENIN	BURKINA	CAPEV	COTED	GAMBIA	GHANA	GUINEA	GUINEAB	MALI	NIGER	NIGERIA	SENEGAL	SIERRAL	TOGO
BENIN	**1**													

BURKINA	**0.6409**	**1**												
t-value	2.36151	-----												
CAPEV	**-0.783**	**-0.951837**	**1**											
t-value	-3.56089	-8.780689	-----											
COTED	**0.9842**	**0.56907**	**-0.6995**	**1**										
t-value	15.72263	1.957431	-2.768757	-----										
GAMBIA	**0.7207**	**0.978952**	**-0.933**	**0.67952**	**1**									
t-value	2.940688	13.56691	-7.333502	2.61973	-----									
GHANA	**0.4699**	**0.834041**	**-0.6711**	**0.46617**	**0.87853**	**1**								
t-value	1.505761	4.275897	-2.560014	1.490379	5.201927	-----								
GUINEA	**0.7318**	**0.986916**	**-0.9766**	**0.65376**	**0.96943**	**0.79562**	**1**							
t-value	3.036854	17.31275	-12.85361	2.443631	11.17516	3.714749	-----							
GUINEAB	**-0.967**	**-0.432121**	**0.62659**	**-0.9635**	**-0.52188**	**-0.2469**	**-0.54598**	**1**						
t-value	-10.71	-1.35529	2.27401	-10.17895	-1.73043	-0.720534	-1.84324	-----						
MALI	**0.7462**	**0.866901**	**-0.8055**	**0.74317**	**0.94114**	**0.93129**	**0.8697**	**-0.566377**	**1**					
t-value	3.170505	4.918874	-3.844101	3.141534	7.875309	7.231024	4.983788	-1.943778	-----					
NIGER	**0.915**	**0.823068**	**-0.8586**	**0.90294**	**0.90446**	**0.764**	**0.86307**	**-0.790476**	**0.9441**	**1**				
t-value	6.412984	4.098985	-4.737884	5.942387	5.997407	3.349119	4.833144	-3.650331	8.099313	-----				
NIGERIA	**0.9724**	**0.684648**	**-0.7759**	**0.98286**	**0.78924**	**0.59431**	**0.74665**	**-0.908349**	**0.8377**	**0.9602**	**1**			
t-value	11.78937	2.656808	-3.478245	15.08086	3.635129	2.090117	3.174661	-6.143297	4.339003	9.723467	-----			
SENEGAL	**0.885**	**0.888482**	**-0.9058**	**0.8682**	**0.95302**	**0.79234**	**0.91366**	**-0.741051**	**0.9462**	**0.9834**	**0.937819**	**1**		
t-value	5.376548	5.476025	-6.047488	4.948676	8.898653	3.673407	6.357536	-3.121626	8.270008	15.34711	7.641483	-----		
SIERRAL	**0.6717**	**0.311269**	**-0.3065**	**0.75074**	**0.47637**	**0.59744**	**0.36577**	**-0.636499**	**0.7314**	**0.731**	**0.746475**	**0.642903**	**1**	
t-value	2.564797	0.926426	-0.910814	3.214365	1.532407	2.107203	1.111594	-2.334169	3.033292	3.0304	3.172986	2.374057	-----	
TOGO	**0.9637**	**0.443217**	**-0.6462**	**0.94914**	**0.52012**	**0.22199**	**0.55922**	**-0.997384**	**0.5438**	**0.777**	**0.893261**	**0.732019**	**0.58472**	**1**
t-value	10.2025	1.39847	-2.395114	8.525989	1.722421	0.643933	1.907907	-39.02583	1.832844	3.491043	5.620264	3.039058	2.038664	-----

Source: Author's computation using Eviews 9.5

Appendix 7. Correlations of demand shocks (domestic price), 1975 to 2015

	BENIN	BURKINA	CAPEV	COTED	GAMBIA	GHANA	GUINEA	GUINEAB	MALI	NIGER	NIGERIA	SENEGAL	SIERRAL	TOGO
BENIN	**1**													

BURKINAF	**0.4259**	**1**												
t-value	1.331239	-----												
CAPEV	**-0.441**	**-0.74548**	**1**											
t-value	-1.38887	-3.163461	-----											
COTED	**0.2045**	**0.5778**	**-0.1141**	**1**										
t-value	0.59102	2.002336	-0.32484	-----										
GAMBIA	**0.8834**	**0.408669**	**-0.2958**	**0.55708**	**1**									
t-value	5.333044	1.266477	-0.875975	1.89734	-----									
GHANA	**0.5187**	**0.96293**	**-0.852**	**0.36727**	**0.390198**	**1**								
t-value	1.71581	10.09668	-4.603416	1.11683	1.198663	-----								
GUINEA	**0.1283**	**0.848495**	**-0.3657**	**0.85367**	**0.330098**	**0.67456**	**1**							
t-value	0.365817	4.534937	-1.111218	4.636173	0.989102	2.584503	-----							
GUINEAB	**0.2719**	**0.876289**	**-0.4329**	**0.87829**	**0.472605**	**0.71822**	**0.986548**	**1**						
t-value	0.799257	5.144435	-1.358228	5.195669	1.516812	2.919476	17.06962	-----						
MALI	**0.546**	**0.915107**	**-0.8009**	**0.24341**	**0.340895**	**0.98027**	**0.583313**	**0.621934**	**1**					
t-value	1.843189	6.419252	-3.782827	0.70983	1.025629	14.02746	2.031226	2.24641	-----					
NIGER	**0.3939**	**0.968678**	**-0.6324**	**0.76172**	**0.490721**	**0.87536**	**0.932337**	**0.962016**	**0.797**	**1**				
t-value	1.212247	11.03347	-2.309133	3.32528	1.592956	5.121171	7.292929	9.967192	3.732348	-----				
NIGERIA	**0.3972**	**0.582271**	**-0.2343**	**0.94921**	**0.721487**	**0.42393**	**0.752807**	**0.818254**	**0.2946**	**0.7519**	**1**			
t-value	1.224127	2.025732	-0.68181	8.53257	2.947128	1.323892	3.234769	4.025996	0.871808	3.225874	-----			
SENEGAL	**0.5923**	**0.978334**	**-0.7809**	**0.57634**	**0.571357**	**0.96324**	**0.783415**	**0.843879**	**0.9147**	**0.9508**	**0.630047**	**1**		
t-value	2.079349	13.36569	-3.535451	1.994741	1.969099	10.14106	3.565305	4.448648	6.402007	8.683291	2.2948	-----		
SIERRAL	**-0.102**	**0.281825**	**0.0466**	**0.90043**	**0.3498**	**0.05362**	**0.661233**	**0.666917**	**-0.111**	**0.5026**	**0.84959**	**0.266438**	**1**	
t-value	-0.28911	0.830796	0.131862	5.854828	1.056103	0.151891	2.493065	2.531533	-0.31557	1.64436	4.555937	0.781864	-----	
TOGO	**0.5411**	**0.976795**	**-0.8337**	**0.44705**	**0.450709**	**0.99571**	**0.71957**	**0.768466**	**0.9649**	**0.9106**	**0.504699**	**0.983025**	**0.134763**	**1**
t-value	1.820017	12.89954	-4.269404	1.413546	1.428071	30.4486	2.930862	3.396757	10.39589	6.230975	1.653551	15.15432	0.384677	-----

Source: Author's computation using Eviews 9.5

Appendix 8. Correlations of monetary shocks (REER), 1975 to 2015

	BENIN	BURKINA	CAPEV	COTED	GAMBIA	GUINEA	GHANA	GUINEAB	MALI	NIGER	NIGERIA	SENEGAL	SIERRAL	TOGO
BENIN	1													

BURKINA	**-0.335**	1												
t-value	-1.00529	-----												
CAPEV	**-0.086**	**-0.897662**	1											
t-value	-0.24332	-5.761431	-----											
COTED	**0.7685**	**-0.834466**	**0.51593**	1										
t-value	3.396628	-4.283065	1.703496	-----										
GAMBIA	**0.7165**	**-0.639715**	**0.27834**	**0.85306**	1									
t-value	2.904711	-2.354096	0.819648	4.623916	-----									
GUINEA	**0.202**	**-0.965862**	**0.88978**	**0.75248**	**0.67264**	1								
t-value	0.583482	-10.54541	5.51429	3.231531	2.571094	-----								
GHANA	**0.6015**	**-0.740293**	**0.44054**	**0.82478**	**0.9608**	**0.786387**	1							
t-value	2.129681	-3.11455	1.387996	4.125594	9.801706	3.600641	-----							
GUINEAB	**-0.915**	**0.244899**	**0.20099**	**-0.69161**	**-0.84429**	**-0.210256**	**-0.72668**	1						
t-value	-6.40845	0.714434	0.58034	-2.708375	-4.456211	-0.60829	-2.991893	-----						
MALI	**-0.333**	**0.946562**	**-0.8011**	**-0.84267**	**-0.76884**	**-0.970971**	**-0.8188**	**0.347759**	1					
t-value	-0.99941	8.30107	-3.786343	-4.42662	-3.400804	-11.48134	-4.034141	1.049092	-----					
NIGER	**-0.387**	**0.976911**	**-0.8222**	**-0.88244**	**-0.74518**	**-0.967155**	**-0.804932**	**0.354467**	**0.9877**	1				
t-value	-1.18864	12.93303	-4.085873	-5.305544	-3.160623	-10.76185	-3.836902	1.072205	17.88836	-----				
NIGERIA	**-0.365**	**-0.245627**	**0.51617**	**-0.11064**	**-0.54036**	**0.120067**	**-0.374888**	**0.653661**	**0.0289**	**-0.075**	1			
t-value	-1.10724	-0.716695	1.704597	-0.314861	-1.816394	0.342074	-1.143757	2.442998	0.081647	-0.21338	-----			
SENEGAL	**-0.708**	**0.8303**	**-0.5127**	**-0.9567**	**-0.95131**	**-0.814022**	**-0.949299**	**0.731582**	**0.8846**	**0.8918**	**0.269984**	1		
t-value	-2.83793	4.213845	-1.68913	-9.296617	-8.729785	-3.963958	-8.540838	3.035152	5.364164	5.575655	0.793082	-----		
SIERRAL	**0.6784**	**-0.912735**	**0.64254**	**0.97369**	**0.85008**	**0.853225**	**0.879022**	**-0.613619**	**-0.896**	**-0.932**	**-0.039648**	**-0.970308**	1	
t-value	2.611853	-6.318899	2.371782	12.086	4.565428	4.627196	5.214643	-2.198041	-5.71876	-7.25197	-0.11223	-11.34674	-----	
TOGO	**0.8437**	**-0.783215**	**0.43942**	**0.98717**	**0.85835**	**0.687201**	**0.829495**	**-0.757194**	**-0.773**	**-0.82**	**-0.142678**	**-0.949201**	**0.963918**	1
t-value	4.446076	-3.562952	1.383611	17.48487	4.731863	2.67555	4.200735	-3.278784	-3.44827	-4.04982	-0.407727	-8.531886	10.24184	-----

Source: Author's computation using Eviews 9.5

The influence of fuel oil prices on profitability with corporate social responsibility as moderating variable (Empirical study of companies in oil and gas mining industry listed on Indonesia Stock Exchange)

Fitriaty; Tona Aurora Lubis; Ningsi Trilianah

Faculty of Economics and Business, University of Jambi

e-mail correspondence: fitriaty.fy27@gmail.com

Abstract

This study aims to analyze the effect of fuel prices on profitability with Corporate Social Responsibility (CSR) as a moderating variable in the mining industry companies listed in Indonesia Stock Exchange 2013-2016 period. This study uses Partial Least Square (PLS), which aims to predict the relationship between variables. Measurement model used validity and reliability, while the structural model used to test causality. The results of this study indicate that the price of fuel oil has no significant effect on the profitability of the company. Corporate Social Responsibility (CSR) as a moderating variable can affect the relationship of the price of fuel on profitability.

Keywords: *Fuel price, Profitability, Corporate social responsibility, Partial least square*

JEL classification: G23, M14, M21

INTRODUCTION

The fuel oil is an important thing in a country, especially in all economic activities. The fuel oil takes a role in almost all economic activity in Indonesia. Fuel oil is used as an operational tool in industries in Indonesia because oil fuel can be used for various purposes of the company's operations. The impact of this oil price change is a change in the operational costs that will result in changes in the rate of return of investment activity. The decline in oil prices will certainly have a huge effect on the economy, so it will certainly alleviate the burden of lower middle society and also for the business world. The fuel oil policy that is fluctuating occurs in Indonesian Government since 2013 till 2016.

Table 1. Fuel prices on gasoline and solar in Indonesia, Year 2013-2016

Date	Gasoline Price /Liter (Rp)	Solar Price /Liter (Rp)
June 22, 2013	6,500	5,500
November 18, 2014	8,500	7,500
January 1, 2015	7,600	7,250
January 19, 2015	6,700	6,400
March 1, 2015	6,800	6,400
September 01, 2015	7,300	6,900
January 5, 2016	6,950	5,650
April 1 - December 31, 2016	6,450	5,150

Source : www.bphmigas.go.id

During 2013 to 2016, the volatile fuel price policy occurred in the Indonesian government. On November 18, 2014, subsidized fuel prices increased 31% for gasoline and 36% for solar. Two months later, on January 1, 2015, the government made a new policy for subsidized fuel. There was a price decline for 11.8% for gasoline and 3.4% for solar.

Eighteen days later, precisely on January 19, 2015, the price of subsidized fuel declined again. In the following year, precisely on January 5, 2016 gasoline and solar prices experienced a decline. Furthermore, three months later gasoline and solar prices also declined.

According to Husnan (2001) that Profitability is the ability of a company to generate profits at the level of sales, assets, and capital stock. Companies in general aims to maximize profit. In terms of pursuing these objectives, the company will focus on operations to gain the maximum profit so that companies do the exploitation of natural resources and social society in an uncontrolled manner. This will lead to environmental damage that ultimately interfere with human life. Corporate social responsibility should be based on triple bottom lines, which include financial, social, and environmental issues because financial conditions alone will not be enough to ensure sustainability. Global Impact Initiative (2002) calls this understanding with 3P (profit, people, planet), that business objectives are not only looking for profit (profit), but also the welfare of the person (people) and ensure the sustainability of the planet (Dahli and Siregar, 2008) .

CSR activities in Indonesia are implemented in various approaches such as corporate charity, corporate generosity, corporate social relations, and community development. CSR look at helping companies improve their financial performance and access to capital, improve brand image and sales, maintain quality of work strength, improve decision-making on critical issues, handle risks more efficiently and reduce long-term costs . CSR does not provide financial results in the short term. However, CSR will deliver results either directly or indirectly, to the company's future finances.

The ability of companies to generate profits (Jessika Zarlia and Hasan Salim, 2014) revealed that Profitability and CSR positively affect the value of the company. The greater level of profitability indicates the company is able to earn greater profits, so the company is able to increase its social responsibility and social responsibility disclosure in its wider annual report (Kamil and Herusetya, 2012).

In practice, profitability is an indicator of management performance shown through profit generated during managing corporate wealth (Soelistyoningrum, 2011). Profitability can be measured using profitability ratios that will generate profits through ratios such as Profit Margin, ROA (Return on Assets), ROE (Return on Equity), ROI (Return on Investment), and EPS (Earning Per Share), (Brigham and Houston, 2010).

The phenomenon that occurred in the results of previous research there are some government policies in lowering or raising the price of fuel oil that affects the profitability of the company . In addition, the impact that occurs would affect all operations and activities of corporate social responsibility.

Lasut and Debby (2009) stated that the price of fuel oil has a very significant effect on the amount of income received so that the government's active role in controlling oil price increases is needed. Furthermore, Suarjana (2011) stated that the government's policy in lowering the price of fuel caused a negative market reaction which is indicated by the decrease of income/result from the company. Meanwhile, Latif (2015) states that the impact is not only applicable to the general public or daily needs but also to the company. Many companies will complain and cut budgets because

of the reduced profits they get so as not to close the possibility of companies will raise the price of operational goods and other budgets.

Rosiana (2013) and Nistantya (2011) stated that corporate social responsibility has a significant effect on the profitability of the company. While Nugroho (2012) states that corporate social responsibility has no significant effect on the profitability of the company. In addition, as a reciprocal influence, Sitepu (2003), Pristiwati (2011), and Badjuri (2011) stated that profit significantly influences CSR disclosure. Meanwhile, Sembiring (2006), Nur (2012), and Marinda (2014) stated that profit has no significant effect on CSR disclosure.

Based on the description of the above background explained that there is the influence of fuel prices on profitability and Corporate Social Responsibility (CSR) from the company or vice versa. Therefore, in this study the researchers wanted to find out a fuel price in year period 2013-2016 have an influence on the profitability of oil and gas companies? and a Corporate Social Responsibility (CSR) as a moderating variable can influence the relationship between oil fuel price and profitability of oil and gas company positively?

In accordance with the problems in above there are several objectives to be persuied nature of this study, namely to examined the impact of fuel prices on the profitability of oil and gas companies in year period 2013-2016 and the influence of Corporate Social Responsibility (CSR) as moderating variable on the relationship between the price of fuel oil to the profitability of oil and gas companies.

Fuel is any material that can be converted into energy. Usually the fuel contains heat energy that can be released and manipulated. Fuel oil as an important commodity used by almost everyone, its price can affect the performance of Indonesian economy. Therefore, setting fuel oil prices is very important. Not infrequently the pricing of fuel oil can burden the poor and always followed by rising prices of other materials (source: id.wikipedia.org).

According to Fahmi (2012), profitability ratio is beneficial to show the success of the company in generating profit. Potential investors will thoroughly analyze the smoothness of a company and its ability to profit (profitability), as they expect dividends and market prices from their shares. This ratio is intended to measure the efficient use of company assets.

Profitability ratios measure the effectiveness of management shown through the profit (profit) generated on sales and investment companies. (Gaspersz, 2011). This ratio measures the overall effectiveness of management that is directed to the size of the profits gained in relation to sales or investment. (Fahmi, 2012). Profit Margin ratio, Return on Assets (ROA), Return on Investment (ROI), Return on Equity (ROE) and Earning Per Share (EPS). (Sutrisno, 2009).

According to Sulistyo (2011), corporate social responsibility (Corporate Social Responsibility) is an organization's obligation to act in a way that is intended to serve the interests of their own and the interests of stakeholders. Awareness of the importance of practicing CSR is a global trend in line with the increasing global public awareness of eco-friendly products and is produced with due regard to social principles and human rights principles.

RESEARCH METHOD

This study uses a quantitative approach. Types of data used by the authors in conducting this research is to use secondary data in the form of annual financial statements in oil and gas mining companies listed on the Indonesia Stock Exchange.

The financial statements used are those that have accounting year ended December 31, 2013-2016. The research sample using *purposive sampling* technique that aims to sampling data source that is based with particular consideration.

The sampling criteria set by researchers include oil and gas mining companies listed in BEI for 2013-2016, providing a full annual report dated 31 December 2013 to 2016, having complete data related to the variables used in research.

The variables used in this study and the measurement are as follows:

a. Exogenous Variable
   X = Fuel Price Oil
   X = the change price per year 2013-2016

b. Endogen Variabel Endogen

   Y_1 = Return On Assets (ROA)

   $$ROA = \frac{EarningBeforeInterestTax\,(EBIT)}{Total\ Aktiva}$$

   Y_2 = Return On Investment (ROI)

   $$ROI = \frac{EarningAfterTax\ (EAT)}{TotalAssets}$$

   Y_3 = Return On Equity (ROE)

   $$ROE = \frac{EarningAfterTax\ (EAT)}{ShareholdersEquity}$$

c. Moderating Variable

   Z = Corporate Social Responsibility (CSR)

   $CSDI_j = \frac{\sum Xij}{nj}$

Data analysis method

Partial Least Square Analysis (PLS) is a multivariative statistical technique that performs comparisons between multiple endogenous variables and multiple exogenous variables. PLS is one of the variance-based SEM statistical methods that can simultaneously perform testing of measurement models as well as structural models. (Hussein, 2015). The purpose of using PLS is to make predictions. Prediction is the prediction of relationships between variables. The measurement model is used for validity and reliability test, while the structural model is used for the test of quality (test with prediction model).

Partial Least Square (PLS) is a powerful analytical method because it is not based on many assumptions. Because the PLS method has its own advantages such as: the data should not have multivariate normal distribution (indicators with category scale, ordinal, interval until the ratio can be used on the same model) and sample size should not be large. Although PLS is used to confirm the theory, it can also be used to explain the presence or absence of latent variables. PLS can analyze as well as construct formed with reflexive indicator and formative indicator and this is not possible in *Structural Equation Model* (SEM) because it will happen *unidentified model.* (Noor, 2014).

The SEM-PLS model framework in this research is given in Figure 1 below:

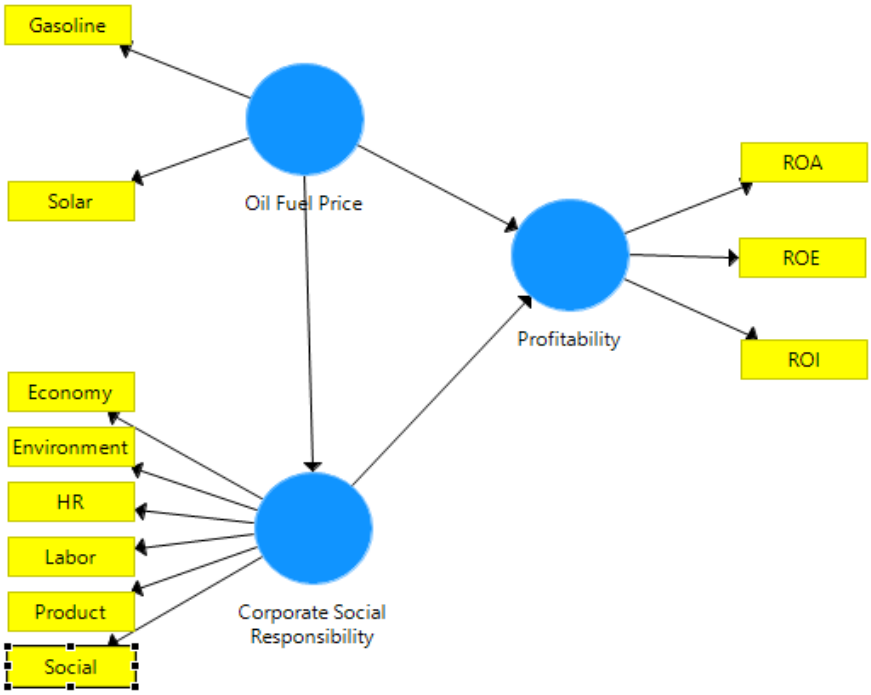

Figure 1. SEM-PLS model framework

Hypothesis testing (resampling bootstraping)

Hypothesis Testing (β, ɣ, and λ) is done by Bootstrap resampling method developed by Geisser & Stone. The test statistic used is t statistic or t test. Application of resampling methods, allowing free entry into force of the distributed data (distribution free) does not require the assumption of a normal distribution, and does not require a large sample (sample recommended minimum of 30). Testing is done by t-test, when obtained p-value ≤ 0,05.

Statistical hypothesis for outer model :

H0: $\lambda i = 0$

H1: $\lambda i \neq 0$

Statistical hypothesis for inner model : exogenous latent variable to endogenous:

H0: $\gamma i = 0$

H1: $\gamma i \neq 0$

Statistical hypothesis for structural model : exogenous latent variable to endogenous:

H0: $\beta i = 0$

H1: $\beta i \neq 0$

Test statistics: t-test ; p-value ≤ 0.05 (alpha 5%); significant. If outter model is significant: the indicator is valid. If inner model is significant: there is significant influence. PLS does not assume normal distributed data: using resampling technique with Bootstrap method.

RESULT AND DISCUSSION

Estimation Result

The estimation of the SEM-PLS model between fuel prices, CSR and profitability is given in Figure 2

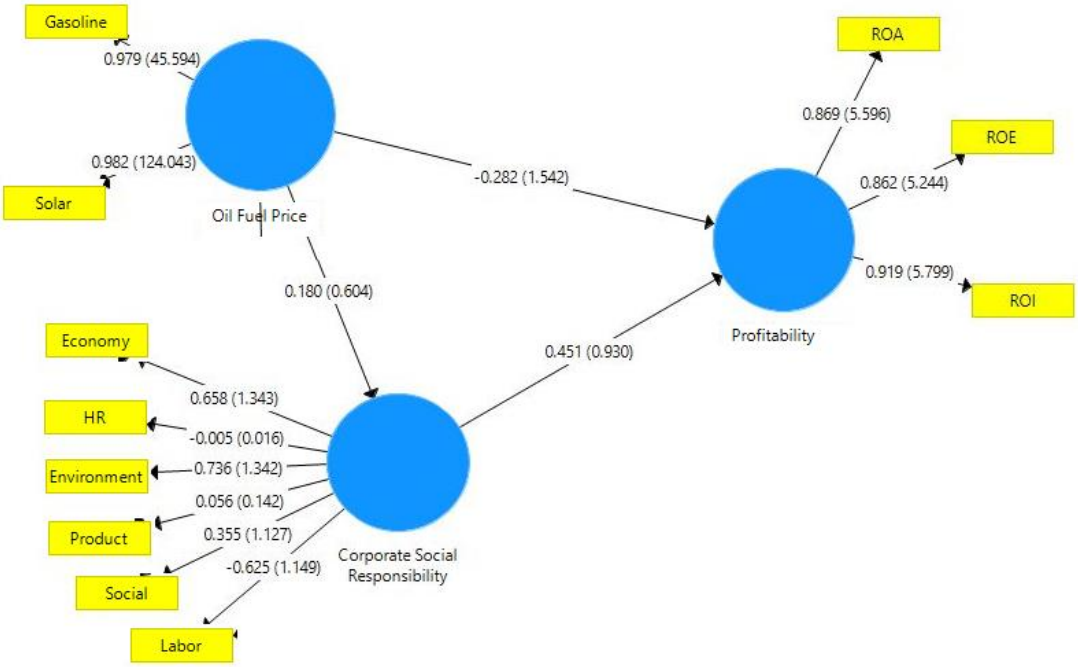

Figure 2. Estimation of the model between fuel prices, CSR and profitability (model 1)

From Figure 2, it can be seen that the items of HR (Human Right), Product, Social, and Labor have a loading factor value below 0.6. Therefore the four items must be removed from the model

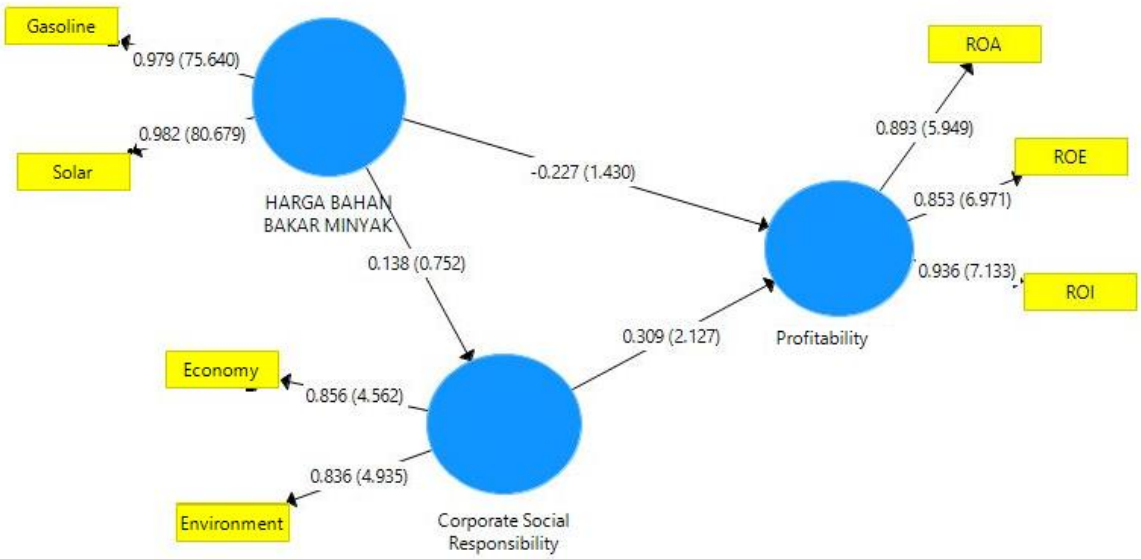

Figure 3. Estimation of the model between fuel prices, CSR and profitability (model 2)

Convergent validity of measurement model with reflexive indicator can be seen from correlation between score item/indicator with construct score. Individual indicators are considered reliable if they have a correlation above 0.70. However, in the early stages, loading 0.50 to 0.60 is still acceptable. The output of the correlation output between the indicator and its construct as shown in the outer loading output is given in Table 2 below:

Table 2. Outer Loadings

	Oil Fuel Price	**Profitability**	**Corporate Social Responsibility**
Gasoline	0.979		
Solar	0.982		
ROA		0.893	
ROI		0.936	
ROE		0.853	
Environment			0.836
Economics			0.856

Source: SmartPLS version 3.0

Based on the above *loading outer*, most of the indicators or observed variables are significant, since the *outer loading* values are in accordance with the initial assumption. *Discriminant validity* reflective indicator can be seen on *cross loading* between indicator with its construct as follows:

Table 3. Cross Loadings

	Oil fuel price	Profitability	Corporate social responsibility
Gasoline	0.979	-0.154	0.156
Solar	0.982	-0.205	0.115
ROA	-0.099	0.893	0.253
ROI	-0.157	0.936	0.219
ROE	-0.219	0.853	0.266
Environment	0.129	0.220	0.836
Economics	0.105	0.249	0.856

Source: SmartPLS version 3.0

In addition to the way in above, another method of assessing *discriminant validity* is to compare the square root of the *average variance extracted* (AVE) for each construct greater than the correlation between the construct and the other constructs in the model as shown below in the *latent output of the correlation variable* below:

Table 4. Latent Variable Correlations and Average Variance Extracted (AVE)

	Oil fuel price	Profitability	Corporate social responsibility	AVE
Oil Fuel Price	1,000		0.138	0.961
Profitability	-0.184	1,000	0.277	0800
Corporate Social Responsibility			1,000	0.715

Source: SmartPLS version 3.0

If the AVE square root value of each construct is greater than the correlation value between the construct and the other constructs in the model, it is said to have a good discriminant validity value. The model is said to be good if AVE shows a value greater than 0.50 looks like the output above, all constructs have a good realizability. So the model is fit with existing data.

Indicator reability

The limit value received for the Composite Realiability level is 7 0.7, although it is not an absolute standard. Table 5 below provides the reliability composite value of the model

Table 5. Composite Realiability

	Composite reliability
Oil fuel price	0.980
Profitability	0.923
Corporate social responsibility	0.834

Source: SmartPLS version 3.0

From Table 5, it can be seen that the Composite Reliability value of the three variables, namely the Fuel Oil Price of 0.980 is greater than the Profitability of 0.923 and the Corporate Social Responsibility of 0.834. These three variables show a good value which is above 0.7.

Measurement model

The measurement model determines the nature of the indicators of each latent variable, whether reflective or formative. Outer formative models are evaluated based on their substantive content by looking at the significance of weight (Table 6).

Table 6. Outer loadings (Mean, STDEV, T-Values, P-Values)

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (|O/STDEV)	P Values
Gasoline <- Oil Fuel Price	0.979	0.978	0.013	75.640	0.000
Solar <- Oil Fuel Price	0.982	0.980	0.012	80.679	0.000
ROA<- Profitability	0.893	0.882	0.150	5.949	0.000
ROI <- Profitability	0.936	0.923	0.131	7.133	0.000
ROE<- Profitability	0.853	0.835	0.122	6.971	0.000
Enviroment <- CSR	0.836	0.818	0.169	4.935	0.000
Economy <- CSR	0.856	0.807	0.188	4.562	0.000

Source: SmartPLS versi 3.0

The measurement model seen from the value of the outer model above, all provide values that meet the criteria of the model. So that the measurement model can show indicators are valid.

Structural model

The relationship between latent variables (structural models), describes the relationship between latent variables based on the substantive theory.

Table 7. Path Coefficients (Mean, STDEV, T-Statistics, P-Value)

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T- Statistics (| O / STDEV)	P Values
Fuel Prices -> Profitability	-0.227	-0.227	0.159	1.430	0.153
Oil Fuel Price -> CSR	0.138	0.146	0.183	0.752	0.452
CSR -> Profitability	0.309	0.326	0.145	2.127	0.034

Source: SmartPLS version 3.0

Based on the above path coefficient (Table 7), we get the value of t-statistic and P-Value on each relationship between indicators. This result will determine the relationship between each variable.

Testing the path coefficient values is done by t-test. If the p-value is ≤ 0.05 (alpha 5%), then it is concluded that it is significant and vice versa. If the results of hypothesis testing on the outer model are significant, this indicates that the indicator can be used as a measuring instrument for latent variables. Furthermore, if the test results on

the inner model are significant, it means that there is a significant influence between a latent variable on other latent variables.

Discussion

Based on the results of testing on Partial Least Square (PLS) method that has been described previously, then the discussion will be presented in two parts. The first part discusses the influence of fuel prices on profitability in the company of mining industry of oil and gas that are listed in the Indonesia Stock Exchange (BEI) in the period 2013 to 2016 and the second part discusses the influence *corporate social responsibility* (csr) as a *moderating* variable to the relation of oil fuel prices to profitability in the company and the same period.

The effect of fuel price on profitability company

From the results of analysis using SmartPLS with reflective measurement model as in Table 8, obtained value of t -Statistics 1,430 and P - Value 0,153 with coefficient parameter -0,227 (negative). This shows that T - Statistics <T - Tables (1,96) and P-Value> α (0.05) and positive. So it can be said that the price of fuel oil has no effect on profitability. The first hypothesis that the price of fuel oil has a significant effect on profitability is rejected .

Table 8. Path coefficients (Mean, STDEV, T-Values, P-Values)

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T- Statistics (| O / STDEV)	P Values
Fuel Prices -> Profitability	-0.227	-0.227	0.159	1.430	0.153

Source: SmartPLS version 3.0

This indicates that the company cannot respond to the event of a significant increase in fuel prices. So it can be said that the announcement of the increase or decrease in the price of fuel oil can not affect the profitability that can by the company.

Profitability shown by ROA, ROI, and ROE ratio shows the company's ability to generate *income* from asset management, investment, own capital, and public stock. This ratio shows how much the company's effectiveness in using its assets. The higher this ratio, the more effective the use of the asset.

The results of this study are not in line with research conducted by Sonya et al (2013) which states that changes in fuel prices have a significant effect on income levels on fishermen. The determinants of the price of oil follow the market economy, where the prevailing price level is determined by the *demand and supply mechanism* as a fundamental factor (Nizar, 2002). This certainly cannot be separated from the role of government as a holder of power and price policy makers can be more controlled by the government.

The influence of corporate social responsibility (CSR) as a moderating variable on the relation of oil fuel price to profitability of oil and gas company

From the analysis result using SmartPLS with reflective measurement model as in Table 9. obtained the relationship between the price of fuel oil to Corporate Social Responsibility with T-Statistics of 0.752 (<1.96) and P-Value 0.452 (> 0.05). The value of the parameter coefficient is positive that is equal to 0.138 indicating that the direction of correlation between Fuel Price of Oil to Corporate Social Responsibility is positive. So it can be said price of fuel oil has no effect on Corporate Social Responsibility.

Table 9. Path coefficients (Mean, STDEV, t-Values, P-Values)

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	t- Statistics (| O / STDEV)	P Values
Oil Fuel Price -> Corporate Social Responsibility	0.138	0.146	0.183	0.752	0.452
Corporate Social Responsibility -> Profitability	0.309	0.339	0.143	2.157	0.031

Source: SmartPLS version 3.0

Meanwhile, the relationship between Corporate Social Responsibility to Profitability is significant with t-Statistics of 2.157 (> 1.96) and P-Value 0.031 (<0.05). The value of the parameter coefficient is positive that is 0.309 indicating that the direction of the relationship between Corporate Social Responsibility to Profitability is positive. So it can be concluded that Corporate Social Responsibility effect on Profitability.

So, to prove the Corporate Social Responsibility can affect the relationship between the price of fuel oil to profitability is to multiply the value coefficient parameters of Fuel Oil Price to Corporate Social Responsibility of 0.138 with the value of the parameter of Corporate Social Responsibility to Profitability of 0.309 and produce a value of 0.043 indicating the relationship in a positive direction. Therefore it can be concluded that the second hypothesis states that Corporate Social Responsibility can affect the relationship of Fuel Price to Profitability but indirectly.

If the company cares for its economic and environmental concerns well, the people around the company will feel proud and motivated to participate in the conservation of the environment, but will also survive to use their products and realize the sustainable infrastructure and services that the company provides for the public interest resulting in a positive impact on the financial performance of the company.

The environmental performance indicator consists of several aspects, such as: material, energy, water, biodiversity, emission, effluent and waste aspects, product and service aspects, compliance aspects, transportation, and overall aspects. While indicators on economic performance consists of several aspects, including: aspects of economic performance, market presence aspects, and aspects of indirect impact.

The results are consistent with research conducted by Oktyas, et al (2015) which states that a lot of companies that have a progressive nature which are companies that implement Corporate Social Responsibility for promotional purposes da well as the empowerment. Promotion and Corporate Social Responsibility is seen as a useful activity and support each other for the progress of the company.

This form of Corporate Social Responsibility is also in accordance with stakeholder theory which states that the company is not an entity that only operates for its own sake, but must provide benefits to all its stakeholders (Chairi and Ghozali, 2009). Thus the existence of a company is strongly influenced by the support provided by stakeholders to the company.

CONCLUSIONS AND RECOMMENDATIONS

Conclusion

Based on the results of testing and discussion as has been presented in the previous section, it can be concluded that: 1) As the effect of the price of fuel oil to profitability consisting of Return on Assets (ROA), Return on Investment (ROI), and

Return on Equity (ROE) implemented at oil and gas mining industry company listed in Indonesian Stock Exchange) period 2013 to 2016 based on test results through Partial Least Square (PLS) proved to have no effect on Return on Assets (ROA), Return on Investment (ROI), and Return on Equity (ROE) which is part of profitability; 2) Corporate Social Responsibility (CSR) through indicators of environmental, economic, labor, human rights, social, and product performance based on test results through Partial Least Square (PLS) method indicates that there is indirectly positive influence on Corporate Social Responsibility (CSR) in moderating the relation of fuel price to the profitability of the company implemented in the oil and gas mining industry company listed in Indonesia Stock Exchange (IDX) period 2013 to 2016.

Recommendations

Recommendations given related to this research are among others: 1) This research is expected to be used as a reference for further research on the disclosure of Corporate Social Responsibility (CSR) by improving the existing limitations. Future research is expected to update the CSR disclosure index according to its research conditions, add broader corporate categories, increase the study period, and use new, more effective ways of measuring CSR disclosure; 2) Stimulus for the community to act as a controller of corporate behavior and remind the company of its social responsibility to the surrounding environment by implementing various useful activities; 3) For the government, it can be used as input material for making policy especially Directorate General of Oil and Gas in identifying its influence to company's revenue.

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