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Highlights

- Pardigm for Economic
- Perceived Effects on Community
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Discovering Thoughts, Inventing Future

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Informal Sector In South Asia: A Case Study of Bangladesh

By Tahmidul Islam

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Abstract- Informal sector becomes the influential economic activities in Bangladesh in considering the contribution to the GDP and labor market over decades. Research show that 87.71% of the workers in Bangladesh are under informal employment. The highest concentration of informal workers is found in the rural areas (92%). Workers engaged in informal employment are mostly in agriculture; hunting and forestry; wholesale and retail trade; manufacturing; and transport, storage, and communications sectors. Women (91.3%) are most likely to be engaged in informal employment than men (86.6%); and women are generally unpaid family workers and in the private household sector. Workers under form alemployment are paid better than those under informal arrangements. For each sector, wage differentials between formal and informal workers are significant. Informal workers are found to have significantly less benefits than those with formal employment, except for free meals and free lodging. In particular, self-employed and unpaid workers comprise a little over 20 million of informal workers, although less than 2 million of them enjoy benefits.

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Informal Sector in South Asia: A Case Study of Bangladesh

Tahmidul Islam

Abstract- Informal sector becomes the influential economic activities in Bangladesh in considering the contribution to the GDP and labor market over decades. Research show that 87.71% of the workers in Bangladesh are under informal employment. The highest concentration of informal workers is found in the rural areas (92%). Workers engaged in informal employment are mostly in agriculture; hunting and forestry; wholesale and retail trade; manufacturing; and transport, storage, and communications sectors. Women (91.3%) are most likely to be engaged in informal employment than men (86.6%); and women are generally unpaid family workers and in the private household sector. Workers under form alemployment are paid better than those under informal arrangements. For each sector, wage differentials between formal and informal workers are significant. Informal workers are found to have significantly less benefits than those with formal employment, except for free meals and free lodging. In particular, self-employed and unpaid workers comprise a little over 20 million of informal workers, although less than 2 million of them enjoy benefits.

The purpose of this paper is to find out the problems of Informal Sector in Bangladesh and to identify the future aspect of Informal sector for the economic growth of the country.

I. Introduction

Even though there has been significant poverty reduction in Asia, the 2008 International Labor Organization (ILO) Employment Trends indirectly estimated, using modeling Techniques and available survey data from countries, some 487 million workers, 300 Millions of whom live in Asia, who do not earn enough to lift themselves and their families above the US$1/day poverty line (ILO 2008). This ILO report also determined that five out of 10 people in the world are in vulnerable employment, being either contributing family workers or own-account workers with a higher risk of being unprotected. At present, very few countries in Asia regularly collect data on informal employment and the informal sector, which ironically is perceived to be prevalent in many developing countries in Asia.

The latest Economic Census 2013 shows that the informal economy has been an important component of the growth dynamics in Bangladesh. Findings reveal that household based economic activities have expanded tremendously over the last decade.54

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The informal sector has been growing from 79% in 2002 which reached 89% of the total number of jobs in the labor market, and accounts for 43% of GDP. It is more prevalent in the rural areas than in the urban areas. Women's employment in the informal economy has a higher incidence at 93% compared to males' at 87%.

Data from the Informal Sector Survey (ISS) 2010 demonstrated a linkage between education level and informal work, i.e. as the level of education of a worker improved, the worker is more likely to hold a formal job. Workers from the informal economy receive on average at least 35% lower wages than in the formal sector. With reference to the social protection coverage, workers from the informal economy receive less than formal workers. The ISS has also shown that the labor productivity of a typical worker in the informal enterprises is only one-sixth (17%) of the productivity of their counterpart in the formal sector. The main reasons for engagement in informal activities are family traditional (39%) and due to knowledge of the activity (37%). 56

As the informal 'sector' is not covered by the Labor Law, a very few unions operate in the informal economy. However, a number of non-traditional groups have started activities, including women in the informal sector, within the WCL national affiliate, Bangladesh Sanjukta Sramik Federation (BSSF). Women's organizations have set up cooperative structures for their members and have taken a series of initiatives, including in the areas of adult education, mother and child care and productive work. Hence, the study was limited only to the analysis of informal sector past and present condition and future challenges. This paper is also suggest some recommendations for the betterment of informal sector in Bangladesh.

II. Overview Of Informal Business Sector

a) Definition and concept of informal sector

Since its first appearance in the early 1970s, the term informal sector has become so popular that now days it is used with different meanings for different purposes. However, the starting point may be the Fifteenth International Conference of Labor Statistician (ICLS) held in January 1993.

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The resolution of 15th ICLS defines informal sector as follows:

"The informal sector may be broadly characterized as consisting of units engaged in the production of goods or services with the primary objective of generating employment and incomes to the persons concerned. These units typically operate at a low level of organization, with little or no division between labor and capital as factors of production and on a small scale. Labor relations-where they exist- are mostly based on causal employment, kinship or personal and social relations rather than contractual arrangements with formal guarantees." Informal sector was first "discovered" in the early 1970s (Bangasser, 2000; ILO, 2002; Adams, 2004; Haan, 2006; Fox and Gaal 2008). In the literature, the informal sector is referred as black market, shadow economy, illegal economy, corruption, not registered economy, underground economy, informal economy, and so on. Sometimes these definitions are used as synonyms; however, in some occasions they differ in meaning depending on which particular dimension of informality they focus (i.e. tax avoidance, corruption, illegal labor, etc.). Nevertheless, all these definitions refer to unregistered or unreported activities within the economy. (Macias and Cazzavillan, 2010). According to SIDA (2004) the term "informal economy" thus refers to all economic activities by workers and economic units that are - in law or in practice – not covered or insufficiently covered by formal arrangements. In factat one end of' the spectrum of the informal economy are small-scale modern manufacturing and service enterprises. At the other end are street vendors, shoe shiners, junk collect or sand domestic servants.

Given the unregistered (hidden) nature of informal activities, measuring or estimating the actual size of informality is very difficult. This sector appears to be extensive in both developed and underdeveloped countries, and is estimated to contribute an amount equal to between 16 and 75 per cent of current gross domestic product in many Third-World countries(Abedian and Desmidt, 1990; ILO, 1992). Nonetheless, informal sector remains under the shadow of formal economy (Ihring, J. and K S Moc, 2004; Scgneider, F and R Klingrnair, 2004; Schneider, 2007).

It should be noted that, The informal sector had to be defined in terms of characteristics of the enterprises in which the activities take place, rather than in terms of the characteristics of the persons involved or their jobs.

- Informal sector only belongs to the households sector- there is no any informal sector activities in other institutional sector namely, (i) general government sector, (ii) Financial sector, (iii) Non financial sector and, (iv) NPIs sector.

All informal sector enterprises can be regarded as household unincorporated enterprises but the converse is not true. That is all household as household unincorporated enterprises but the converse is not true. That is all household unincorporated enterprises cannot be regarded as informal sector enterprises. Thus informal sector enterprises can be regarded as a subset of the household unincorporated enterprises.

One of the distinctions between household unincorporated enterprises and informal sector enter prises is based on whether or not an enterprise employs some employees on a continuous basis. That is household unincorporated enterprises are Employers enterprises i.e. Enterprises employ paid labor on continuous basis. On the other hand, informal sector enterprises are mainly own -account enterprises. These enterprises mainly employ unpaid family workers- also may employ paid workers on an occasional basis.

The production units of the informal sector have the characteristics features of households enterprises and thus fixed and other assets used do not belong to the production units as cannot engaged in transactions or enter into contracts with other units, nor incur liabilities on their own behalf. Expenditure for production is often indistinguishable from household expenditure.

b) Characteristics of informal sector

The main characteristics of the informal sector are as follows:

~ These enterprises are unregistered.
~ Small scale operation, low level of productivity.
~ Generation of income is low (mainly mixed income, income as wages and salary is very insignificant)
~ Little or no access to institutional credit and organized market.
~ Production process generally does not use modern technology.
~ Workers are generally unskilled.
~ Labor relation mainly based on causal employment, kinship, personal! Social relation but generally not on contract basis.
~ Generally not recognized or regulated by the government rules.
~ Activities are undertaken generally for self-employment or to earn additional income.

III. Informal Business Sector in Bangladesh

a) About Bangladesh

Bangladesh is a small country (147,570 sq.km) with large number of population (140.00 mill ion). Population growth rate is around 1.40 percent. The civi l ian labor force (15 +) has been estimated at 49.5 million (LFS-20050-06) of which 37.4million are male and 12.1 million are female. Active civilian labor force (employed population) has been estimated at 47.4 million of which 36.1 million are male. Unemployment rate (excluding under employment) is 4.2%. Around 48% of the total active civilian labor force is engaged in agriculture

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sector. The GDP (gross domestic product) size is around 4000.00 billion with average growth rate 6.36 %. Bangladesh is a developing country and like other developing countries, informal sectors present a significant part of the economy and play an important role in employment creation, production and income generation. In Bangladesh, informal sector covers a widerange of economic activities producing goods and services which has substantial contribution to the GDP.

b) Informal Sector activities in Bangladesh

Bangladesh is a developing country. Like all other developing countries informal sector plays an important role in the economy and income generation. In Bangladesh, informal sector covers a wide range of economic activities producing goods and services which Contribute much to GDP. Though informal sector activities are substantial in Bangladesh yet much attempt has not been taken to quantify the magnitude and incidence of informal activities.

Even informal sector activities in Bangladesh are not adequately defined but informal Sector activities are taking place using mostly indigenous raw materials, small capital with small setup. Labor relations are based mostly on causal employment or kinship rather than contractual arrangement with formal guarantees.

Sometimes it is difficult to identify the informal sector activities from the formal ones particularly when these Enterprises are operated in the location other than household premises. However, following major categories of informal activities are taking place in Bangladesh.

Production of crops and horticulture.

1. Own -account construction,
2. Significant part of animal farming
3. Significant part of the forestry
4. Significant part of the fishing.
5. Retail trade
6. Unorganized transport (rickshaw, bull cart, country boat)
7. Rental services
8. Some part of education and health services (Homeopathic, Ayurveda treatment,
9. coaching of student by individual person)
10. Very small hotel and restaurant services (snakes and tea-stall).

IV. Measurement Of Informal Sector And Informal Employment In Bangladesh

Bangladesh Bureau of Statistics, NSO of Bangladesh, has not yet attempted to collect data on informal sector and informal employment in the country. Bangladesh Bureau of Statistics (BBS), the national Statistical Organization, is entrusted with the responsibility of collecting, collating and disseminating of statistical data but BBS yet has not conducted any surveyor census exclusively on informal sector activities. However, Bangladesh bureau of Statistics, for the first time, conducted a Census on Non-farm Economic Activities (Economic Census) in 1986 to collect data pertaining to all non-farm economic activities irrespective of formal and informal sector. BBS also conducted Economic Census for the second time in 2001-03. But the findings of this survey do not provide data on informal sector activities properly from users' point of view. Some years back, Bangladesh Institute of Development Studies (BIDS) conducted a pilot study on informal sector in 4 selected urban and rural than as. But the scope and objectives of this survey was rather limited. So the findings are not nationally representative and there might be some definitional problem also. Actually there are no adequate data on informal sector activities in Bangladesh which can help us in clear understanding about the volume and incidence of informal sector activities as well as informal employment. In recent years, some NGOs are working to support informal sector activities. Government of Bangladesh has also taken initiatives to support informal sector activities through rural credit program for reduction of poverty. So we need comprehensive data on informal sector activities. Informal sector statistics are also needed for improvement of National Accounts Statistics in Bangladesh though BBS include part of the informal – sector activities as data sources permitted.

V. Overview of the Bangladesh Legal Framework Regarding EntreprenEurship

Informal entrepreneurship and employment needs to be understood in relation to the legal framework in any given country. There is a distinction between illegal processes or arrangements and illegal goods and services. While production or employment arrangements in the informal economy are often semi-legal or illegal (e.g. because of absence of required license, tax registration etc.), most informal enterprises and workers produce and/or distribute legal goods and services. Admittedly, one part of the informal economy-the criminal economy - not only operates illegally but also deals in illegal goods and services. But it is only a small part of a larger whole that is, for the most part, not illegal or criminal. Many informal entrepreneurs operate semi-legally or illegally because the regulatory environment is too costly, too cumbersome or simply nonexistent.

Also, many activities in the informal economy do not generate enough output, employ mentor income to fall into existing tax brackets.

a) Business laws and regulations in general

Currently there does not exist a legal framework that could gradually lead to formalization of such

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businesses. A survey of current business laws and regulations makes it evident that poor informal entrepreneurs cannot easily be brought within the existinglegal framework. Instead, a feasible way to afford legal protection to such Entrepreneurs would be to put in place a new regulatory regime. The legal framework that applies to businesses in Bangladesh is burdensome, inter alia, because of lack of public information about relevant laws and regulations, the fragmentation of legal and regulatory requirements among different ministries and offices, and the delays and demands for informal payments that plague virtually every registration or certification requirement.

The time and expense involved in complying with multiple requirements place a special Strain on small businesses, especially at the start-up phase and for micro entrepreneurs in The informal sector, who are the targeted constituents of the Commission these Requirements are prohibitively burdensome. Various donors are currently supporting projects to simplify and automate some of the regulatory requirements, and to publicize the requirements through brochures, toolkits and websites·

b) Trade license

Legislation relating to city corporations and municipalities (paurashava) prohibits any person from carrying on or maintaining within the local limits of city corporations or municipalities any trade or business without obtaining a trade license from the City Corporation or municipality concerned.

Informal enterprises operating within the local limits of city corporations or municipalities violate this legal requirement. However, there is no similar requirement for trade license for enterprises operating outside the local limits of city corporations or municipalities, e.g. rural enterprises. For poor entrepreneurs in the informal sector the procedure for obtaining trade license is both too cumbersome and too costly. Applications for a trade license are required to be accompanied by copies of rent receipt or rental agreement and holding tax payment receipt. Informal enterprises which do not have any legal title to the occupied land or premise cannot fulfill this requirement. There are also additional requirements for incorporated entities and for entities in specific sectors. The cost of obtaining a trade license may vary depending on where the license is obtained. The cost of obtaining a trade license from the Dhaka City Corporation could be up to BOT 5,000, of which governmental fee is BDT 2,000.

c) Incorporation

Incorporation is not essential to formally operate a small business. Thus it may be possible to operate formally by obtaining necessary tax and VAT registrations and trade Incense but without incorporation. Yet, it is recognized that incorporation - whether in the form of company, society or partnership - does provide certain business advantages. For poor informal entrepreneurs existing procedures for different modes of incorporation are prohibitively cumbersome and expensive. The cost of incorporation (excluding legal fees) could be up to BOT 10,000.

d) SME Policy

Government has attached particular importance to SME development as a means of poverty reduction . The Bangladesh Poverty Reduction Strategy Paper (PRSP) approved by the Government in October 2005 attaches' importance to SME development and the Government has also adopted an SME Policy. Key elements of the SME Policy include:

1. Surveying SMEs to identify industries with growth potential ;
2. Strengthening the role of public agencies such as BSCIC to provide more effective
3. support to SMEs;
4. Providing tax incentives to SMEs;
5. Simplifying relevant laws and regulations;
6. Fostering subcontracting and other linkages between SMEs and larger enterprises;
7. Promoting e-commerce to support SME production and marketing; and
8. Establishing an information bank to improve marketing and trade opportunities.

VI. Barrier Of Informal Business Sector In Bangladesh

a) Impediments faced by poor entrepreneurs

Operating outside the statutory legal framework has considerable costs. Most self-employed and wage workers in the informal sector are deprived of secure work, social protection, workers' benefits and representation or voice. The self-employed have to take care of themselves and their enterprises as well as their employees (if they hire others) or unpaid contributing family members (if they run a family business). They often face competitive disadvantage vis-a-vis larger formal firms in capital and product markets.

Informal wageworkers also have to take care of themselves as they receive few (if any) employer-sponsored benefits. In addition, both groups receive no legal protection from the Government. As a result of these and other factors, a higher percentage of people working in the informal economy, compared to those working in the formal economy, are poor.

The legal and regulatory framework in Bangladesh is such that it is impossible for most informal entrepreneurs to operate formally. Virtually all regulatory requirements for businesses in cluding small businesses, such as registration with the RJSC or the BSCIC, obtaining of a TIN, trade license or other permit and payment of taxes, entail considerable costs. Given

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the level of literacy and entrepreneurship skill and education, most of the poor entrepreneurs would need assistance if they were to satisfy the currently applicable regulatory formalities. Furthermore, frequent trips to the relevant government offices(sometimes requiring travel to Dhaka or another urban centre) and either the use Of in fluence or informal payments are often required to satisfy regulatory requirements. Also, in order to obtain various regulatory registrations/licenses, a business typically Needs to have business premises that are identified as such. Poor entrepreneurs targeted By the Commission or in this working paper are unlikely to have legal title to land or premises.

In order to conduct their business and survive, the self-employed in the informal sector Need to bribe not only local extorters but also government officials (e.g. the police, officials of the city corporation etc). They have to offer rents (bribes) to the authorities to safeguard them (e.g. by warding off eviction drives or forewarning them of impending dries). There are other forms of extracting rents. In some cases local musclemen, more Often than not with the backing of local political leaders, collect protection fees through threats. Despite the payment of such rents/bribes, their conduct of business is not guaranteed and they lack the protection of law. Limited access to formal credit is another major constraint on informal businesses. Credit is crucial for the self-employed in the informal sector, both to sustain existing activity and to upscale it. The only source of formal credit extended to informal businesses is NGOs, who extend micro loans. However, the micro credit outreach needs to be expanded much more if credit were to be made readily available to poor entrepreneurs. In addition, other difficulties with micro credit have also been identified in some studies, e.g.repeat borrowing, dependency of borrowers on credit for household expenditure, marriage of children and other business unrelated purposes instead of making (capital) investments, women acting as collection agents for male family members, interest rates Although many informal entrepreneurs have repayment capacity, absence of collateral And firm domiciliary status usually debars them from obtaining institutional credit other Than micro credit from NGOs. Therefore informal entrepreneurs often obtain credit at High interest rates from non-institutional sources. Lack of necessary utility services is a further disadvantage faced by informal business. Even where such services are available They are disadvantageous for poor and small entrepreneurs. For instance, home-based businesses are charged higher commercial utility rates, regardless of the size or revenue Of the business. Frequent changes in utility charges can disrupt the business plans of the poor as well as small entrepreneurs.

Appropriation of household and family property. Lack of ownership of land and property seriously impairs the ability of women to start, run or upscale any business, have access to financial system and credit. Credit obtained by women is also often appropriated by male family members.

VII. Challenges For Women Entrepreneurs

Several studies have been undertaken in recent years to understand the particular challenges facing women-owned businesses in Bangladesh. For example, the Policy Leadership and Advocacy for Gender Equality Project (PLAGE project) reviewed business policies, laws and regulations in Bangladesh from the perspective of women entrepreneurs, and conducted surveys, focus groups discussions and interviews to better understand the impact of these and other factors on women-owned businesses.

A recent study of rural women entrepreneurs commissioned by CARE identified social constraints at the family, business/market and community levels. While these studies relate to women entrepreneurs in general, many issues identified in the studies are relevant for poor entrepreneurs.

A major constraint, which also underlies the discrimination and harassment that women entrepreneurs experience in their business and in dealing with regulatory authorities, landlords, lenders/banks, clients and others is the strong social disapproval of women in business. Women entrepreneurs often rely on their husbands and family members for financial and other assistance in establishing their businesses. However, family members May prefer that the women work from home and limit their travel and interaction with unrelated men. Family members will generally expect women to carry out childcare and other house hold duties in addition to their businesses. At the business/market level, \\omen business owners may become dependent on middlemen because of their limited mobility and lack of information and connections. Because of unwillingness of men to work under a woman entrepreneur, she has limited claim to unpaid male family labor and while she has to undertake responsibility for such unpaid labor. Women entrepreneurs often experience bias and harassment in dealing with landlords, lenders/banks, regulatory authorities as well as clients. Women entrepreneurs may experience harassment when traveling or transacting business in public places. At the community level, traditional norms favoring women's seclusion continue to dominate, especially in rural areas. Discrimination in access to education and training, gender-stereotyped training and education that devalues women, lack of opportunities for women for apprenticeship in vocational work and other similar impediments, hinder women's ability to enter new areas of activity.

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The difficulties and impediments faced by poor entrepreneurs in general in fulfilling applicable legal and regulatory requirements have been noted in the preceding section.

For poor women entrepreneurs fulfilling those requirements are even more burdensome. Furthermore, unequal inheritance laws and inequality in marriage contract result in male appropriation of household and family property. Lack of ownership of land and property seriously impairs the ability of women to start, run or upscale any business, have access To financial system and credit. Credit obtained by women is also often appropriated by male family members.

a) Limitations of the study

There are some limitations for conducting this research are given below:

1. They have not enough time for responding to the questionnaires.
2. Only urban areas of Bangladesh have considered.

VIII. Concluding Remarks

The role of the informal sector is widely acknowledged in the development process of developing countries. As the informal sector, consisting of very small-scale economic activities, accounts for a substantial, and increasing share, of employment in most developing countries and as a large majority of poor depend on such activities for their livelihood, any credible strategy to reduce poverty in these countries must pay due attention to this sector. For a country like Bangladesh, which looks for means and ways To improver her poverty situation, entrepreneurs of informal economy can lead to prosperity for all. Due to a lack of physical accommodation (i.e. an authorized permanent business premise) at a suitable location, street enterprises frequently face eviction and harassments by the authorities. The lack of a fixed business premise (foothold) inhibits entrepreneurs' ability to receive credit, thereby restricting capital accumulation and growth. Most of the environmental conflicts generated by street enterprises with the urban built environment can better be managed if they could be confined in certain locations throughout the city. On a macro-scale, street enterprises tend to concentrate in Densely populated areas, particularly in areas where the concentration of public functions is high. On a micro scale, street enterprises are highly sensitive to the sources of demand followed by the supply sources and location of their (entrepreneurs') home. regarding the question of intervention inputs, although there is no national policy Towards street enterprises in Bangladesh, study findings showed that city authorities are optimistic about supporting street enterprises. Existing Hawker Associations could be anin built advantage within the intervention process to accommodate the street enterprises.

In order to reduce the poverty level through accelerating the growth of micro entrepreneurship in Bangladesh, the government, policy makers, donors, NGOs, MF Is and other relevant organizations need to consider and address non-institutional barriers properly.

The integrated approaches are important to overcome the non-institutional barriers through awareness creation, motivational program, sound business plans and a combined external support. Through the right support from the institutional as well as non-institutional associations, micro-entrepreneurs can strengthen their own capacities besides contributing in both family and national earnings. Since micro-entrepreneurial movements and capacity building are imperative for economic and social development in Bangladesh in the long run, an integrated approach is necessary to be deployed with in shortest possible time.

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Structure Du Marche Bancaire Et Stabilite Financiere : Le Cas De La Communaute Economique Et Monetaire Des Etats De L'afrique Centrale

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Abstract- In this article we study the relationship between the structure of the CEMAC banking market and financial stability. Our results show that the concentration has a positive influence on the stability of the CEMAC banking market due to the presence of systemic banks belonging to the financial holding companies. However, this stability is threatened by the risk of illiquidity and the deterioration in the quality of the portfolios, which depend to a large extent on the economic situation of the countries. Therefore, in the context of a macro prudential policy, COBAC would benefit from establishing liquidity thresholds that should not be exceeded, depending on the level of activity of each country, in order to achieve a balance between efficiency and the stabilization of its banking system.

Keywords: *stability, banking system, solidity, macro prudential policy.*

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Structure Du Marche Bancaire Et Stabilite Financiere : Le Cas De La Communaute Economique Et Monetaire Des Etats De L'afrique Centrale

Gabriel Zomo Yebe

Résumé- Dans cet article nous étudions la relation entre la structure du marché bancaire de la CEMAC et la stabilité financière. Nos résultats montrent que la concentration a une influence positive sur la stabilité du marché bancaire de la CEMAC en raison de la présence de banques systémiques appartenant aux holdings financières. Cette stabilité est toutefois menacée par le risque d'illiquidité et la dégradation de la qualité des portefeuilles qui dépendent en grande partie de la situation économique des pays. Dès lors, dans le cadre d'une politique macro prudentielle, la COBAC gagnerait à établir des seuils de liquidité à ne pas dépasser, en fonction du niveau d'activité de chaque pays, pour pouvoir atteindre un équilibre entre l'efficience et la stabilisation de son système bancaire.

MotsClés: stabilité, solidité, système bancaire, politique macro prudentielle.

Abstract- In this article we study the relationship between the structure of the CEMAC banking market and financial stability. Our results show that the concentration has a positive influence on the stability of the CEMAC banking market due to the presence of systemic banks belonging to the financial holding companies. However, this stability is threatened by the risk of illiquidity and the deterioration in the quality of the portfolios, which depend to a large extent on the economic situation of the countries. Therefore, in the context of a macro prudential policy, COBAC would benefit from establishing liquidity thresholds that should not be exceeded, depending on the level of activity of each country, in order to achieve a balance between efficiency and the stabilization of its banking system.

Keywords: stability, banking system, solidity, macro prudential policy.

I. Introduction

La dernière crise financière de 2008 a donné un regain d'intérêt à l'analyse des facteurs susceptibles d'influencer la stabilité financière d'un marché bancaire, c'est-à-dire sa capacité à faciliter sans entraves les performances de l'économie, et de résorber les déséquilibres financiers qui se font jour de manière endogène, ou qui résultent d'évènements significativement dommageables et non anticipés[1].

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[1] Définition de la Banque Centrale Européenne

Les faits stylisés montrent en effet que, la faillite d'une banque systémique dans un marché oligopolistique, le non respect des critères prudentiels, la prise de risque excessif, sont autant de facteurs qui peuvent provoquer l'instabilité financière, néfaste pour l'ensemble du système économique.

Pour éviter l'occurrence d'une telle situation, la Communauté Economique Monétaire des Etats de l'Afrique Centrale (CEMAC), par le règlement du 2 octobre 2012, a crée en plus de l'organe de supervision et de contrôle qu'est la Commission Bancaire de l'A frique Centrale (COBAC), le Comité de Stabilité Financière de l'Afrique Centrale avec pour principales missions de combler l'insuffisance des mesures macro prudentielles de sa réglementation.

Ces mesures sont devenues impérieuses dans le marché bancaire de la CEMAC soumis ces 10 dernières années à des chocs exogènes notamment, les crises financières et la baisse des prix du baril de 2014-2015, qui ont fragilisé la situation macroéconomique des Etats, et la solidité de certaines banques (Kadandji, 2017). Selon le rapport de la COBAC de 2014, plus de la moitié avait une situation fragile, voire même critique[2]. En comparaison, seules 36% l'était en 2005[3].

Cette situation est d'autant plus préoccupante que la baisse des recettes pétrolières a réduit la capacité des Etats à aider les grosses banques en cas de crise systémique[4], car le Fonds de Garanti des Dépôts en Afrique Centrale (FOGADAC)[5] créé pour maintenir la confiance dans le système bancaire, et donc assurer sa solidité, et sa stabilité, ne dispose aujourd'hui qu'environ 100 milliards de franc CFA[6]. Il ne peut donc permettre à la COBAC de prendre efficacement en charge la problématique de la

[2] C'est le cas actuellement de Postbank au Gabon
[3] Rapport du FMI no 06/321, Aout 2006
[4] A titre d'exemple le total du bilan de BGFI Bank s'élève à plus de 2000 milliards, alors que les recettes budgétaires propres du Gabon, pays d'origine de cette banque, ne s'élève qu'à
[5] Ce fonds de garanti créé en 2009 est un mécanisme de protection des dépôts institué au niveau des Etats de la CEMAC
[6] Ce qui représente le 1/20 du total du bilan de BGFI l'une des plus grosses banques de la CEMAC

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protection des dépôts, en cas de défaillance d'un établissement de crédit.

Cette baisse de la solidité financière de certaines banques s'est également accompagné de profondes mutations structurelles de ce marché, qui est devenu oligopolistique. Certes, le nombre de banques est passé de 30 en 1996, à 33 en 2005, et à 52 en 2016, mais quatre grosses banques appartenant à des holdings financières[7] locales et étrangères, dominent le marché en termes de volume du capital, de dépôts, de total des actifs ou de nombre de guichets. Ce sont : A fril and Bank et Société Générale de Banque du Cameroun (SGBC), Banque Gabonaise Française Internationale (BGFI) et Banque Internationale pour le Commerce et l'Industrie du Gabon (BICIG) au Gabon,[8] et BGFI au Congo.

Cette nouvelle configuration du marché bancaire, constitue t-elle une menace pour la stabilité financière de la CEMAC? Quels sont les autres déterminants de cette stabilité dans la zone CEMAC?

Un tel questionnement revêt un intérêt aussi bien théorique, qu'empirique.

Dans la littérature théorique, le sens de la relation entre la structure d'un marché bancaire et sa stabilité fait l'objet de controverses.

Un premier groupe d'auteurs (Freixas et Rochet, 2006 ; Vives, 2010) démontrent que la concentration dans un marché bancaire a un effet stabilisateur sur le système financier. Freixas et Rochet (2006), l'expliquent par le fait que dans un marché oligopolistique, les banques ayant un pouvoir de marché et donc une position dominante, ont en même temps des profits plus importants qui leurs permettent de fixer des taux d'intérêts plus élevés qu'elles ne le feraient si elles étaient dans un marché de concurrence parfaite. Vives (2010), estime pour cela que ces profits représentent pour elles un « coussin de capital », qui augmente leur capacité d'absorption de chocs en cas de crise financière et qui en même temps diminue leur probabilité de subir une ruée bancaire. C'est ce matelas financier que se constituent en général les grosses banques qui les pousse également à ne pas s'engager dans des opérations risquées. Ces auteurs concluent donc qu'une position dominante issue d'un marché concentré peut être un facteur de stabilité en augmentant les revenus des banques.

Un deuxième groupe d'auteurs, (Allen et Gale 2000 ; Beck, Dermiguc-Kunt et Levine, 2007 ; Boyd, De Nicolo et Al Jalal, 2006, etc) tend plutôt à démontrer que la concentration augmente l'instabilité. En effet, le modèle d'Allen et Gale (2000) montre que la concurrence à la fois au niveau des dépôts et des prêts engendre une relation positive entre le nombre de banques et la qualité du portefeuille de prêt. De fait, plus le système bancaire est concentré, plus le portefeuille de prêt est risqué. La hausse des taux d'intérêt des prêts accordés par les banques ayant un pouvoir de marché, selon Beck et *al* (2007) peut évincer du marché les clients les moins risqués, car ils n'accepteront pas d'emprunter à ces taux. La qualité du portefeuille de prêts de ces grosses banques risque alors de se dégrader, augmentant du même coup la probabilité de faillite.

C'est également ce que démontre le modèle de Caminal et Matutes (2001) pour qui les banques ayant une position dominante ont tendance à choisir le monitoring sans avoir de réelle politique de rationnement de crédit. Or, selon ces deux auteurs, en cherchant à minimiser les charges du monitoring[9], la banque va avoir tendance à concentrer ses prêts dans une branche restreinte afin de réaliser des économies d'échelle sur les informations à rassembler. En conséquence, elle diversifie moins son portefeuille de prêts, devenant ainsi, une menace pour la stabilité financière.

Dans la littérature empirique, les résultats de la plupart des études consacrées à cette problématique (Schaeck, Cihak et Wolfe (2008) Beck, Dermiguc-Kunt et Levine (2007) Boyd, De Nicolo et Al Jalal (2006), Uhde et Heimesh off (2009), Kadandji, (2017) etc, ne permettent pas de clore le débat théorique ci-dessus. Les conclusions de ces auteurs montrent que le sens de la relation structure du marché – stabilité financière dépend en grande partie du choix de la variable endogène. C'est là l'une des limites de ces études car ces conclusions restent difficiles à mettre en œuvre.

Dans la présente réflexion, nous osons participer à ce débat en prenant pour cadre, la CEMAC avec cependant une perspective différente, plus pratique. Nous choisissons, la meilleure variable de stabilité par des tests économétriques portant sur la nullité des effets spécifiques, l'hétérogénéité des pays et les critères d'information AIC et BIC, avant d'estimer par la méthode des moindres carrés généralisées, notre modèle avec les variables d'intérêt auxquelles on ajoutera les variables de contrôle. La meilleure spécification en considérant les critères BIC et AIC servira pour les interprétations économiques, après les tests usuels.

Notre hypothèse principale est que la concentration a une influence positive sur la stabilité du marché bancaire de la CEMAC. Toutefois, le maintien de cette stabilité dépend de la capacité des autorités bancaires et des Etats à influencer le comportement des holdings financières (sous hypothèse 1), et aux risques de liquidité et de qualité de portefeuille qu'engendrent les fluctuations des recettes pétrolières (sous hypothèse 2).

[7] Elles détiennent 73% du capital des banques de la zone, contre 21% pour le secteur public et 6% pour les particuliers.
[8] Elle détenait 47,3% des dépôts en 2012
[9] Le suivi de nombreux prêts est très couteux.

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Le plan du reste de l'article est le suivant : dans la section 2, nous présentons le marché bancaire de la CEMAC. La section 3 est consacrée à la modélisation empirique du lien entre structure du marché bancaire et stabilité du système. A la section 4, nous interpréterons les résultats, avant la conclusion (section 5).

II. Le Marché Bancaire De La Cemac

En se basant sur l'approche Structure-Comportement-Performance, cette section donne un aperçu général de la structure de ce marché c'est-à-dire, le degré de concurrence d'une part, et le comportement des banques d'autre part.

a) Structure du marché bancaire

Pour analyser le degré de concurrence sur ce marché, nous utiliserons deux indicateurs : le niveau de concentration de ce marché et l'indicateur de Boone.

i. *Le niveau de concentration*

La concentration d'un marché est mesurée ici par la part de marché des 3 plus grosses banques dans chaque pays en termes de total des bilans, de dépôts, et de crédits, qui sont les trois principaux objets de la concurrence. En général si le ratio de concentration tend vers 0, on est en présence d'un marché très concurrentiel. Lorsqu'il tend vers 1, on est en présence d'un marché fortement concentré[10]. Le tableau 1 ci-après, donne le niveau de concentration par pays

Tableau 1: Part de marché des 3 plus grosses banques par pays

En %	Cameroun	Gabon	Congo	Tchad	Guinée E.	RCA
Bilan	50,5	73,3	67,3	57,1	86,4	90,4
Crédit	54,5	76,5	67,1	58,2	92	90,2
Dépôt	45,8	77,4	68,8	61	86,3	91,5

Source: réalisé à partir des données des Rapports de la COBAC, 2014

Il en ressort globalement que le marché bancaire de la CEMAC reste très concentré si l'on en juge par le total de bilan, le volume des dépôts, et le volume des crédits des 3 plus grosses banques par pays.

Il s'agit vraisemblablement d'un marché oligopolistique bien que le Tchad et le Cameroun enregistrent des niveaux de concentration relativement moyens. Toutefois, le fait que le marché soit concentré n'implique pas nécessairement une faible concurrence comme nous le verrons avec l'indicateur de Boone.

ii. *L'indicateur de Boone*

Le niveau de concentration n'est toutefois qu'une mesure imparfaite du degré de concurrence[11]. La théorie des marchés contestables indique en effet, qu'il est possible d'avoir une forte concurrence avec une faible atomicité, ou une forte concentration (Claessens et Laevan, 2003[12] ; Pruteanu-Podpiera *et al,* 2008 ; Gutiérrez de Rozas, 2007). Nous compléterons donc notre analyse de la structure du marché bancaire par le niveau de concurrence mesuré avec l'indicateur de Boone qui mesure l'effet de l'efficacité sur la performance en termes de profits. Il est défini comme l'élasticité des bénéfices aux coûts marginaux. Pour calculer cette élasticité, le logarithme d'une mesure des bénéfices (comme le rendement des actifs) est régressé par rapport à une mesure logarithmique des coûts marginaux[13]. Plus l'indicateur de Boone est négatif, plus le niveau de concurrence est élevé sur le marché, car l'effet de la réaffectation est plus fort. Le tableau 2 ci-dessous, apprécie ce niveau de concurrence dans certains pays de la CEMAC ou existaient les données :

[11] Selon Baumol et *al*, la concurrence peut être sévère même dans un marché ou la concentration est forte

[12] Selon ces auteurs, il existe une relation entre degré de concentration et contestabilité, et cette dernière est associée à divers facteurs : présence plus forte de banques étrangères, libre entrée et libre sortie, faible niveau des restrictions d'activité et stade de développement avancé des systèmes juridique et financier

[10] De manière particulière, la concentration est jugée élevée dans un marché si le ratio est supérieur à 65 %. Les différents marchés bancaires de la CEMAC étant bien délimités, la concentration ne peut être mesurée que par pays.

[13] L'élasticité est captée par le coefficient sur les coûts marginaux logarithmiques, qui sont généralement calculés à partir de la première dérivée d'une fonction de coût translog. L'idée principale de l'indicateur de Boone est que les banques plus efficaces obtiennent des bénéfices plus élevés.

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Tableau 2: Degré de concurrence dans les pays de la CEMAC, mesuré par l'indicateur de Boone

	Cam	Gabon	Tchad	RCA
2006	0,00	-0,07	0,11	-0,15
2009	0,01	-0,10	0,09	-0,15
2011	0,00	-0,07		-0,18
2012	0,02	-0,07	0,19	-0,17
2013	0,01	-0,08	0,17	-0,31

Tableau élaboré à partir des données de Global Financial development 2016 L'indice de Boone montre que malgré l'application du règlement COBAC R-2009/01 qui fixe le capital social minimum des établissements de crédits, à 1 milliard de FCFA pour les banques et le durcissement des conditions et modalités de l'exercice bancaire qui pouvaient être interprétés comme des barrières à l'entrée du marché bancaire de la CEMAC, le niveau de la concurrence reste relativement acceptable notamment au Gabon et en RCA, les données sur la Guinée Equatoriale et le Congo étant inexistantes. Ces résultats confirment ceux d'Eugene Bempong Nyantaky et Mouhamadou Sypor, (2015) pour qui l'environnement bancaire de l'Afrique subsaharienne est aussi concurrentiel que ceux d'Amérique latine et des Caraïbes et pas très différent de celui qui existe dans les pays à revenu élevé de l'OCDE[14]. Le marché bancaire est donc relativement contestable comme le montre d'ailleurs l'évolution du nombre de banques ces dernières années, et la présence de banques dont l'actionnaire principal n'est pas de la CEMAC.

b) Le comportement des banques

Le comportement d'ensemble des banques dans chaque pays, notamment le niveau de prise de risque et le non respect des critères prudentiels sont des signes d'une probable instabilité financière. Nous apprécierons ce comportement au travers du niveau de prise de risque et du respect des principaux critères prudentiels.

i. *Le niveau de prise de risque*

Quatre principaux ratios nous permettront d'évaluer le niveau de prise de risque des banques par pays à savoir :

- Le ratio fonds propres réglementaires/actifs pondérés en fonction des risques.
- Le ratio créances improductives/total des prêts bruts qui sert à détecter des problèmes de qualité des actifs dans le portefeuille de prêts.
- Le rendement des actifs qui mesure l'efficience avec laquelle les banques emploient leurs actifs.
- Le taux de liquidité qui nous donne le décalage entre les échéances des emplois et les ressources bancaires.

Les tableaux 3 et 4 donnent l'évolution de ces ratios de 2005 à 2014 pour la CEMAC et pour chaque pays.

Tableau 3: Evolution de l'adéquation des fonds propres, de la qualité du portefeuille, du rendement des actifs et de la liquidité globale de la CEMAC

	2005	2008	2010	2011	2012	2014	2015
Adéquation des fonds propres	14,8	16,1	16	15,35	15,8	12,6	12,8
Qualité du portefeuille	13,7	8,35	8,3	7	9	8,8	10
Rendement des actifs	1,8	1,7	1,62	2	1,3	1,2	1,2
Ratio de liquidité	-	-	166,5	156,4	170,2	101,9	96,2

Sources: Rapports COBAC, 2007, 2009 2105 ; Rapport du FMI No. 14/252, 2014

Dans l'ensemble, la situation de la CEMAC s'est légèrement dégradée si l'on considère les dix dernières années. Le niveau des indicateurs globaux est resté en deçà des niveaux de 2005. Avec l'accroissement du nombre de banques, le système bancaire de la CEMAC est désormais vulnérable aux risques de liquidité, opérationnels, de réputation et juridiques[15]. Toutefois, la situation change par pays comme le montre le tableau 3. Le Gabon en 2015, et le Cameroun en 2012 et 2013 sont les seuls pays à ne pas avoir respecté le seuil de 8% du ratio d'adéquation des fonds propres. Quelques unes de leurs banques restent donc sous-capitalisées.

[14] Bempong Nyantaky et Mouhamadou Sypor, (2015) Le système bancaire en Afrique : principaux faits et défis, AEB Volume 6 Numéro 5

[15] FMI, Rapport No. 14/252 Aout 2014

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Quant à la qualité des portefeuilles (ratios des prêts non productifs/total des prêts) elle s'est nettement dégradée pour la RCA, le Tchad et la Guinée Équatoriale depuis 2014. Pour ce dernier pays, le ratio des prêts non productifs/total des prêts est passé de 4% en 2011 à 19,7% en 2014. On remarque que la détérioration de la qualité des portefeuilles coïncide avec l'accroissement des prix du pétrole des années 2013-2014.

Cette situation est d'autant plus inquiétante que le portefeuille de prêts est concentré sur un nombre limité de secteurs économiques et d'emprunteurs, notamment les mines, les transports, l'industrie manufacturière. Le risque de crédit reste donc élevé.

Les données du FMI ci-dessus, montrent que le ratio de liquidité a suivi la même évolution au Gabon, en Guinée Equatoriale et au Tchad. Il s'est détérioré avec la baisse des prix du pétrole de 2015.

Tableau 4: Appréciation de la prise de risque par pays

	Cam	Gabon	Guinée	Congo	Tchad	RCA
Ratio d'adéquation des fonds propres						
2015	10,1	7,8	23,8	17,6	14,6	37,4
2014	11,2	13,4	25,5	16,1	13,4	42,2
2013	7,9	12,3	22,3	11,9	22	39,1
2012	6,3	12	24,5	12,8	18,1	22,7
2011	5,5	11	18,2	9,9	20	25,6
Prêts non productifs nets/Total des prêts						
2015	10,5	7,5	17,7	4,6	16,5	26
2014	9,7	11,7	19,7	2,5	11,7	27,7
2013	10,3	5	+	2,0	9,8	28,5
2012	11,60	4,40	7	3,0	9	11
2011	10,30	9,90	4	1,20	1	12
2010	12,4	10.6	5,3	4.2	1.1	13.3
Rendement des actifs						
2015	1,2	0,9	1,1	1,5	1,6	-0,3
2014	0,8	1,6	0,7	1,0	1,8	0,8
2013	1,5	1,7	0,6	2,0	2,3	1,1
2012	2,04	3,06	0,00	2,62	4,06	2,71
2011	1,76	4,54	1,58	2,46	6,10	4,40
2010	1,57	0,76	1,02	2,26	1,42	2,73
Total des dépôts/total des prêts						
2015	113,4	96,5	91,9	104,5	93,6	76
2014	112,2	105,5	177,7	173,5	107,8	71,9
2013	114,6	108,6	202,8	159,3	112,9	70,7
2012	161,8	143,2	203,1	172,3	146,6	114,5
2011	164,1	129,5	185,7	196,4	149,3	160,7
2010	177,8	158,5	220,5	245,4	148,3	132,6

Source: Rapport du FMI No. 14/222, 2015 ; COBAC, Bulletin n°17, juin 2015 ; FMI (2016), Rapport CEMAC No. 16/277

ii. *Le respect des critères prudentiels par pays*

Nous analyserons principalement ici le respect des normes de solvabilité, à savoir la représentation du capital minimum, la règle de couverture de risques et celle de la limitation des immobilisations et des participations, en liaison avec le niveau des fonds propres réglementaires tel que défini par le Règlement COBAC R-2010/01 qui exige des établissements de crédit la détention d'un niveau suffisant de fonds propres en couverture de leurs risques pondérés. A ce titre, les fonds propres nets doivent couvrir les risques pondérés à hauteur de 8% au minimum.

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Tableau 5a: Nombre de banques par pays violant les principaux ratios prudentiels de 2010 à 2015

	Adéquation du capital						Liquidité					
	8%						Min 100%					
	2010	2011	2012	2013	2014	2015	2010	2011	2012	2013	2014	2015
Cam	3	3	5	5	4	3	0	0	1	2	3	3
Congo	0	0	2	1	0	1	0	0	1	0	0	4
Gabon	0	0	0	1	3	3	1	1	2	1	3	2
Tchad	2	2	0	0	1	1	1	1	0	1	0	1
Guinée	1	1	0	0	1	0	0	0	0	0	0	0
RCA	1	1	0	0	0	0	1	1	1	1	1	0
Total CEMAC	7	7	7	7	9	8	3	3	5	5	7	10
% au nombre de banques	16,27	15,55	14,58	14	18	15,38	6,97	6,66	11,1	10,41	14,5	19,23

Source: COBAC, FMI, Rapport du FMI No. 14/252 2014, Rapport du FMI No. 14/222, 2015 Rapport FMI, 16/277 Aout 2016

Tableau 5b: nombre de banques par pays violant les principaux ratios prudentiels de 2010 à 2015

	Immobilisations					Capital minimum					
	2011	2012	2013	2014	2015	2010	2011	2012	2013	2014	2015
Cam	5	8	5	4	4	4	4	5	5	3	1
Congo	0	1	1	1	5	2	2	1	3	1	0
Gabon	0	1	2	4	4	1	1	0	3	1	1
Tchad	3	0	0	2	2	4	4	2	3	2	1
Guinée	0	1	0	1	0	0	0	0	0	0	0
RCA	2	0	0	0	0	2	2	1	2	0	0
Total CEMAC	10	11	8	12	15	9	9	8	11	4	3
% au nombre de banques	23.2	24.4	16.6	24	28,8	23.07	20.9	17.7	22.9	8	5.7

Source: COBAC, FMI, Rapport du FMI No. 14/252 2014, Rapport du FMI No. 14/222, 2015 Rapport FMI, 16/277 Aout 2016

Au total, le pourcentage de banques ne respectant pas les critères prudentiels par pays, reste relativement élevé au Cameroun et à un degré moindre au Gabon et au Tchad, les pays qui pourtant, ont les systèmes bancaires les plus développés de la CEMAC. Vraisemblablement la supervision demeure donc inefficace. En effet, de plus en plus de banques ne respectent pas les critères « liquidité » et « immobilisations » et à un degré moindre le critère « adéquation du capital ». Seul le critère « minimum de capital » est relativement respecté. À fin 2015, 10 banques ont enregistré un ratio de liquidité inférieur au minimum de 100%. Ces banques se retrouvent principalement au Cameroun au Gabon et au Congo. Sur les 8 banques en infraction par rapport au ratio de couverture des risques, trois sont au Cameroun et trois autres au Gabon.

Cette situation préoccupante est confirmée par l'évolution des notes des banques. Elles sont 15 en 2015 soit 28,8% à avoir une situation solide ou satisfaisante. 23 soit 44% ont une situation pas entièrement satisfaisante et 26,92% ont une situation fragile et critique. En comparaison, elles étaient 37 à avoir une situation solide ou satisfaisante en 2012, soit 74,08% et 16% était dans une situation fragile et critique[16].

III. Modélisation Empirique du Lien Entre Structure du Marché Bancaire et Stabilité du Système

a) *Méthodologie*

Afin d'étudier la relation entre la concentration du marché bancaire et la stabilité financière, la méthodologie utilisée, consiste à choisir dans un premier temps la variable qui saisit mieux la stabilité financière. Nous estimons à cet effet deux relations alternatives: l'une saisissant la stabilité avec le z-score[17] et l'autre avec la part des crédits non performants sur le total des crédits (PNPTP), dans un modèle non contraint. Le choix entre le modèle à effets aléatoires et le modèle à effets fixes avec la variable PNPTP ou avec Z score se fera à partir des tests de

[16] 14 banques n'ont pas été notées en 2013

[17] Mesure utilisée par Nicolo et Al Jalal, (2006) ; Uhde et Heimeshoff ; (2009)

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nullité conjointe des effets spécifiques, et des critères AIC[18] et BIC[19].

On testera donc l'hypothèse H0 que tous les α_i sont nuls, autrement dit la spécificité de chaque banque, n'a pas d'impact sur le Z score ou sur le PNPTP.

Dans un deuxième temps la variable choisie sera utilisée comme variable à expliquer dans les différents modèles que ce soit avec les variables d'intérêt seulement qu'avec les variables de contrôle de la structure du marché, de la rentabilité et de l'environnement macroéconomique. La même variable à expliquer sera utilisée pour tester la présence des canaux de la complexité, du pouvoir de marché, et de la diversification du marché bancaire. La meilleure spécification sera choisie en fonction des critères AIC et BIC, c'est-à-dire celle qui minimise la perte d'informations.

Dans un troisième temps seront testés pour ce modèle choisi, la spécificité temporelle, l'auto corrélation des résidus, l'hétéroscédasticité sur les effets fixes, sur les variables et sur l'ensemble du panel, et la normalité des erreurs.

b) Spécification du modèle

Le modèle estimé s'inspire de celui utilisé par Uhde et Heimesh off (2009) et Vilma Deltuvaitė (2009).Nous spécifions ce modèle avant de présenter la mesure des variables.

$$Zscore_{i,t} = \alpha_i + \sum_{n=1}^{3} \beta_n BVM_{n,t} + \sum_{n=1}^{4} \delta_n BSSD_{n,t} + \sum_{n=1}^{5} \lambda_n BVRE_{n,t} + \sum_{n=1}^{2} \gamma_n VINST_{n,t} + \varepsilon_{i,t} \text{ Ou}$$

$$PNPTP_{i,t} = \alpha_i + \sum_{n=1}^{3} \beta_n BVM_{n,t} + \sum_{n=1}^{4} \delta_n BSSD_{n,t} + \sum_{n=1}^{4} \lambda_n BVRE_{n,t} + \sum_{n=1}^{2} \gamma_n VINST_{n,t} + \varepsilon_{i,t}$$

Avec: Zscore et PNPTP= deux mesures de la stabilité financière du marché bancaire; BVM= vecteur des variables macroéconomiques des pays;
BSSD= vecteur des caractéristiques structurelles du secteur bancaire de chaque pays; BVRE= vecteur de variables reflétant la solidité financière et la rentabilité des banques; VINST= variables institutionnelles ; ε est le terme d'erreur.

Le Z-score mesure la probabilité que la valeur des actifs d'une banque soit inférieure à la valeur de sa dette[20]. Il s'agit donc d'une mesure de la distance au défaut[21] ou plus précisément une mesure de la proximité de chaque banque à la faillite. Il est définit comme suit :

$$Z - score = \frac{(ROA + EQTA)}{\sigma ROA}$$

Equation dans laquelle ROA est le *return on assets*[22], le EQTA le ratio de *equity sur assets* et σROA, l'écart type du ROA. Plus la valeur du z-score est élevée, plus le risque de défaillance des banques et donc d'instabilité est faible.

La part des crédits non performants sur le total des crédits (PNPTP) est une autre mesure utilisée pour appréhender indirectement la stabilité. Elle est en effet l'un des principaux indicateurs de solidité des banques.

i. *Les variables explicatives*

D'un point de vue théorique, en dehors de la structure du marché, la stabilité financière peut dépendre de plusieurs autres facteurs propres au système bancaire ou à l'environnement des banques. Afin d'améliorer la qualité de la relation entre concentration du marché bancaire et stabilité financière en limitant les biais liés à l'omission de variables, nous ajouterons des variables de contrôle à la régression ;

a. *Les variables de la structure du secteur bancaire (BSSD)*

Nous avons retenu ici le niveau de concentration tel qu'évalué à la section 2 c'est-à-dire la part de marché des trois plus grosses banques par pays (CR3)[23]. Nous avons tenu compte également du

[18] Akaike information criterion est une mesure de la qualité d'un modèle statistique proposée par Hirotugu Akaike en 1973. On choisit le modèle avec le critère d'information d'Akaike le plus faible.

[19] le critère d'information bahésien permet de pénaliser les modèles en fonction en fonction du nombre de paramètre afin de satisfaire le critère de parcimonie. On choisit le modèle ayant le BIC le plus faible.

[20] D'autres auteurs (Laeven et Valentia.F, 2008, 2010) par contre, l'appréhendent par une variable muette, en ne considérant que les crises systémiques effectives et non potentielles.

[21] Ce dernier se caractérisant par des valeurs nulles ou négatives.

[22] Le ratio de rentabilité de l'actif (ROA) indique la rentabilité de tous les capitaux utilisés par la banque. Il est parmi les ratios les plus utilisés pour mesurer les performances des banques. Il est défini comme suit: R2 = bénéfices nets/ actif total.

[23] L'indicateur de Boone n'a pas été utilisé faute de données sur le Congo et la Guinée Equatoriale

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comportement des banques à travers le ratio de liquidité et le ratio d'adéquation des fonds propres.

Le ratio de liquidité est mesuré par le rapport des prêts sur les dépôts (RELIQ). Les institutions financières, en raison de leurs activités d'intermédiation, ont besoin de liquidité. Sur le plan systémique, la liquidité du système suppose non seulement l'existence d'actifs disponibles et réalisables pour faire face au passif exigible, mais aussi la présence de marchés suffisamment profonds pour la réalisation des actifs. Plus ce ratio est élevé, moins la banque dispose de liquidité. Selon Berger et Bouwman (2009), une banque avec un ratio élevé de prêts sur ses actifs pourrait être moins bien armée en cas de survenance d'événements de crise imprévus. En outre, cette banque risque davantage de connaître des pertes importantes si une vente d'urgence (et donc bradée) des actifs est nécessaire pour combler les besoins de liquidité. Enfin, la liquidité bancaire excédentaire peut encourager des pratiques risquées d'octroi de crédit et une désintermédiation financière.

Le ratio d'adéquation des fonds propres (RAFP) qui permet d'évaluer, la solidité du système financier et sa capacité à absorber les chocs qui affectent le bilan des institutions. Cette évaluation considère le niveau de capitalisation ou de fonds propres, leur structure, la variabilité de leur disponibilité pour faire face aux chocs immédiats ou plus diffus et étalés dans le temps.

Comme variable de contrôle de la structure du marché bancaire, nous testerons l'influence du ratio crédit bancaire sur les dépôts, qui saisit la qualité du portefeuille.

b. *Les variables macroéconomiques et de l'environnement des banques (BVM)*

Elles permettront de vérifier le comportement procyclique des banques. S'inspirant de la littérature économique, les principales variables utilisées sont :

- le taux de croissance réel (TXCR) dont la relation avec le Système financier est selon Stephen Cecchetti et Enisse Kharroubi (2012) en forme de U inversé. le développement du secteur financier tend à stimuler la croissance dans les pays disposant d'un système financier faiblement développé, mais il tend au contraire à nuire à la croissance lorsque la taille du secteur financier atteint une certaine taille critique.
- Le taux d'inflation (TXINF) ; Les effets de l'inflation sur les banques dépendent avant tout de son anticipation ou non par les banques, dans le second cas, son effet est déstabilisateur alors qu'il reste ambigu dans le premier cas puisque l'inflation contribue aussi bien à augmenter les coûts des banques que ses profits – à travers une hausse des taux d'intérêt (Arnould G, 2011)
- le solde du compte courant rapporté au PIB (SCPIB) et le solde budgétaire rapporté au PIB (SBPIB) saisiront quant à eux l'influence du niveau des équilibres extérieurs et intérieurs sur la stabilité financière. Le signe attendu est négatif.

Comme variables macroéconomiques de contrôle, nous retenons, le taux de change réel (TCER), et la grande dépendance envers le pétrole, (PPPIB). La dominance du secteur pétrolier se traduit en effet par une vulnérabilité des économies aux chocs extérieurs du fait que les recettes budgétaires et en devises sont fortement tributaires du prix des produits pétroliers[24].

Selon un rapport du FMI, par le passé les banques ont souffert des chocs pétroliers, pour l'essentiel de façon indirecte du fait de la détérioration des finances publiques en période de repli des cours pétroliers. L'influence du reste du monde sur les marchés bancaires sera saisi par le taux de change réel (TCER).

Les variables de viabilité de la dette seront également introduites comme variables de contrôle compte tenu du niveau d'endettement des pays de la CEMAC, notamment le taux d'endettement (DPPIB) qui nous permet d'apprécier le risque de surendettement.

c. *Les variables de rentabilité des banques (BVRE)*

La rentabilité des banques varie d'un pays à l'autre. Elle sera saisie comme dans les études d'Uhde et Heimesh off (2009) et de Boyd, De Nicolo et Al Jalal (2006), par le rendement des fonds propres (ROE) et le rendement des actifs (ROA). Comme variable de contrôle, nous utiliserons d'une part, la marge sur taux d'intérêt (*NIM*) qui saisit la profitabilité et dont l'influence attendue est négative et le *cost income ratio* (CIR), d'autre part, qui est une mesure de l'efficacité des banques.

d. *Les variables institutionnelles* (VINST)

Elles nous permettent de vérifier l'efficacité de la réglementation de la COBAC et sa capacité à la faire appliquer. Ce sont le pourcentage de banques violant le ratio de fonds propres (BVFP) et le pourcentage de banques violant le critère du minimum de capital (BVMC). En théorie, plus ces ratios sont élevés plus le système sera instable.

e. L'étude des canaux

Pour étudier le canal du pouvoir de marché, notre méthodologie consistera à ajouter à la régression principale, deux indicateurs sensés saisir ce pouvoir, le *spread* du taux d'intérêt (TISPREAD) qui permet d'analyser la liberté qu'ont les banques d'augmenter le

[24] Cinq des six pays de la CEMAC sont producteurs de pétrole, et ce secteur représente 40 % de la production de la région, plus de 80 % des recettes d'exportation et 50 % des recettes fiscales

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taux d'intérêt, liberté qui peut être interprétée comme la pression concurrentielle.

Le canal de la complexité des banques sera étudié par ajout à la régression principale de la variable « nombre de banques par pays », (NBB).

Enfin le canal de la diversification sera étudié en ajoutant à la régression principale le nombre de banques dont le capital est contrôlé à plus de 50% par l'actionnariat étranger à la sous région, sur le nombre total des banques (BETB), et par le taux de bancarisation (TXBANC).

En présence du canal de diversification, bien que la plupart des études empiriques concluent sur les bienfaits de celle-ci, il est démontré qu'elle ne peut se faire à tout prix.

Les données utilisées pour les estimations ci-dessous sont des données globales par pays issues de la COBAC et de Global Financial Data Base de 2016. Elles couvrent la période 2006-2014. L'année 2006 a été la première année d'application de la nouvelle réglementation basée sur les critères de Bâle. Au cours de cette période, la CEMAC a connu non seulement l'accroissement des prix du baril de 2011, puis sa chute brutale en 2014, mais aussi, des crises financières extérieures, notamment celle des *subprimes* en 2008. Compte tenu du manque de données sur le Congo, ce pays ne figure pas dans les estimations. Il en est de même de l'indicateur de Boone non calculé pour la Guinée Equatoriale.

c) Le choix de la meilleure spécification

Afin de choisir la « meilleure » variable endogène et le type de modèle à utiliser ici, nous faisons deux estimations avec l'ensemble des variables (modèle non contraint) en considérant d'une part les effets fixes et d'autre part les effets aléatoires.

L'ensemble des résultats relatifs à ce choix sont en annexe 2.

Les résultats de l'estimation du modèle à effet aléatoire non contraint que ce soit avec la variable PNPT qu'avec la variable Z SCORE donnent un écart type des effets spécifiques associés à chaque pays α_i =0. Il y a donc dans les deux cas, absence d'effets aléatoires. Le modèle à effet aléatoire est donc rejeté.

Quand au modèle à effets fixes, nous l'avons estimé avec la variable endogène PNPTP, et testé l'hypothèse H0 que tous les effets spécifiques α_i sont nuls. Les résultats montrent que l'on ne peut pas rejeter H0. Autrement dit la spécificité au niveau de chaque banque, n'a pas d'impact sur le PNPTP. En effet, en considérant un seuil de 5%, on voit bien que la *p-value* > 0,05. On ne peut pas rejeter la nullité conjointe des effets spécifiques lorsque toutes les caractéristiques sont prises en compte. Ce modèle à effets fixes est donc rejeté. Nous n'avons donc pas besoin de faire le test de Hausman. C'est donc le modèle à effets fixes avec la variable à expliquer Z SCORE qui sera utilisé par la suite. Ce dernier a d'ailleurs l'avantage d'être constitué d'une composante portant sur la performance des actifs de la banque et d'une autre qui porte sur la couverture du risque de ces actifs par les fonds propres.

Enfin pour choisir la meilleure spécification, nous avons estimé notre modèle non contraint, puis le modèle avec seulement les variables d'intérêt, en y ajoutant tour à tour les variables de contrôle et les variables relatives aux canaux. L'ensemble de ces estimations est présenté en annexe 3. La meilleure spécification par les critères d'informations AIC et BIC reste le modèle 5.

IV. Interprétation Des Résultats

Nous avons utilisé les moindres carrés généralisés pour estimer les différents modèles. Nos résultats montrent que les coefficients associés au ratio de concentration (CR3) à l'indicateur de rentabilité (ROA), et à l'origine de l'actionnaire principal BETB et au ratio de liquidité (LQID) et au crédit bancaire rapporté au dépôt CBDP, sont statistiquement significatifs (leur *p-value* respective < 5%), et donc influencent la stabilité du système bancaire. L'effet des 3 dernières variables semble négatif. En outre, Les variables de l'environnement macroéconomique présentent, en moyenne, un effet non significatif sur la stabilité financière. (*p-Value > 5%).* La statistique de Fischer[25] confirme l'hétérogénéité des pays sous la forme d'un effet fixe, puisque la *p-value* < 5%.

Nous avons réalisé des tests sur cette équation 5 pour voir l'hétérogénéité des situations, l'influence du temps, et la normalité des résidus, l'hétéros cédasticité individuel c'est-à-dire le comportement d'un Etat, et l'hétérogénéité de groupe, ou de l'ensemble des Etats. L'ensemble des résultats de ces tests est en annexe 4.

Il en ressort qu'il n'y a pas de spécificité temporelle. Le test de corrélation de Breusch-Pagan pour tester l'hétéro scédasticité[26] indique que l'on ne peut pas rejeter l'hypothèse H0, il y a donc absence d'hétéroscédasticité.

Quant aux tests d'hétéro scédasticité, ils indiquent une absence d'hétéro xédasticité sur les effets fixes. Par contre le test de Greene sur l'ensemble du panel montre bien que les pays ne sont pas identiques, ce qui somme toute est normal, car ils sont de taille différente, ne fut-ce que par l'importance de leur population ou le niveau de PIB par habitant.

[25] : F(4, 27) = 7.80 Prob > F = 0.0003

[26] le problème du test est le suivant :

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Le test d'hétéro scédasticité de Cook-Weisberg[27] sur l'ensemble des variables explicatives permet de rejeter l'homoscédasticité du panel. Enfin, le test de normalité d'Anderson[28] montre bien que les erreurs suivent une loi normale.

Au total, il ressort ici que la stabilité du système bancaire de l'Afrique centrale dépend bien du degré de concentration de ce marché, contrairement aux résultats de Boyd, De Nicolo et Al Jalal (2006), Uhde et Heimesh off (2009), Shehzad, Scholtens et De Haan (2009), De Nicolo, Bartholomew, Zaman et Zephirin (2004). On remarque bien que la concentration bancaire a un signe positif significatif, ce qui cade avec les résultats de Vives (2010).

Le rendement des actifs investis influence positivement la stabilité financière. De plus grandes valeurs de ce dernier sont le signe d'une meilleure santé des banques. Toutefois, on remarque que par le signe négatif du coefficient du taux de liquidité que les banques sacrifient la liquidité pour favoriser les bénéfices. Un tel comportement peut engendrer de graves problèmes pour le système bancaire de la CEMAC. Ainsi, les mesures à prendre par le superviseur qu'est la COBAC doit être un équilibre entre ces deux objectifs. En effet, si globalement les banques ignorent l'objectif de profit, elles ne peuvent survivre pendant une longue période. Inversement, si les banques ne se préoccupent pas de la liquidité, elles peuvent faire face au problème d'insolvabilité en cas de demande massive des déposants[29]

Au passage, nous remarquons un effet négatif du nombre de banques violant le critère de fonds propres qui agit négativement sur la stabilité, bien que cette influence soit non significative.

Les variables macroéconomiques n'ont pas toujours le signe attendu. Le taux de croissance agit négativement, confirmant ici, l'intuition de Stephen Cecchetti et Enisse Kharroubi (2012), d'une relation en forme de U inversé entre la croissance et la stabilité financière. Son influence reste cependant non significative. Les coefficients des ratios solde budgétaire/PIB et solde courant/PIB ne sont pas significatifs. Toutefois le signe négatif du solde budgétaire rapporté au PIB montre que les banques sont éventuellement exposées aux chocs de liquidité causés par des fluctuations des recettes pétrolières. C'est pourquoi l'une des menaces de ce marché viendrait du niveau de liquidité. L'illiquidité des banques dans un pays pourrait engendrer des phénomènes de ruée vers les dépôts préjudiciables à l'ensemble de la sous-région. Il serait utile de s'attacher aux corrélations dynamiques entre la liquidité bancaire et la croissance du PIB pour mieux cerner la manière pro/contra cyclique de gérer la liquidité.

Le faible développement financier marqué par la faible bancarisation explique pourquoi ici il n'y a pas de canaux ni de la complexité, ni de la diversification, ni même du pouvoir de marché. Toutes ces variables ayant des coefficients non significatifs. En conséquence, ne bénéficiant pas des effets de la diversification, le rendement moyen de portefeuille des grandes banques n'est pas différent de celui des petites banques. Le ROE n'est pas significatif.

Enfin, l'importance du nombre de banques dont le capital social est détenu majoritairement par des personnes non originaires de la CEMAC semble jouer négativement contre la stabilité financière. Elles semblent prendre globalement plus de risques.

V. Conclusion

La présente étude avait pour objectif d'analyser l'effet de la structure bancaire de l'Afrique centrale sur la stabilité du système. Nos résultats montrent qu'il existe bel et bien une relation entre le niveau de concentration de ce marché et la stabilité. L'hypothèse principale est donc vérifiée. Toutefois, la capacité des Etats à influencer le comportement des banques systémiques reste faible. Ces grosses banques appartiennent en grande partie à des holdings financières étrangères à la sous région. Pour celles donc l'actionnariat est contrôlé par des ressortissants de la sous région, ce contrôle reste également difficile, compte tenu de la collusion possible avec les gouvernements. Ce constat justifie l'intérêt d'une politique macro prudentielle mise en œuvre par une autorité supranationale qui devrait en outre, favoriser l'inclusion financière encore faible dans la CEMAC.

En dehors des facteurs inhérents à la structure du marché bancaire, des facteurs relatifs à la pro-cyclicité du système bancaire de la CEMAC, notamment le ROA et la part des crédits par rapport aux dépôts doivent faire l'objet d'une attention particulière. Le

- H0 : homoscédasticité
- H1 : hétéroscédasticité

Si la probabilité associée au test est inférieure à α, on rejette l'hypothèse d'homoscédasticité (H0). En revanche, si la probabilité est supérieure à α, l'hypothèse nulle est vérifiée et nous pouvons supposer l'homoscédasticité des résidus. Avec α = 5% = seuil de significativité

[27] Cook-Weisberg teste l'hypothèse nulle selon laquelle les écarts d'erreurs sont tous égaux contre l'alternative que les écarts d'erreurs sont une fonction multiplicative d'un ou plusieurs variables.

[28] La statistique d'Anderson-Darling détermine dans quelle mesure les données suivent une loi de distribution spécifique. Les hypothèses du test d'Anderson-Darling sont les suivantes : H_0 : les données suivent une distribution spécifiée, H_1 : les données ne suivent pas une distribution spécifiée

[29] Thi-Dieu-Linh NGUYEN, (2014) Liquidité, Risque et Profit des banques. Application aux systèmes bancaires de pays de la zone euro,Université de Rennes 1 – CREM, Avril.

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nombre de banques violant les critères prudentiels montre qu'au Cameroun et à un degré moindre au Gabon, il y a eu une prise de risque excessif des banques pendant les périodes de forte croissance exclusivement dû à l'amplification de cycles économiques par le système financier, qu'a engendré les programmes d'émergence économique. Nos résultats montrent que le risque systémique de liquidité peut se manifester ici. Plusieurs institutions financières font face à un problème de refinancement de leurs dettes à court terme. Dans le cadre de sa politique macro prudentielle, la COBAC pourrait adopter l'une des propositions faites dans le cadre des accords de Bâle III à savoir : imposer aux banques de détenir des actifs assez liquides de haute qualité pour leur permettre de faire face aux risques de liquidité individuels. Compte tenu des différences de structure économique, la COBAC ou la commission de stabilisation devrait à cet effet, établir des normes selon les pays pour pouvoir atteindre un équilibre entre l'effi cience et la stabilisation de son système bancaire.

VI. Annexes

Annexe 1: Evolution du nombre de banques de la CEMAC par pays

	2008	2010	2011	2012	2013	2014	2015
Cameroun	12	12	13	13	13	13	14
Gabon	7	9	9	10	10	10	10
Congo	5	6	7	9	9	10	11
Guinée Eq	4	4	4	4	4	5	5
Tchad	7	8	8	8	8	8	8
RCA	4	4	4	4	4	4	4
Total CEMAC	39	39	43	45	48	50	52

Sources: Rapports COBAC, 2008, 2010 2012, 2014

Annexe 2: choix de la variable à expliquer

	Modèle à effets aléatoires avec Zsc	Modèle à effets aléatoire avec PNPTP	Modèle à effets fixes avec PNPTP
ROA	1,560709 (1,34)	2,296364 *** (3,32)	2,623238*** (3,51)
ROE	-0,2364827 (-1,45)	-0,4256792 *** (-4,39)	-0,432932*** (-3,94)
CR3	0,2384322 (1,15)	-0,1996832 (-1,62)	-0,1183121 (-0,61)
RAFP	-0,2097436 (-1,01)	0,0398341 (0,32)	0,2252374 (1,45)
SCPIB	0,0567078 (0,29)	0,0883929 (0,73)	0,0859698 (0,63)
TXCR	-0,0859104 (-0,61)	-0,132725 (-1,59)	-0,1399725 (-1,37)
SBPIB	-0,2102478 (-0,44)	0,6601078 ** (2,35)	0,6309877 (2,26)
LPIBHB	-1,294505 (-0,39)	0,4452403 (0,23)	8,951987 (0,91)
TXINF	-0,4373045 (-0,94)	-0,085177 (-0,31)	-0,1254825 (-0,46)
BVRP	-0,0590699 (-0,67)	0,1401036** (2,67)	0,1527013** (2,73)
BVCM	-0,016596 (-0,22)	0,0398799 (0,88)	0,0561432 (1,09)
PPPIB	0,1145852 (0,80)	-0,315451 *** (-3,73)	-0,239951*** (-1,81)
DPPIB	-0,0572813 (-0,83)	0,1910286*** (4,66)	0,2035408 (4,67)
NIM	0,1392721 (0,34)	0,5245975** (2,18)	0,4989508* (1,99)

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TECR	0,1202917 (0,79)	0,2735856*** (3,04)	0,2211195** (2,23)
CIR	0,0058982 (0,08)	0,1514226 (3,30)	0,1389105** (2,42)
BETB	-0,0704823 (-0,54)	-0,0694015 (-0,90)	-0,0477743 (-0,57)
RLIQ	-0,2380157 (-2,36)	-0,0346562 (-0,58)	-0,0531918 (-0,86)
TXBANC	-,0236602 (-0,82)	0,032804* (1,92)	0,0497245** (2,33)
NBB	1.586485 (1,17)	-0,1010627 (-0,13)	-1,48973 (-1,24)
TISPREAD	0,537794 (0,86)	0,1762248 (0,48)	-0,0371079 (-0,10)
CONS	-9,228453 (-0,21)	-15,998 (-0,62)	-75,14634 (-0,84)
sigma_u | 0 sigma_e | 4,3758933		sigma_u 0 sigma_e 2,69998	sigma_u 17,17977 sigma_e 2,699984 rho 0,97589589 (fraction of variance due to u_i)
R-sq: within = 0,872		R-sq: within = 0,8163	F tes Prob > F = 0.2925

*legend: * p<0.05; ** p<0.01; *** p<0.001* t that all u_i=0: F(4, 19) = 1.34

Annexe 3: Récapitulatif des résultats des estimations des différents modèles aves Z score

Variables	M1	M2	M3	M4	M5	M6	M7	M8
ROA	1,952	2,549**	2,466**	1,90*	1,80*	2,80**	2,52**	2,49**
ROE	-0,1083	-0,2233	-0,2206	-0,136	-0,146	-0,231	-0,21	-0,220
CR3	0,45015	0,4052*	0,3672	0,405*	0,393*	0,482*	0,473*	0,371
RAFP	0,0763	0,0681	0,0658	0,090	0,166	0,0936	0,0484	0,0568
TXCR	-0,1159	-0,1041	-0,1107	-0,080	-0,103	-0,124	-0,128	-0,082
SCPIB	0,1207	0,1235	0,1273	0,159	0,221	0,1258	0,131	0,142
SBPIB	-0,3731	-0,1636	-0,1876	-0,478	-0,316	-0,109	-0,151	-0,219
LPIBHB	2,077	2,585	1,357	4,82	5,632	3,87	1,604	0,98
TXINF	-0,6457	-0,6676*	-0,707*	-0,468	-0,356	-0,752*	-0,720*	-0,628*
BVRP	-0,0603	-0,0143	-0,016	-0,029	-0,005	-0,01	-0,027	-0,004
BVCM	-0,0561	-0,0313	-0,0336	-0,0457	0,0100	-0,0375	-0,0517	-0,0258
PPPIB	0,2635			0,2135				
DPPIB	-0,0084			-0,0277				
TCR	-0,0757			-0,1038				
NIM	-0,0979		0,092					
CIR	-0,0409		-0,033					
BETB	0,0529				-0,1593*	,0266		
RLIQ	-0,295**	-0,32***	-0,32***	-0,27***	-0,31***	-0,35***	0,332***	-0,305***
TXBANC	0,0066					0,018		
NBB	1,009						0,848	
TISPREAD	0,15479							0,305
CBDB					-0,159*			
C	-33,61	-24,22	-10,50	-37,56	-38,059	-42,03	-26,89	-13,21
r2	0,78	0,74	0,75	0,77	0,80	0,75	0,75	0,75
r2_a	0,49	0,60	0,57	0,59	0,67	0,58	0,59	0,59
IC	265,75	254.25	255,84	257,46	245,77	257.46	255.58	255,58
BIC	305,50	277.73	284,75	271,07	271.07	284.46	280.87	280,87

*legend: * p<0.05; ** p<0.01; *** p<0.001*

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Annexe 4: Tests sur le meilleur modèle M5

1) Test de spécification temporelle

$$H0:\ \gamma_1 = \gamma_2 = ...\gamma_n = 0$$

$$Contre\ H1,\ \exists\gamma,\ tel\ que\ \gamma t \neq 0$$

F(8, 19) = 1,46
Prob > F = 0,2366

2) Testing for cross-sectional dependence/ contemporaneous correlation

Correlation matrix of residuals:

$$\mathrm{cov}(e_i, e_j) = 0\ si\ 1 \neq j$$

	__e1	__e2	__e3	__e4	__e5
__e1	1,0000				
__e2	0,2836	1,0000			
__e3	-0,3319	0,1405	1,0000		
__e4	0,2528	0,1953	0,2406	1,0000	
__e5	-0,2514	-0,2163	-0,5703	0,0721	1,0000

3) Breusch-Pagan LM test of independence: chi2(10) = 7,297, Pr = 0,6971

Correlation matrix of residuals:

	c1	c2	c3	c4	c5
r1	1,0000				
r2	0,2836	1,0000			
r3	-0,3319	0,1405	1,0000		
r4	0,2528	0,1953	0,2406	1,0000	
r5	-0,2514	-0,2163	-0,5703	0,0721	1,0000

Friedman's test of cross sectional independence = 3,840, Pr = 0,4281

Average absolute value of the off-diagonal elements = 0,255

4) Testing for cross-sectional dependence/ contemporaneous correlation: using Breusch-Pagan LM test of independence

Modified Wald test for groupwise heteroskedasticity
in fixed effect regression model
H0: sigma(i) ^ 2 = sigma ^ 2 for all i
chi2 (5) = 3,26
Prob>chi2 = 0,6598

5) Greene Likelihood Ratio Panel Heteroscedasticity Test

Ho: Panel Homoscedasticity - *Ha:* Panel Heteroscedasticity
Likelihood Ratio LR Test = 10,75044
Degrees of Freedom = 4,0
P-Value > Chi2(4) = 0,02952

6) Panel Data Heteroscedasticity Cook-Weisberg Test

Ho: Panel Homoscedasticity - *Ha:* Panel Heteroscedasticity

- Cook-Weisberg LM Test: E2/S2n = Yh = 66,3902 P-Value > Chi2(1) 0,0000
- Cook-Weisberg LM Test: E2/S2n = X = 111,5506 P-Value > Chi2(13) 0,0000

7) Panel Data Non Normality Anderson-Darling Test

Ho: Normality - Ha: Non Normality

- Anderson-Darling Z Test=1,0097 P > Z(2,274) 0,9885

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The Differences on Performance Perception between Public and Private Albanian HEI

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Abstract- Education is seen as a sector that determines the economic development and welfare of a country. Higher education in Albania is relatively new. Nowadays there are 38 Higher Education Institutions (HEI) that operate in Albania, of which 15 are public and 23 are private HEI. The aim of this research paper is to study the differences on performance perception between public and private Albanian HEI. In this study it is used the factor analysis, the reliability analysis and the discriminant analysis. According to the factor analysis and the reliability analysis there are 9 factors that drive the performance of the HEI. There is a significant difference on some factors of performance perception between public and private HEI in Albania.

Keywords: higher education institutions' performance; factor, reliability, and discriminant analysis; albania.

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The Differences on Performance Perception between Public and Private Albanian HEI

Gentjan Çera [α], Dafina Cenaj [σ] & Edmond Çera [ρ]

Abstract- Education is seen as a sector that determines the economic development and welfare of a country. Higher education in Albania is relatively new. Nowadays there are 38 Higher Education Institutions (HEI) that operate in Albania, of which 15 are public and 23 are private HEI. The aim of this research paper is to study the differences on performance perception between public and private Albanian HEI. In this study it is used the factor analysis, the reliability analysis and the discriminant analysis. According to the factor analysis and the reliability analysis there are 9 factors that drive the performance of the HEI. There is a significant difference on some factors of performance perception between public and private HEI in Albania.

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I. Introduction

Education is seen as a sector that determines the economic development and welfare of a country. Average developed countries spend about 4% of GDP on education. In contrast, Albania spends somewhat less than 3% of GDP, by ranking the country that spends less on education in Europe. Statistics show that Denmark is in the top list in Europe in terms of GDP for education expenses (8.33% of GDP). Denmark is followed by Iceland, Cyprus, Norway, Sweden and Finland, where the public expenditure on education as percent of GDP respectively are 7.48, 7.29%, 6.98%, 6.97% and 6.40% (ERUOSTAT, 2017).

Higher education in Albania is relatively new. The first university is opened in Albania in 1951. From 1950 until 1992, study quotas in higher education were controlled by the government. He had the right to decide who should continue the higher studies. After the collapse of the socialist system, the higher education is faced with many problems stemming from the new system: the market economy. In recent years in Albania, government spending dedicated to higher education are around 0.5% of GDP (Cenaj & Çera, 2017). This is a very small percentage compared with the developed countries such as Denmark, Norway, Finland, Sweden and Cyprus, where the public expenditure on higher education as percent of GDP respectively are 2.41%, 2.16%, 2.04% 1.96% and 1.75% (ERUOSTAT, 2017).

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Currently, according to the Public Agency for Accreditation of Higher Education in Albania, there are 38 higher education institutions, of which 15 are public HEI and the rest are private HEI. The objective of this study is to identify the differences on performance perception between these public and private institutions that operate in Albanian.

II. Literature Review

The key points of the literature review on the factors that determine the performance of a HEI are: (i) Politics and government, which is mainly related to the sustainability of politics and governance; (ii) The aspects of legislation and regulations relate to laws and regulations adopted and enforced. They promote, but can also limit the performance of HEI. Both politics and legislation find theoretical support mainly to the publication made by Habibulah, Rouf, and Rana (2012); (iii) Social cohesion, which is related to the commitment of the HEI in relation to the community or the particular issues that affect it. This is mainly supported by the work done by Hanushek and Wossmann (2007); (iv) The possession of laboratories and didactic economics is one of the most mentioned points of the research carried out by Habibulah, Rouf, and Rana (2012). They stress out the fact that their mastery constitutes an element of high performance of HEI; (v) Environmental aspects, perhaps not deeply elaborated on the literature, but Habibulah, Rouf and Rana (2012) listed it as a key factor in the performance of HEI; (vi) HEI organization is related to the aspects of the institution's management. This topic was discussed by Jürgen (2004) and Boroah (1994); (vii) HEI autonomy, mainly composed as the financial autonomy. Dougherty and Reddy (2011) show that this component is of particular importance during the performance analysis of HEI; (viii) HEI focus is related to the management, and to the organization of the institutions. Margin son and Wende (2007) and Jürgen (2004) bring strong arguments to this performance component; (ix) Access to donors and media coverage, as a separate part of the organization and management of an institution, especially in the information technology age. As a supporter of this factor is Jürgen (2004); (x) Reports with competitors as an important factor that determine the HEI performance. Rey (2001) and De Fraja and Iossa (2002) argue this factor as a special dimension of the performance of these institutions.

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III. Methods and Procedures

a) Respondents and sampling

The aim is to study the differences on performance perception between public and private Albanian HEI. To do that first it is needed the identification of key factors that determine the performance of the Albanian HEI. As long as the performance of the HEI has academic and administration aspects, then the performance is required to be measured by two different evaluators: academic and administration staff. Therefore these factors are investigated by interviewing the two categories that govern HEI: academic and administration managers. The first category included senior official of the institution (rector), deans and the department head, while in the second category are those who perform the task of directors of ancillary activities in university (chancellor). The assessment provided by these two categories of the HEI managers for several groups of (factors) that affect the activity of the HEI may determine the performance of the institution.

The framework of sampling consists in the number of HEI operating in Albania. The sample is determined by the number of main and basic units operating within a HEI. Currently, there are 38 HEI, of which 15 are public and the rest are private.

A survey was conducted to collect the primary data. The identified factors that potentially affect the performance of Albanian HEI, were listed in a questionnaire designed to be administered to the academic and administrative managers in order to receive their perceptions on the relative importance of the factors. The key question of the questionnaire was "according to your perception, define the impact of these factors on the performance of HEI activity". The academic and administrative staff were asked to express in a (ordinal) likert scale their perception on the impact each factor had on their HEI activity.

b) Factor analysis, Reliability analysis and Discriminant analysis

Exploratory factor analysis (EFA) is a statistical method used to uncover the underlying structure of a relatively large set of variables. EFA is a technique within factor analysis whose overarching goal is to identify the underlying relationships between measured variables (Norris & Lecavalier, 2009). It is commonly used by researchers when developing a scale (a scale is a set of questions used to measure a particular research topic) and serves to identify a set of latent constructs underlying a battery of measured variables (Fabrigar et al., 1999). It should be used when the researcher has no a priori hypothesis about factors or patterns of measured variables (Finich & West, 1997). Measured variables are any one of several attributes of people that may be observed and measured. An example of a measured variable would be the physical height of a human being. Researchers must carefully consider the number of measured variables to include in the analysis (Fabrigar et al., 1999). EFA procedures are more accurate when each factor is represented by multiple measured variables in the analysis. EFA is based on the common factor model. Within the common factor model, a function of common factors, unique factors, and errors of measurements expresses measured variables. Common factors in fluence two or more measured variables, while each unique factor in fluences only one measured variable and does not explain correlations among measured variables (Norris & Le cavalier, 2009).

EFA must be followed by the Reliability analysis. Reliability in statistics and psychometrics is the overall consistency of a measure (Toc him, n.d.). A measure is said to have a high reliability if it produces similar results under consistent conditions. Cronbach's alpha is a measure of internal consistency, that is, how closely related a set of items are as a group. It is considered to be a measure of scale reliability. Cronbach's alpha can be written as a function of the number of test items and the average inter-correlation among the items. If the Cronbach's Alpha of the items that load a latent variable is over 0.7, then they measure the same thing, so the latent variable is reliable.

Discriminant analysis attempts to classify observations described by values on continuous variables into groups. Group membership, defined by a categorical variable X, is predicted by the continuous variables. These variables are called *covariates* and are denoted by Y. Discriminant analysis differs from logistic regression. In logistic regression, the classification variable is random and predicted by the continuous variables. In discriminant analysis, the classifications are fixed, and the covariates (Y) are product of random variables. However, in both techniques, the categorical value is predicted by the continuous variables. The Discriminant platform provides four methods for fitting models. All methods estimate the distance from each observation to each group's multivariate mean (*centroid*) using Mahalanobis distance. You can specify prior probabilities of group membership and these are accounted for in the distance calculation. Observations are classified into the closest group (Hair et al., 2014).

IV. Findings

Since the content of the questionnaire had 49 items (likert scale), which is a large number to be integrated together into a single factor analysis, then those items have to be divided into 2 groups: the first 26 items that composes the potential factors such as politics and government; legislation and regulations aspects; possession of laboratories and didactic economy; environmental aspects; and relations with competitors; and the last 23 items that composes the

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potential factors such as social cohesion or public commitment; the HEI organization; the HEI autonomy; the HEI focus; and access to donors and media coverage. Dividing the items into 2 groups respects the logic of grouping the possible factors according to a certain criteria. This criteria is "the ability to control the factor by the HEI." According to this criterion, HEI can't control all the possible factors (Cenaj & Çera, 2017).

a) Findings regarding the uncontrolled factors

The rotated components of the factor analysis for the first 19 items are shown in Table 1. It is noted that the components extracted from the varimax rotation, remain in the same group as they were initially thought. So the items Proper use of didactic economy to make money, Possession of a didactic economy, Proper use of laboratories for the realization of income, Possession of certified laboratories, load under the same construct: Component 1, which is named *The possession and use of didactic economy and labs*. The total variance analyzed more than any other component, almost 17%. In addition, the Cronbach's Alpha is 0.890. There are some extra information that the table shows. The load of each item under the main component and the components Cronbach's Alpha if the respective item is deleted. According to the factor analysis, here is no item that loads simultaneous two component more than 0.30. If the item Proper use of didactic economy to make money is deleted, than the component Cronbach's Alpha will be 0.827.

Table 1: A summary of the factor analysis and reliability analysis for the uncontrolled components.

Components and items	Loading	% of Variance	Cronbach's Alpha
The possession and use of didactic economy and labs		16.68	.890
Proper use of didactic economy to make money	.895		.827 (if deleted)
Possession of a didactic economy	.868		.849 (if deleted)
Proper use of laboratories for the realization of income	.864		.836 (if deleted)
Possession of certified laboratories	.636		.911 (if deleted)
Law and regulations		14.07	.836
National Agency functioning for Higher Education Financing	.839		.749 (if deleted)
The financing of the National Research and Innovation Agency	.831		.745 (if deleted)
Strict rules for the financing of basic activity of HEIs	.721		.808 (if deleted)
The law on higher education	.687		.848 (if deleted)
Policy sustainability		13.71	.801
Political stability and vision for the future	.849		.688 (if deleted)
The government's attitude towards the HEI	.833		.743 (if deleted)
The political stability and continuation of the government	.762		.743 (if deleted)
Country image to foreign institutions	.572		.815 (if deleted)
Geographic aspects		13.30	.797
HEI's proximity to the city center	.866		.696 (if deleted)
HEI's proximity to the capital	.856		.718 (if deleted)
Proximity to the neighbouring countries of Albania	.794		.734 (if deleted)
HEI campus and surrounding areas	.536		.820 (if deleted)
Competitiveness		10.83	.743
Student / lecturer report	.828		.624 (if deleted)
Embracing contemporary teaching methods	.754		.682 (if deleted)
The absorptive capacity of students	.702		.666 (if deleted)

The other 4 components are named: Law and regulations, Policy sustainability, Geographical aspects, and Competitiveness.

The total percent of variance is almost 70% and each component is reliable, since their Cronbach's Alphas are bigger than 0.70.

b) Findings regarding the controlled factors

Table 2 shows rotated components of the factor analysis for the controlled factors. Note that the components extracted from the varimax rotation, remain in the same group as they were initially expected. In this way the items Commitment to solve public problems, Inclusion and positioning in discussions of public issues, HEI's socialization with problems that affect different communities, HEI's attitude towards values, and The attitude toward work, load under the same construct: Component 1, named Public commitment. This is the component that explains the total variance analyzed more than any other component (somewhat more than 17%).

The items Academic autonomy (restrictions by relevant ministries strategies), Organizational autonomy (organizational structure), Personnel autonomy (remuneration of staff and his recruitment), and Financial autonomy compose component 2, which is named *Autonomy*. Four other items (Adapting research by type of research projects, Provide professional consultancy to third parties, Focus on activities that can generate income, Proactive approach to projects funded by third parties) compose the component number 3, called *HEI focus*. *Exposure and media coverage* is named the

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component that is composed by these items: Exposure / demonstration of HEI capacities, the goodwill, Media coverage and marketing policies. The fifth component is composed by three items (Relations between superior and subordinate, The size of the administration, Assistant staff enough unskilled), and it is named HEI organization.

The total percent of variance is almost 70%. Beside the HEI organization component, all component is reliable, since their Cronbach's Alphas are bigger than 0.70.

Table 2: A summary of the factor analysis and reliability analysis for the controlled components.

Components and items	Loading	% of Variance	Cronbach's Alpha
Public commitment		17.023	.859
Commitment to solve public problems	.821		.814 (if deleted)
Inclusion and positioning in discussions of public issues	.770		.832 (if deleted)
HEI's socialization with problems that affect communities	.764		.834 (if deleted)
HEI's attitude towards values	.745		.828 (if deleted)
The attitude toward work	.713		.840 (if deleted)
Autonomy		15.638	.877
Academic autonomy (restrictions by ministries strategies)	.856		.838 (if deleted)
Organizational autonomy (organizational structure)	.856		.842 (if deleted)
Personnel autonomy (remuneration & recruitment)	.853		.846 (if deleted)
Financial autonomy	.846		.843 (if deleted)
The HEI focus		13.134	.806
Adapting research by type of research projects	.778		.709 (if deleted)
Provide professional consultancy to third parties	.763		.754 (if deleted)
Focus on activities that can generate income	.727		.777 (if deleted)
Proactive approach to projects funded by third parties	.560		.784 (if deleted)
Exposure and media coverage		12.745	.830
Exposure / demonstration of HEI capacities	.813		.734 (if deleted)
The goodwill	.776		.752 (if deleted)
Media coverage and marketing policies	.766		.815 (if deleted)
The HEI organization		9.170	.550
Relations between superior and subordinate	.709		.347 (if deleted)
The size of the administration	.708		.396 (if deleted)
Assistant staff enough unskilled	.649		.635 (if deleted)

Table 3: Tests of Equality of Group Means.

	Wilks' Lambda	F	Sig.
The possession and use of didactic economy and labs	.998	.339	.561
Law and regulations	.969	6.259	.013
Policy sustainability	1.000	.006	.937
Geographic aspects	.998	.352	.553
Competitiveness	.999	.263	.609
Public commitment	1.000	.091	.763
Autonomy	.436	252.5	.000
Exposure and media coverage	.999	.099	.754
HEI focus	.992	1.636	.202
HEI organization	.998	.328	.567
Staff category: academic, administrative	.951	10.08	.002
Working experience	.851	34.11	.000

c) Differences between public and private HEI

The key research question of this study is: Are there any differences on performance perception between public and private Albanian HEI? The discriminant analysis reports that only 4 factors confirm the existence of differences in the average of the groups created by the institutions types: public vs private. Those factors are: Law and regulations; Autonomy, Staff category, and Working experience. This means that the average of the named factors is statistically different for the two categories of the institutions types. Thus, their average for public institutions is statistically different

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from private institutions. The result of the *Working experience* factor was also expected, as it is clear that staff working for public institutions have more work experience (See Table 3).

In Albania, the public HEI have more years of experience than the private HEI. Interestingly, the other three factors resulted in statistically different in mean for each group of types of HEI that operate in Albania.

In order to keep on with the discriminant analysis, it is needed to test if the listed factors discriminate the two groups of institutions. This test can be checked through "Lambda Wilksit" statistic, which tests the discriminant function. The following table briefs on this test. Since the value of Sig. is very small (almost 0), then it comes to the conclusion that statistically the factors discriminate groups of institutions types (See Table 4).

Table 4: Wilks' Lambda test.

Test of Function(s)	Wilks' Lambda	Chi-square	df	Sig.
1	.220	286.290	12	.000

The question is, how much is the weight of each factor in order to maximize the discrimination of groups. This question is analyzed through a table that automatically is generated by the SPSS statistical software. Factors are ranked according to their weight to maximize the discrimination of institutions types. Thus, factors such as autonomy, staff category, working experience, law and regulations, the possession and use of didactic economy and labs, and so on, make the greatest contribution to the discrimination of the institutions types. The smallest weight in this function goes with HEI focus, competitiveness, geographic aspects and so on. The weight of each factor is reported in the second column of the table below. Thus, the extremes of the column represent the factors that discriminate the most the institutions types compared with the factors listed in the middle of the table.

Table 5: Standardized Canonical Discriminant Function Coefficients.

	Function
	1
Autonomy	1.335
Working experience	.212
Law and regulations	.163
The possession and use of didactic economy and labs	.091
Policy sustainability	.075
Geographic aspects	.056
Competitiveness	.028
HEI focus	-.009
Public commitment	-.076
Exposure and media coverage	-.095
HEI organization	-.103
Staff category	-1.078

V. Conclusion And Policy Implications

Laboratories and didactic economics results to be an important factor for the performance of the HEI, which gives the highest contribution compared to the other considered factors. This result means it should be given the proper importance of the theoretical knowledge supported through the acquisition of practical skills.

Our study argues that the HEI public commitment is very important regarding their performance. Public commitment brings the university closer to the public and society. Involvement of university academics in discussions and issues of social interest is a contribution not only in regard to assistance in solving the problem but also in transmitting a clear message about the values of the institution which represents. The factor named Exposure and media coverage adds opportunities to increase the HEI performance. Nowadays, when information technology is advancing very quickly, proper information and virtual presence of the institution is translated as a key element of performance.

The perception of HEI managers on the performance of their institution differs between public and private Albanian HEI. Their perception differ in terms of these factors: *Law and regulations*, *Autonomy*, *Staff category* and *Working experience*.

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A Paradigm for Economic Growth in The 21st Century

By Dr. Ordean Olson
Nova Southeastern University

Abstract- This study presents a paradigm for determining economic equilibrium in economic systems. The economic disequilibria curve is introduced and shows the robust correlation between productivity and exchange rates and plots the optimal rate of economic growth and interest rates along the economic disequilibria curve. This study examines the evidence for a productivity based model of the dollar/euro real exchange rate. Cointegrating relationships between the real exchange rate and productivity, real price of oil and government spending are estimated using the Johansen and Stock-Watson procedures. The findings show that for each percentage point in the US-Euro productivity differential there is a three point change in the real dollar/euro valuation. These findings are robust to the estimation methodology, the variables included in the regression, and the sample period.

Keywords: *exchange rates, labor productivity and economic growth and equilibrium.*

GJHSS-E Classification: *FOR Code: 910103*



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A Paradigm for Economic Growth in The 21st Century

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I. Introduction

The euro greatly depreciated against the dollar during the period 1995-2001. This decline has often been associated with relative productivity changes in the United States and the euro area over this time period. During this time period in particular, average labor productivity accelerated in the United States, while it decelerated in the euro area. Economic theory suggests that the equilibrium real exchange rate will appreciate after an actual or expected shock in average labor productivity in the traded goods sector. Such an equilibrium appreciation may be influenced in the medium term by demand side effects. Thus, productivity increases raise expected income, which leads to an increased demand for goods. However, the price of goods in the traded sector is determined more by international competition. By contrast, in the non-traded sector, where industries are not subject to the same competition, goods prices tend to vary widely and independently across countries.

The work of Harrod (1933), Balassa (1964), Samuelson (1964) and Olson (2012) show that productivity growth will lead to a real exchange rate appreciation only if it is concentrated in the traded goods sector of an economy. Productivity growth that has been equally strong in the traded and non-traded sectors will have no effect on the real exchange rate.

This paper analyses the impact of relative productivity developments in the United States and the euro area on the dollar/euro exchange rate. This paper then provides evidence on the long-run relationship between the real dollar/euro exchange rate and productivity measures with and without the oil prices and government spending variables. Importantly, to the extent that traders in foreign exchange markets respond to the available productivity data stresses the importance of reliable models.

From the first to the second half of the 1990's, average productivity accelerated in the United States, while it decelerated in the euro area. This relationship has stimulated a discussion on the relationship between productivity and appreciation of the dollar during this time period. Also, of equal importance is the depreciation of the dollar during the early part of the 2000's (United States productivity increased slowly while the euro area productivity increased more rapidly). Bailey and Wells (2001), for instance, argue that a structured improvement in US productivity increased the rate of return on capital and triggered substantial capital flows in the United States, which might explain in part the appreciation of the US dollar during the early part of the 2000's.Tille and Stoffels (2001) confirm empirically that developments in relative labor productivity can account for part of the change in the external value of the US dollar over the last 3 decades. Alquist and Chinn (2002) argue in favor of a robust correlation between the euro area United States labor productivity differential and the dollar/euro exchange rate. This would explain the largest part of the euro's decline during the latter part of the 1990's.

This paper presents the argument that the euro's persistent weakness in the 1995-2001 period and its strength during the 2001-2007 period can be partly explained by taking into consideration productivity differentials. In particular, the study analyses in detail the impact of relative productivity developments in the United States and the euro area on the dollar/euro exchange rate.

a) *Productivity Developments and the Real Exchange Rate*

The theoretical relationships that link fundamentals to the real exchange rate in the long-run center around the Balassa-Samuelson model, portfolio balance considerations as well as the uncovered (real) interest rate parity condition. According to the Balassa-Samuelson framework, the distribution of productivity gains between countries and across tradable and non-

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tradable goods sectors in each country is important for assessing the impact of productivity advances on the real exchange rate. The intuition behind the Balassa-Samuelson effect is rather straight-forward. Assuming, for instance of simplicity, that productivity in the traded goods sector increases only in the home country, marginal costs will fall for domestic firms in the traded-goods sector. This leads (under the perfect competition condition) to a rise in wages in the traded goods sector at given prices. If labor is mobile between sectors in the economy, workers shift from the non-traded sector to the traded sector in response to the higher wages. This triggers a wage rise in the non-traded goods sector as well, until wages equalize again across sectors. However, since the increase in wages in the non-traded goods sector is not accompanied by productivity gains, firms need to increase their prices, which do not jeopardize the international price competitiveness of firms in the traded goods sector Harrod (1933), Balassa (1964) and Samuelson (1964).

Tille, Stoffels and Gorbachev (2001) revealed that nearly two-thirds of the appreciation of the dollar was attributable to productivity growth differentials (using the traded and non traded differentials). However, it is important to note that Engel (1999) found that the relative price of non-traded goods accounts almost entirely for the volatility of US real exchange rates. .

Accordingly, there should be a proportional link between relative prices and relative productivity. Labor productivity, however, is also influenced by demand-side factors, though their effect should be of a transitory rather than of a permanent nature. In particular, as the productivity increases raise future income, and if consumers value current consumption more than future consumption, they will try to smooth their consumption pattern as argued by (Bailey and Wells 2001). This leads to an immediate increased demand for both traded and non-traded goods. The increase in demand for traded goods can be satisfied by running a trade deficit. The increased demand for non-traded goods, however, cannot be satisfied and will lead to an increase in prices of non-traded goods instead. Thus, demand effects lead to a relative price shift and thereby to a real appreciation.

According to the Balassa-Samuelson model, the distribution of productivity gains is important for assessing the impact of productivity on the real exchange rate. Increases in productivity can lead to an increase in exchange rates and growth of the economy as shown below (productivity 1 to productivity 2 and price vector 1 to price vector 2).With this change the growth rate of the economy increases from A to B and the interest rate decreases from A to B. The increase in the exchange rate is shown as point A to point B (exchange rate 1 to exchange rate 2).The optimum growth and interest rate is at point B. The growth rate can be increased to point B but any further increase in the growth of the national output beyond B will result in a less than optimum rate of interest and economic growth rate. These results are shown in the Economic Disequalibria Curve in Fig. 1.

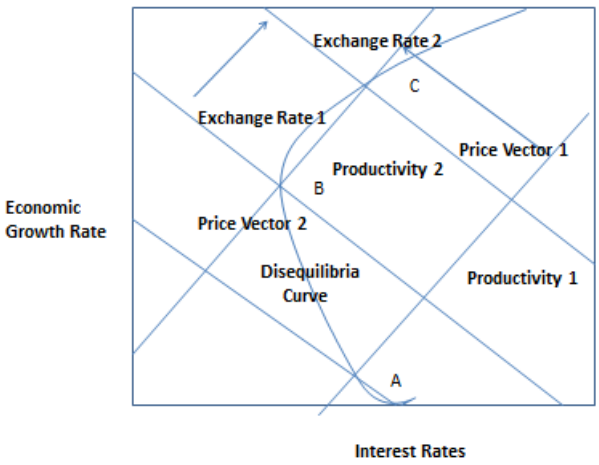


Figure 1: The Economic Disequilibria Curve

II. The Stationary Process Of The Model

This section presents evidence in favor of stable long-run relationships between the real dollar/euro exchange rate, the productivity measure, and the other variables. One model specification was estimated for the productivity measure. The sample covers the period from 1985 to 2007 but forecasts the productivity measure for the period 2007-2018. The general model includes all or variables discussed above as well as deterministic components.

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a) UnitRoots

Fuller (1976) and Dickey & Fuller (1979) proposed the augmented Dickey-Fuller (ADF) test for the null hypothesis of a unit root. It is based on the *t*-statistic of the coefficient ⌀ from an OLS estimation (see table 1). Schmidt & Phillips (1992) propose another group of tests for the null hypothesis of a unit root when a deterministic linear trend is present.

Table 1

ADF Unit Root Tests	Sample Range	Lagged Difference	Critical Values	Test Values	Schmidt & Phillips Critical Values	Test Values
US Prod	1985-2008	2	-3.2535	3.13*	-9.9532	18.1**
Euro Prod	1985-2008	2	-4.1978	3.96	-17.3112	18.1**
US GDP	1985-2008	2	-5.4389	3.41	-11.5869	18.1**
Euro GDP	1985-2008	2	-3.2786	3.96***	-11.4467	25.2**
US CPI	1985-2008	2	-5.4851	3.13	-18.5775	25.2**
Euro CPI	1985-2008	2	-3.7792	3.41**	-12.1413	18.1**
US PPI	1985-2008	2	-2.013	2.56***	-5.4734	18.1**
Euro Govt % of GDP	1985-2008	2	-1.0952	1.94**	-15.0563	18.1**
Oil Prices	1985-2008	2	-2.7965	3.96***	-2.5623	25.2**

*Significance at the 99%, 95% and 90% levels are noted by ***, ** and * respectively. The Sand L critical values are taken from tables computed by Saikkonen and Lutkepohl*

The empirical analysis employs cointegration tests as developed by Johansen (1995). In the present setting, some variables would theoretically be expected to be stationary, but appear to be near-integrated processes empirically. The presence of the cointegration relationships is tested in a multivariate setting. Table 2 and 3 show the results of the cointegration tests. Over all, the results suggest that it is reasonable to assume a single cointegration relationship between the variables and suggest being viewed as an order of I(1).

Table 2

Cointegration Without Oil	Period	Specification	LR Ratios	Critical Ratios & Test Results
US Prod	1985-2008	2 lags	3.72	16.22***
Euro Prod	1985-2008	2 lags	2.7	12.45**
US GDP	1985-2008	2 lags	2.23	12.53**
Euro GDP	1985-2008	2 lags	3.32	9.14**
US CPI	1985-2008	2 lags	10.59	12.45**
Euro CPI	1985-2008	2 lags	2.48	12.45**

*Significance at the 99%, 95% and 90% levels are noted by***,** and* respectively. The S and L critical values are taken from tables computed by Saikkonen and Lutkepohl.*

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Table 3

Cointegration With Oil	Period	Specification	LR Ratios	Critical Ratios & Test Results
US Prod	1985-2008	2 lags	15.34	25.73**
Euro Prod	1985-2008	2 lags	31.68	42.77**
US GDP	1985-2008	2 lags	13.61	16.22***
Euro GDP	1985-2008	2 lags	26.07	30.67***
US CPI	1985-2008	2 lags	17.82	25.73**
Euro CPI	1985 -2008	2 lags	16.62	30.67**

Significance at the 99%, 95% and 90% levels are noted by, and respectively. The S and Lcritical values are taken from tables computed by Saikkonen and Lutkepohl

b) Data for Variables

For the period prior to 1999, the real dollar/euro exchange rate was computed as a weighted geometric average of the bilateral exchange rates of the euro currencies against the dollar. In addition, the model was estimated controlling for several other variables, which included US productivity, M2, oil prices, government spending and US GDP. As regards the real price of oil, its usefulness for explaining trends in real exchange rates is documented. For example, Amano and Van Norden (1998a and 1998b) found strong evidence of a long-term relationship between the real effective exchange rate of the US dollar and the oil price. As regards government spending, the fiscal balance constitutes one of the key components of national saving. In particular, Frenkel and Mussa (1985) argued that a fiscal tightening causes a permanent increase in the net foreign asset position of a country, and consequently, an appreciation of its equilibrium exchange rate in the long term. This will occur provided that the fiscal consolidation is considered to have a long-run affect.

c) Explaining the Euro Volatility by Productivity Developments during 1995-2001 and 2001-2007.

This study shows how much of the decline of the euro against the US dollar during the 1995-2001 period can be attributed to relative changes in productivity in the United States and the Euro area. While the estimation covers the period 1985-2007, the following analysis concentrates on two distinct periods.

Period 1 (1995-2001) covers the US dollar appreciation against the euro. Moreover, it encompasses the period during which the productivity revival in the United States has taken place. Over this period, the dollar appreciated by almost 41%.against the euro area currency. During the first three years (1998-2001) of the euro, it depreciated by almost 30% against the US dollar. Figure 5 shows the impact of a change in relative productivity developments over these periods on the equilibrium real exchange rate. The contribution of the relative developments in productivity on the explanation of the depreciation of the euro against the US dollar since 1995 is significant. However, these developments are far from explaining the entire euro decline. Figures 3-4 show the impact of a change in relative US GDP and Euro GDP on the equilibrium dollar/euro real exchange rate.

Period 2 (2001-2007) covers the US dollar depreciation against the euro. Figure 5 also shows the impact of a change in relative productivity developments over these periods on the equilibrium real exchange rate. The impact of productivity on the real exchange rate is significant. The contributions of the oil prices, US GDP, M2 and US government spending on the explanation of the volatility of the euro against the US dollar since 1995 are also shown in chart 1.

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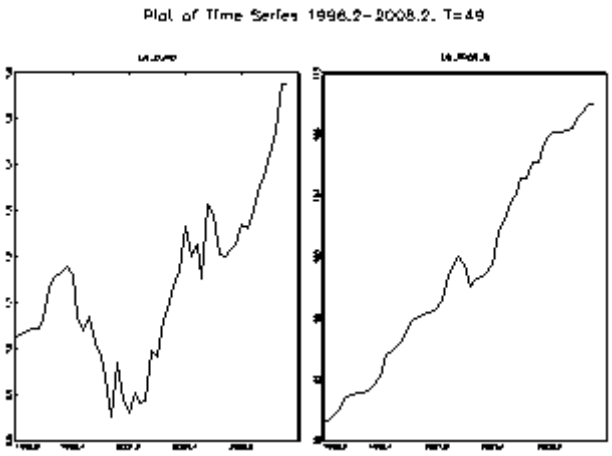


Figure 2: US Prod › USD/EURO Exchange Rate

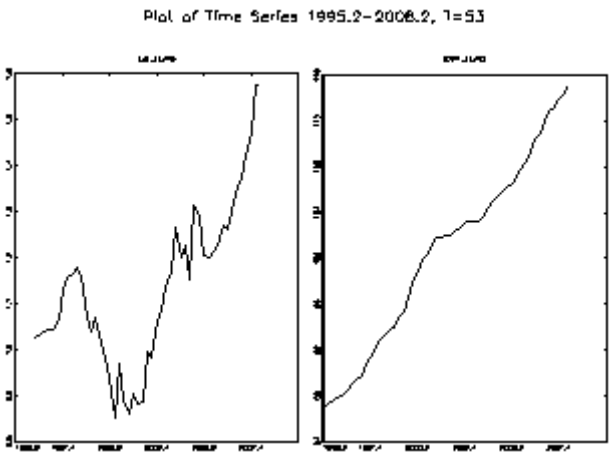


Figure 3: Euro GDP › USD/EURO Exchange Rate

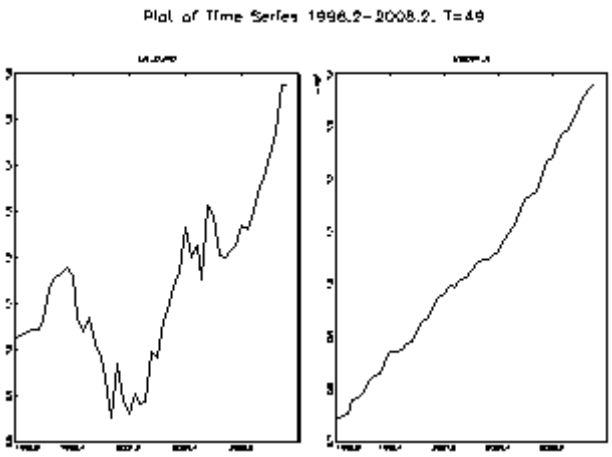


Figure 4: US GDP › USD/EURO Exchange Rate

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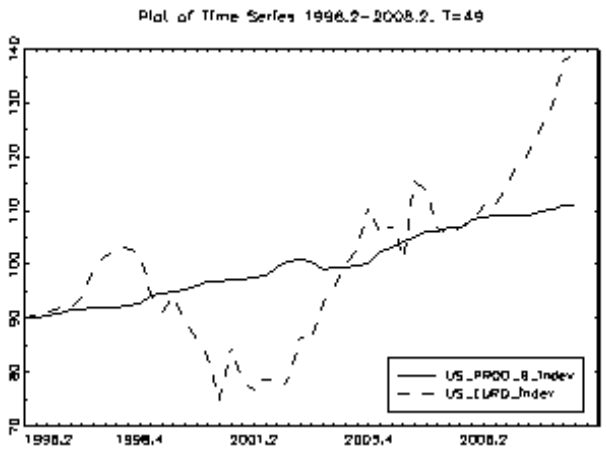


Figure 5: US Prod > Dollar/Euro Exchange Rate

d) Estimation and Structual VECM

Lutkepohl (2004) suggests a vector autoregressive and error correction model (neglecting deterministic terns and exogenous variables):
For a set of K times series variables

$$y_t = A_l Y_{t-1} + \ldots + A_p Y_{t-p} + \mu_t$$

Lutkepohl (2004) suggests the VAR model is general enough to accommodate variables with stochastic trends, but not the most suitable type of model if interest centers on the cointegration relations because they do not appear explicitly. He recommends the following VECM form as it is a more convenient model setup for cointegration analysis:

$$y_t = \prod y_{t-1} + l_l \Delta_{t-1} + \ldots \; l_{p-1} \Delta_{t-p+1} + \mu_t$$

e) Deterministic Terms

Lutkepohl (2004) recommendations several extensions of the basic model to represent the main characteristics of a data set. It is clear that including deterministic terms, such as an intercept, a linear trend term, or seasonal dummy variables, may be required for a proper representation of the data gathering process. One way to include deterministic terms is simple to add them to the stochastic part,

$$y_t = \mu_t + x_t$$

Here μ_t is the deterministic part and x_t is a stochastic process that may have a VAR or VECM representation.

A VAR representation for y_t is as follows:

$$y_t = \nu_0 + \nu_1 t + A_{y-1} + \ldots A_p \, y_{t-p} + \mu_t$$

A VECM $_{(p-1)}$ representation has the form

$$y_t = \nu_0 + \nu_1 t + \prod y_{t-1} \, \Gamma_l \Delta \, y_{t-1} + \ldots \Gamma_{p-1} \Delta_{t-p+1} + \mu_t$$

f) Exogenous Variables

Lutkepohl (2004) recommends further generalizations to include further stochastic variables in addition to the deterministic part. A rather general VECM form that includes all these terms is

$$y_t = \prod y_{t-1} + \Gamma_l \Delta \, y_{t-1} + \ldots \Gamma_{p-1} \Delta_{t-p+1} + CD_t B_{zt} + \mu_t$$

where the zt are unmodeled stochastic variables, D_t contains all regressors associated with deterministic terms, and C and B are parameter matrices. The z 's are considered unmodeled because there are no explanatory equations for them in the system.

Estimation of VECM's

Under Gaussian assumptions estimators are ML estimators conditioned on the presample values (Johansen 1988). They are consistent and jointly asymptotically normal under general assumptions,

$$V^{-}T \; VEC([\Gamma_t \ldots \Gamma_{p-1}] - [\Gamma_t \ldots \Gamma_{p-1}]) \rightarrow^{d} N(0, \Sigma_t)$$

Reinsel (1993) gives the following:

$$VEC (\beta_{k\mu-r}) \cong N (VEC (\beta_{k-r}), \{y^2_{-1} \, MY^2_{-1}\}^{-1} \phi \{\alpha' \Sigma_{\mu}^{-1} \alpha\}^{-1})$$

Adding a simple two-step (S2S) estimator for the cointegration matrix.

$$y_t - \prod y_{t-1} - \Gamma x_{t-1} = \prod_2 y_{t-1}^2 + \mu_t$$

The restricted estimator β_{k-r}^{R} obtained from VEC $(\beta_{k-r}^{R}) = \square\square + h$, a restricted estimator of the cointegration matrix is

$$B_R = [I_r : B_{K-r}].$$

g) Impulse Responses

Figures 6 and 7 display the impulse responses of the dollar/euro exchange rate to a one standard deviation change in the US productivity, M2, oil prices, and government spending. The responses are significant at the 95% level. Table 8 (in the appendix) displays the point estimates of the impulse responses of the real exchange rate to the one-standard deviation US productivity shocks. Also note that the results are relatively robust with the individual impulse responses falling within the 5% significant tests. Figure 13 shows that for the exchange rate these shocks have a highly

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significant impact over the 10-year time period and the correlation between these impulse responses is high.

Refer to figures 10-17 for the US and Euro productivity differentials. Figure 9 shows the long-run impact of productivity shocks on the dollar/euro real exchange rate. Figure 13 shows the significance of large gaps in the euro and US productivity differentials especially around the years 2000-2001 when the dollar started to depreciate against the euro.

They show that productivity shocks have a very significant long-run impact on the dollar/euro exchange rate. The results follow those of Clarida and Galf (1992). The point estimates in table 8 show that for each percentage point in the US-Euro area productivity differential there is a three percentage point real change in the dollar/euro valuation. This suggests that fundamental real factors are significant in the long-run fluctuations in real exchange rates.

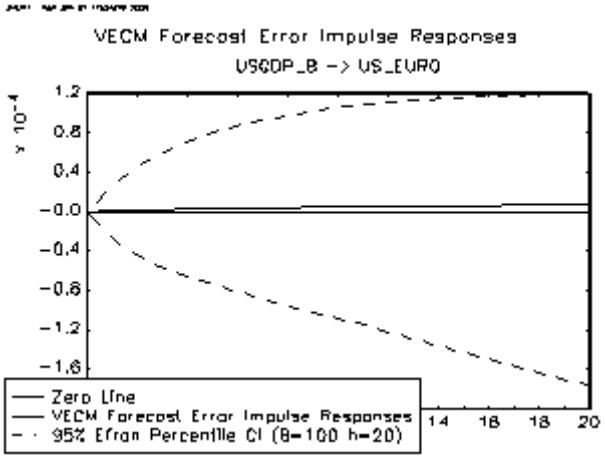


Figure 6: US GDP → US/EURO Exchange Rate

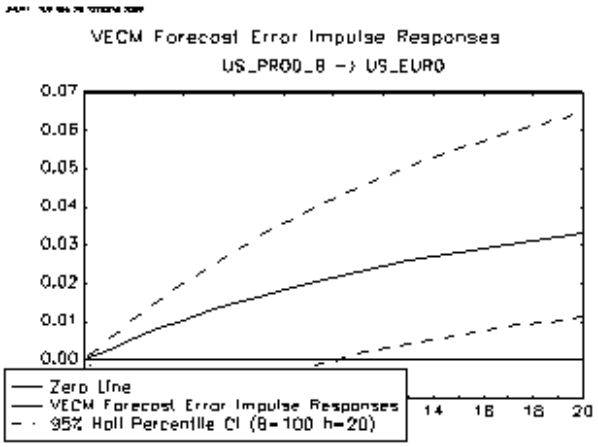


Figure 6: A US Productivity → US/EURO Exchange Rate

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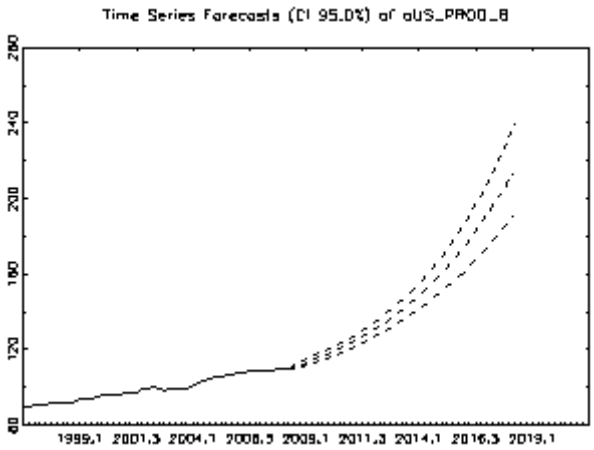


Figure 7: Time Series Forecast- US Productivity

h) Forecast error variance decomposition

Forecast error variance decomposition is a special way of summarizing impulse responses. Following Lutkepohl (2004) the forecast error variance decomposition is based on the orthogonalized impulse responses for which the order of the variables matters. Although the instantaneous residual correlation is small in our subset VECM, it will have some impact on the outcome of a fore cast error variance decomposition.

The forecast error variance is

$$\partial^2_k(h) = \sum(\Psi^2_{kl,n} + \ldots + \Psi^2_{k,n}) = \Psi^2_{kjo} + \ldots\Psi^2_{kh-1})$$

The term $(^2_{kl,n} + \ldots + \Psi^2_{k,n})$ is interpreted as the contribution of variable j to the h-step forecast error variance of variables k. This interpretation makes sense if the e_μs can be viewed as shocks in variable i. Dividing the preceding by $\partial^2_k(h)$ gives the percentage contribution of variable j to the h-step forecast error of variable h.

$$_{(t)}(h) = \Psi^2_{kjo} + \ldots\Psi^2_{kh-1/}\partial^2_k(h)$$

Chart 1 shows the proportion of forecast error in the dollar/euro accounted for by US productivity, government spending, M2, oil prices and US GDP. The US productivity accounts for 28% over the 20 year time interval with a sharp rise of 21% during the first 5 years. This shows that productivity shocks have a very significant short-run impact on the 1dollar/euro exchange rate while the long-run impact is more transitory in nature. Figures 9 and 13 show the time series forecasts of the system for the years 2007-2011 with 95% forecast intervals indicated by dashed lines. That all observed variables are within the approximately 95% forecast intervals is viewed as an indication of model adequacy for forecasting purposes.

III. Appendix

The data for this study was collected from the following sources:

Economic Data Base (FRED) of the Economic Research Department of the *Federal Reserve Bank of St. Louis*. The PPI and CPI are used as proxies for tradable and nontradable goods.Data Bases and Tables of the Bureau of Labor Statistics.

The source of all of the graphs, figures and charts was the Software JMulTi. available from Lutkepohl, Helmut.Applied Time Series Econometrics.2004, Cambridge University Press.

a) Test for Nonnormality

The following test for residual autocorrelation is known as the Portmanteau test statistic. The null hypothesis of no residual autocorrelation is rejected for large values of Q_h (test statistic). The *p*-value is relatively large: consequently, the diagnostic tests indicate no problem with the model

Lomnicki (1961) and Jarque & Bera (1987) propose a test for non normality based on the skew ness and kurtosis for a distribution. The Jarque & Bera tests in table 7 show some non normal residuals for two variables (oil prices and government spending (u4 and u6).

Lutkepohl (2004) states that if nonnormal residuals are found, this is often interpreted as a model defect. However, much of the asymptotic theory on which inference in dynamic models is based works also for certain nonnormal residual distributions. Still nonnormal residuals can be a consequence of neglected nonlinearities. Modeling such features as well may result in a more satisfactory model with normal residuals. Sometimes, taking into account ARCH effects may help to resolve the problem. With this in mind a multivariate ARCH-LM test was performed. The results shown in Table 6 indicate the *p-value* is relatively large: consequently, the diagnostic tests indicate no problem with the model.

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Table 6

*** Sun, 26 Jul 2009 07:38:32 *** PORTMANTEAU TEST (H0:Rh=(r1,...,rh)=0)	
tested order:	16
test statistic:	419.1197
p-value:	1.0000
adjusted test statistic:	505.9513
p-value:	0.9746
degrees of freedom:	570.0000

*** Sun, 26 Jul 2009 07:38:33 *** LM-TYPE TEST FOR AUTOCORRELATION with 5 lags	
LM statistic:	301.5520
p-value:	0.0000
df:	180.0000

*** Sun, 26 Jul 2009 07:38:33 *** TESTS FOR NONNORMALITY	
Reference: Doornik & Hansen (1994)	
joint test statistic:	89.2009
p-value:	0.0000
degrees of freedom:	12.0000
skewness only:	42.7256
p-value:	0.0000
kurtosis only:	46.4753
p-value:	0.0000

Reference: Lütkepohl (1993), Introduction to Multiple Time	
Series Analysis, 2ed, p. 153	
joint test statistic:	59.1903
p-value:	0.0000
degrees of freedom:	12.0000
skewness only:	27.2345
p-value:	0.0001
kurtosis only:	31.9558
p-value:	0.0000

*** Sun, 26 Jul 2009 07:38:33 ***
JARQUE-BERA TEST

variable	teststat	p-Value(
u1	1.3867	0.4999
u2	0.6571	0.7200
u3	1.7748	0.4117
u4	35.4963	0.0000
u5	8.6994	0.0129
u6	33.7747	0.0000

*** Sun, 26 Jul 2009 07:38:33 *** MULTIVARIATE ARCH-LM TEST with 2 lags	
VARCHLM test statistic:	908.0688
p-value(chi^2):	0.2642
degrees of freedom:	882.0000

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Table 7

*** Sun, 26 Jul 2009 07:10:23 *** CHOW TEST FOR STRUCTURAL BREAK	
On the reliability of Chow-type tests. .., B. Candelon, H. Lütkepohl, Economic Letters 73 (2001), 155-160	
sample range:	[1996 Q3, 2008 Q2], T = 48
tested break date:	1999 Q4
(13 observations before break)	
break point Chow test:	83.7823
bootstrapped p-value:	0.0000
asymptotic chi^2 p-value:	0.0000
degrees of freedom:	27
sample split Chow test:	9.3234
bootstrapped p-value:	0.2500
asymptotic chi^2 p-value:	0.1562
degrees of freedom:	6
Chow forecast test:	1.3188
bootstrapped p-value:	0.0000
asymptotic F p-value:	0.2388
degrees of freedom:	210, 20

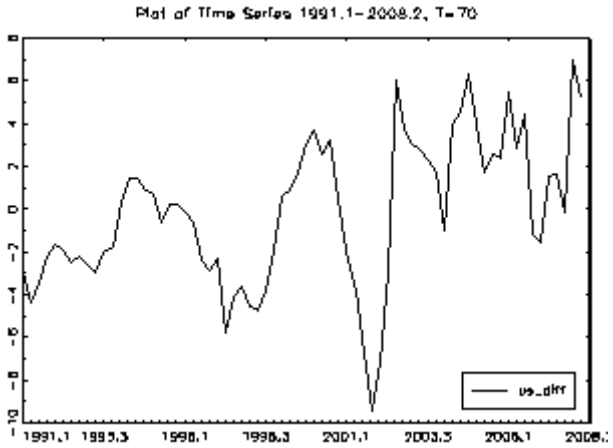


Figure 10: Time Series US Productivity Differentials

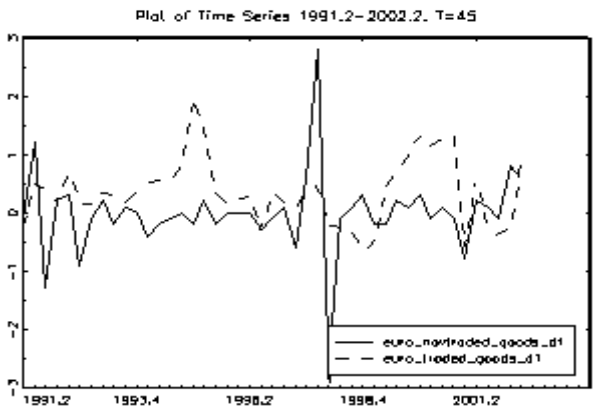


Figure 11: Time Series Euro Traded and Nontraded Goods

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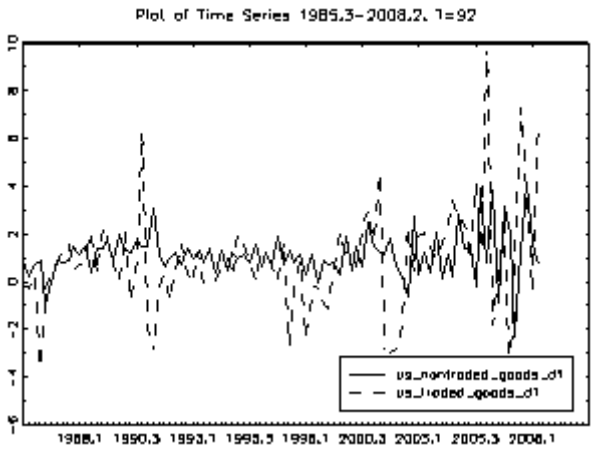


Figure 12: US Traded Goods US Nontraded Goods

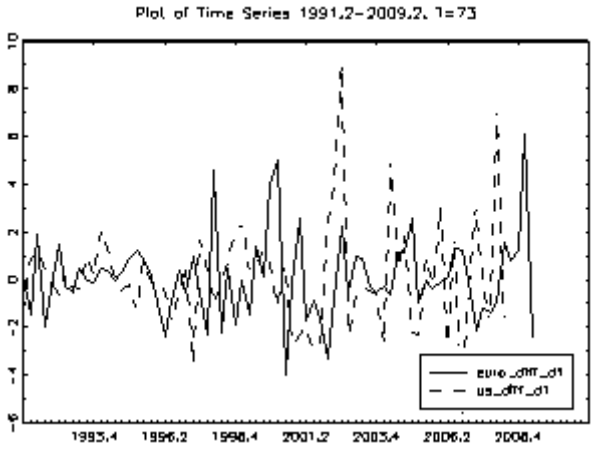


Figure 13: Time Series Euro and US Productivity Differentials

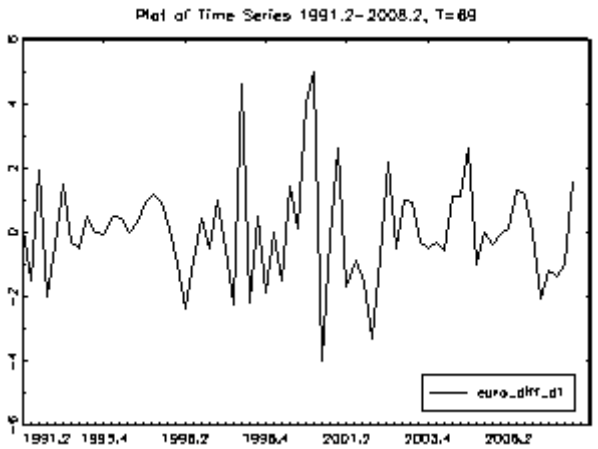


Figure 14: Euro Productivity Differentials

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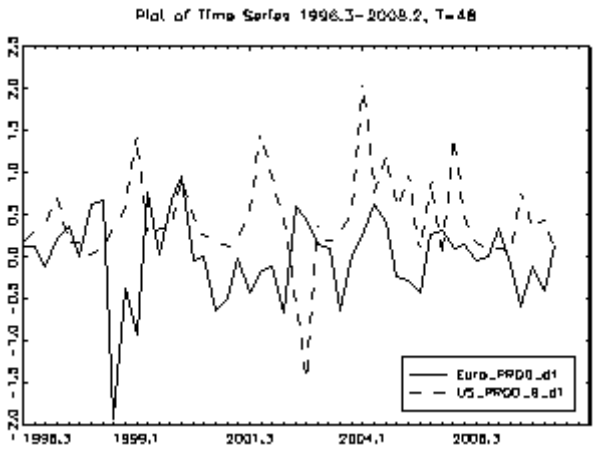


Figure 15: Euro Productivity US Productivity

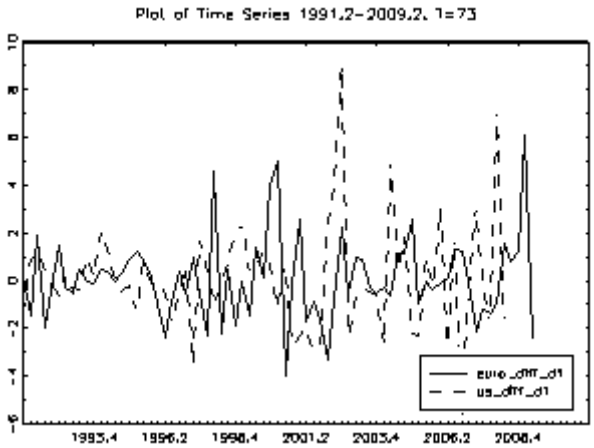


Figure 16: Time Series Euro and US Productivity Differentials

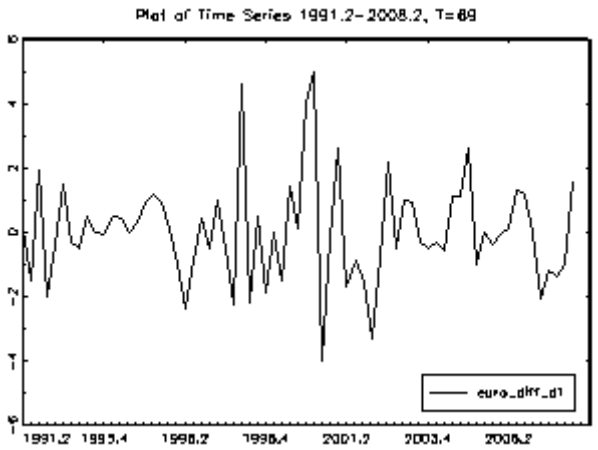


Figure 17: Time Series Euro Productivity Differenntials

IV. Results

This paper provides evidence on the long-run relationship between the real dollar/euro exchange rate and productivity measures, controlling for the real price of oil, relative government spending and M2. The results of this study show evidence of high correlation between productivity shocks and the real us/euro exchange rate and the rate of growth of the US economy. Intuitively, it makes sense that an increase in the US productivity will be followed by an increase in the real euro/dollar exchange rate and the expansion of the US economy.

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However, the results imply that the productivity measure can explain only about 27% of the actual amount of depreciation of the euro against the US dollar for the period 1995-2001. This outcome is confirmed by a specification in this study. This study shows that the productivity can explain only about 28% of the appreciation of the euro during the period 1995-2007. Evidently, productivity is not the only variable affecting the real exchange rate in the model specified. The other variables identified also affected the dollar/euro exchange rate. In particular, the surge in oil prices since early 1999 seems to have contributed to the weakening of the euro. The magnitude of the long-run impact of changes in the real price of oil on the dollar/euro exchange rate is certainly significant. Between 1997 and 2001, the model indicates on the average that the equilibrium euro depreciation related to oil prices developments could have been around 20%. These results are based on long-term relationships. Overall, the model is surrounded by significant uncertainty, reflecting the inherent difficulty of modeling exchange rate behavior. While we find that in 1995-2001 the euro traded well below the central estimates derived from these specifications, this uncertainty precludes any quantification of the precise amount of over or under valuation at any point in time. Again, this suggests a very cautious interpretation of the magnitude of over/under valuation. Additional studies are recommendation as additional data is needed for the period 2008-2017 even though this model forecasted projected productivity returns up to the year 2019

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Chart 1

*** Fri, 30 Oct 2009 10:11:31 ***
VECM FORECAST ERROR VARIANCE DECOMPOSITION

Proportions of forecast error in "bUS_EURO" accounted for by:

forecast horizon	aUS_PROD_B	bUS_EURO	cOil_prices	dm2	g_spend_q
1	0.10	0.90	0.00	0.00	0.00
2	0.11	0.89	0.00	0.00	0.00
3	0.11	0.89	0.00	0.00	0.00
4	0.12	0.88	0.00	0.00	0.00
5	0.13	0.87	0.00	0.00	0.00
6	0.13	0.87	0.00	0.00	0.00
7	0.14	0.86	0.00	0.00	0.00
8	0.14	0.85	0.00	0.00	0.00
9	0.15	0.84	0.00	0.00	0.00
10	0.16	0.83	0.00	0.00	0.00
11	0.16	0.82	0.01	0.01	0.01
12	0.17	0.81	0.01	0.01	0.01
13	0.18	0.80	0.01	0.01	0.01
14	0.19	0.79	0.01	0.01	0.01
15	0.19	0.78	0.01	0.01	0.01
16	0.20	0.76	0.01	0.01	0.01
17	0.21	0.75	0.01	0.01	0.01
18	0.22	0.74	0.02	0.02	0.02
19	0.22	0.72	0.02	0.02	0.02
20	0.23	0.71	0.02	0.02	0.02

Table 8

*** Mon, 2 Nov 2009 11:22:23 ***
VECM Orthogonal Impulse Responses

Selected Confidence Interval (CI):
a) 95% Hall Percentile CI (B=100 h=20)

Selected Impulse Responses: "impulse variable -> response variable"

time	aUS_PROD_B ->bUS_EURO
point estimate	-0.0174
CI a)	[-0.0310, -0.0021]

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1 point estimate	-0.0185
CI a)	[-0.0336, -0.0037]
2 point estimate	-0.0197
CI a)	[-0.0356, -0.0040]
3 point estimate	-0.0209
CI a)	[-0.0381, -0.0044]
4 point estimate	-0.0221
CI a)	[-0.0412, -0.0041]
5 point estimate	-0.0234
CI a)	[-0.0446, -0.0035]
6 point estimate	-0.0248
CI a)	[-0.0482, -0.0027]
7 point estimate	-0.0263
CI a)	[-0.0519, -0.0029]
8 point estimate	-0.0278
CI a)	[-0.0556, -0.0031]
9 point estimate	-0.0294
CI a)	[-0.0594, -0.0036]
10 point estimate	-0.0310
CI a)	[-0.0634, -0.0042]
11 point estimate	-0.0327
CI a)	[-0.0676, -0.0050]
12 point estimate	-0.0345
CI a)	[-0.0720, -0.0059]
13 point estimate	-0.0364
CI a)	[-0.0765, -0.0070]
14 point estimate	-0.0384
CI a)	[-0.0812, -0.0083]
15 point estimate	-0.0405
CI a)	[-0.0862, -0.0085]
16 point estimate	-0.0426
CI a)	[-0.0915, -0.0083]
17 point estimate	-0.0449
CI a)	[-0.0973, -0.0076]
18 point estimate	-0.0472
CI a)	[-0.1034, -0.0069]
19 point estimate	-0.0497
CI a)	[-0.1103, -0.0060]
20 point estimate	-0.0523
CI a)	[-0.1175, -0.0051]

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Local Content in Latin American and African Oil and Gas Sector: A Comparative Analysis of Selected Countries

By Elijah Dickens Mushemeza, John Okiira, Marcela Morales & Juan Jose Herrera

Abstract- The implementation of local content policies among developing resource rich countries has experienced mixed results. While some countries have achieved positive outcomes, others have not fared very well and therefore the question of why some countries are more successful than others during the implementation of local content policies has not been conclusively addressed. Using a two-stage comparative analysis, this article studies the factors that account for successful local content outcomes in African and Latin America countries. The analysis shows that countries with specific local content frameworks that prioritised the development of their national industries are more likely to achieve positive outcomes in terms of employment creation, skills development and the participation of their national industry along the oil and gas value chain. The analysis further shows that National Oil Companies and enterprise centres have played a key role for the achievement of positive local content outcomes.

Keywords: local content strategy, local content framework, national oil company, local content outcomes, comparative analysis.

GJHSS-E Classification: FOR Code: 149999



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Local Content in Latin American and African Oil and Gas Sector: A Comparative Analysis of Selected Countries

Elijah Dickens Mushemeza [α], John Okiira [σ], Marcela Morales [ρ] & Juan Jose Herrera [ω]

Abstract- The implementation of local content policies among developing resource rich countries has experienced mixed results. While some countries have achieved positive outcomes, others have not fared very well and therefore the question of why some countries are more successful than others during the implementation of local content policies has not been conclusively addressed. Using a two-stage comparative analysis, this article studies the factors that account for successful local content outcomes in African and Latin America countries. The analysis shows that countries with specific local content frameworks that prioritised the development of their national industries are more likely to achieve positive outcomes in terms of employment creation, skills development and the participation of their national industry along the oil and gas value chain. The analysis further shows that National Oil Companies and enterprise centres have played a key role for the achievement of positive local content outcomes

Keywords: local content strategy, local content framework, national oil company, local content outcomes, comparative analysis.

I. Introduction

Over the last decade, the economic debate around non-renewable resources has mainly focused on the trade-off between the short-term challenges of managing volatile resource revenue and the long-term objective of sustainable economic development. When it comes to extractive industries, particularly the oil and gas sector, these concerns are of major relevance due to the importance of the sector for many economies. Against a backdrop of contradictions and hard choices, local content is considered as an attractive alternative to overcome this challenge (Morales, M.; Herrera. JJ.; Jarrín, S. 2016).

Local content is defined as the extent to which the output of the extractive industry sector generates further benefits to the domestic economy beyond the direct contribution of its value-added through productive linkages with other sectors (Tordo &Anouti, 2013). Generally, these linkages are created through purchase of domestically supplied inputs, labour or local skills and knowledge transfer (Auty 2006; Heum et al. 2003). Countries adopt local content through different approaches and strategies. These strategies vary and may include regulatory interventions to increase local employment and national industry participation (Natural Resource Governance Institute, 2015) or enhance skills development among national/local employees (Natural Resource Governance Institute 2015; Tordo et al. 2013).

However, if local content is the better alternative for oil and gas countries to reach local development, why does every oil and gas producing country not adopted a clear local content strategy yet? During the path of the development and implementation of a local content policy, countries face certain challenges and need to comply with several previous conditions. In that sense, it is a challenge for policy makers to establish the right local content policy for their countries to reach positive local content outcomes. Local content outcomes are understood as the results achieved in a country in terms of generation of local employment, skills development, investments and participation of the national industry along the oil and gas value chain.

Countries that adopt local content as a development strategy for their extractive sectors usually start by developing local content frameworks (policies, laws and contracts). While a well-designed local content framework is a valuable starting point, there are other factors that shape their successful implementation (Aoun and Mathieu 2015). Mapping these factors presents a challenge for scholars and policy makers due to the varying context that oil and gas producing countries have. Existing literature on local content has not yet identified common factors across countries that influence the achievement of positive local content outcomes. This paper aims at analysing common factors that have led to successful local content outcomes in the countries of Mexico, Brazil, Angola and Nigeria. This exercise is relevant for identifying policy lessons that can be transferred from one country to another. In that sense, this paper addresses the following question: Why have some countries been more successful than others in implementing local content policies? To answer this question the paper

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attempts to identify relevant common factors by comparing the experiences of Latin American and African oil and gas producing countries that have achieved successful local content outcomes. This analysis is centred around a hypothesis that run as follows: The more a country adopts a specific local content framework focused on the development of its national industry, the more likely it will achieve positive local content outcomes.

II. Literature On Local Content

Resource rich countries establish productive development policies (PDPs) (or industrial policies) to strengthen the productive structure of their national economy. These national policies include measures to promote employment or local procurement in the oil and gas industry. Some countries have embraced a comprehensive local content strategy for their oil and gas sectors such as the development of specific frameworks, special capacity building programmes and the creation of implementation and monitoring bodies, amongst others. Commonly known cases include countries such as Nigeria, Ghana, Angola, Mexico, Brazil, Trinidad and Tobago, Indonesia, Malaysia and Norway. Africa is the region where most countries are currently adopting or implementing local content policies. In Latin America, on the other hand, only Mexico and Brazil have adopted specific local content policies. These new developments are driven by a theoretical perspective which calls for open competitive markets but with more distinct roles defined for the private sector and for the government. Under this view, it is argued that private enterprise and capitalist economic development require capable, not passive government – government that can 'fashion' a sanctuary within which the profit motive and price mechanism can work; that the state has both an enabling role as in the provision of infrastructure, restraining or protective role as in curbing the excesses of private sector in such matters as pollution, in product safety, and a regulatory role as in prevention of unfair banking practices, anti-monopoly laws, and government-established quality standards (Bibangambah, 2001:7). This is what has driven countries to establish local content frameworks and strong institutions such as NOCs and enterprise centres to implement local content strategy.

a) What We Know

There are several factors that can influence the successful achievement of local content outcomes. Oil and gas countries have unique contexts that influence the design and implementation of local content policies. First, there are factors related to the preconditions of the countries' oil and gas sectors. These factors can be categorised into four groups: resource conditions, industrial capacity, sector governance and international trade agreements.

Geology and geography – or resource endowment – is the first factor that policy makers should consider when designing a local content policy (Tordo et al. 2013). Resource conditions such as the quality of the resource and the location of the reserves are important since they can contribute to defining the industrial capacity, workforce and technology required for the development of the project. Moreover, countries with important and good quality resource endowments have "bargaining leverage" over companies with which they can implement more stringent local content requirements.

Industrial capacity is another important factor when designing local content policies. The level of technology and the industrial base of a country shape the type of local content policy required. If a country's local content strategy is focused on the promotion of local procurement, for example, national and local service companies must count with high levels of technology and the country's national industries must be able to meet international standards required by companies (Heum et al. 2011). If the local content policy aims to develop linkages and spill over effects with the wider economy, the industrial base and technology of the country are essential (Klueh et al. 2007; Kazzazi and Nouri 2012; Heum et al. 2011; Morris et al. 2011)

Counting with resource preconditions and industrial Institutional is not enough when there is lack of governance. Institutional and legal arrangements also matter when designing and implementing local content policy (Tordo et al. 2013). Corruption, lack of transparency and bureaucracy are also challenges that countries and companies commonly face which negatively influence local content implementation (Tordo et al. 2013).

Finally, legally binding agreements that countries subscribe to a common factor that influences the adoption of local content policies. As part of their commercial policy, most countries sign trade agreements with their neighbours or as part of regional trading blocs. Better known as trade-related investment measures (TRIMs), these agreements can limit the capacity of government to enforce the implementation of local content policies (Ado, 2013).

Besides these factors that are related to the sectors' preconditions there are other specific factors that have accounted for the achievement of local content outcomes in oil and gas producing countries. Morales et al. (2016) stressed the importance of well-designed local content frameworks, strong NOCs and a business-friendly environment when achieving local content outcomes for oil and gas producing countries in Latin America. Kazzazi and Behrouz (2012) supported this conclusion based on a model that identified the correlation between the factors that might influence the development of local content. Their analysis shows a positive correlation (the highest among the variables of

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their study) between local content policies and local content development (Kazzazi & Nouri, 2012). Similarly, Mushemeza and Okiira (2016) argue that well-designed local content frameworks, the presence of International Financing Institutions (IFIs) such as the World Bank, and the presence of local content implementation and monitoring entities – such as enterprise centres and monitoring boards – are important factors that shape local content outcomes in Africa, especially in Angola, Chad and Nigeria.

Some literature focuses on countries that have achieved mostly positive outcomes and that have developed local content policies to expand their oil and gas sector internationally. For example, in reviewing the case of Norway and the path it took to implement local content policies, Heum (2008) highlights the uniqueness of this case since Norway had strong institutions and an industrialised economy before oil and gas was discovered. These factors enabled Norway to focus on the participation of its national industry within the oil and gas sector first nationally and then internationally. Easo and Wallace (2014) identify as another key factor for Norway (and also for the United Kingdom) its highly educated workforce with technical competence in manufacturing, shipbuilding and engineering. Notwithstanding, the Norwegian and British cases offer few lessons for countries that do not share these characteristics, as is the case for Africa and Latin America.

b) What we do not know

A considerable amount of literature is available on specific cases of local content policies adopted by countries. General lessons from benchmark cases such as Norway, the UK, Canada and Malaysia exist but may not apply to countries with entirely different contexts, such as those in Africa and Latin America, resource rich countries characterized by poor governance, corruption, a weak industrial base and workforce.

While African countries have been actively discussing the adoption of local content policies during recent years, Latin American countries have adopted different strategies to promote local content as part of their productive policies, although they have not developed specific frameworks for the oil and gas sector. In many Latin American countries, the policy seems to be to let private companies decide how far they source locally as part of their own efforts to secure and sustain social license or as part of their international mandates. Both Latin American and African oil and gas producing countries have been involved in this dynamic for years and have achieved different kinds of outcomes.

There is a clear gap in existing literature. First, there is lack of analysis of local content outcomes; most of literature focuses the analysis on the type of policies adopted by countries rather than on the achieved outcomes (lack of measurable outcomes). On the other hand, literature is focused on specific cases of benchmark countries rather than on common factors and transferable lessons that account for successful local content outcomes. Our paper represents an initial attempt to fill this gap and provide lessons that can be transferred between countries and regions. Through analysing common factors that have led to successful local content outcomes in Mexico, Brazil, Angola and Nigeria our analysis sheds light on important considerations, for those countries where governments are starting to shape their national oil and gas policies and legislations.

III. Comparative Research Methodology

To identify the factors that determine successful local content outcomes in Africa and Latin America, this paper used a comparative framework that considers the experience of seven countries in each region. For this analysis, we selected the countries in Latin America that are the largest oil and gas producers in the region, namely Argentina, Bolivia, Brazil, Colombia, Ecuador, Mexico and Venezuela. On the other hand, in Africa we selected sub-Saharan countries that are either oil and gas producers or have significant reserves in relation to their economies. These countries are Angola, Chad, Equatorial Guinea, Ghana, Nigeria, Tanzania and Uganda.

By comparing countries with such different backgrounds and conditions we identified trends amongst the factors that contribute towards achieving positive local content outcomes. The logic behind this comparison is that if we manage to identify factors that are present in every country despite their inherent differences, then, we can identify some of the factors that can help explain the achievement of positive local content outcomes beyond regional or country peculiarities.

Local content outcomes were understood in terms of local employment generation, national industry participation along the oil and gas value chain and skills development for local employees in the oil and gas sector. Thus, we rated each country based on a standardised scoring mechanism that allowed us to make comparisons across countries where local content indicators are not always available or are measured in different ways. Following that methodology, we rated each country's frameworks in one side and their outcomes in other.

As indicated in Annex 1, we scored the outcomes through the assessment of three broad local content strategies: generation of local employment (LE), skills development (SD) and national industry participation (NIP). Each strategy was scored on a scale ranging from 0.5 (low) through 1 (medium) to 1.5 (high).

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A score of 0 was given where outcomes could not be identified.

We used three different sources of information to score each strategy -data from oil and gas companies, contracts and secondary sources - considering that data to measure local content outcomes is scattered and often not centralised in one official source. The information used was obtained from public and private oil and gas companies since data to measure local content outcomes at the national level or gathered by a central authority were inexistent in most cases. On the other hand, we used contracts as a proxy to measure outcomes based on the assumption that when local content provisions are included in contracts it means that somehow local content policies have made their way into binding tools that can help to enforce policy into practice and outcomes. Secondary sources include reports and data available in open source formats such as news and media articles or academic publications on local content.

Using that information and based on criteria set out in Annex 1, local content outcomes were scored in all 14 countries, and the two countries with the highest outcomes in each region were selected. This exercise was conducted by both research teams (Grupo FARO in Ecuador and ACODE in Uganda) with inputs by experts from both countries. The results of this process are presented in Table 1 below

Table 1: Average Local Content Outcomes Scores in Africa and LA

Region	Country	LC Outcome Score (average)
Latin America	BRAZIL	1.10
	MEXICO	1.05
	COLOMBIA	1.00
	ECUADOR	0.72
	BOLIVIA	0.50
	VENEZUELA	0.44
	ARGENTINA[1]	--
Africa	ANGOLA	1.08
	NIGERIA	1.08
	CHAD	0.95
	GHANA[2]	--
	GUINEA	0.67
	TANZANIA	0.50
	UGANDA	0.50

[1] Local content outcomes in Argentina could not be measured due to lack of available data.
[2] Local content in Ghana were not measured since its local content policy were recently adopted and there is still no evidence of outcomes.

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Following the logic of the exercise described above, for the second stage of the analysis we rated each country´s framework. To do so, we assessed each country by using the presence of local content within oil and gas frameworks and the existence of measuring, monitoring and implementation mechanisms within these frameworks. For the purposes of this paper, we refer to these two criteria as specificity (how entrenched local content provisions are in policies and legal frameworks). Annex 2 contains the detailed criteria used to evaluate local content framework's specificity. Each country was ranked on a scale ranging from 0.5 (low) to 1.5 (high). The specificity scores achieved by each country are presented in Table 2 below.

Table 2: Local Content Specificity Scores

Region	Country	LC Frameworks Scores
Latin America	BRA	0.94
	MEX	0.89
	COL	0.78
	ECU	0.78
	BOL	0.61
	VEN	0.61
	ARG[3]	0.44
Africa	ANG	1.16
	NIG	0.89
	CHA	0.67
	GHA	0.89
	GUI	0.67
	TAN	0.50
	UGA	0.50

[3] Local content outcomes in Argentina were not measured due to lack of available data.

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In order to draw connections, we compared the LC specificity score with the LC outcomes scores in each country (table 3).

Table 3: Local Content Specificity Scores Compared to Local Content Outcomes in Africa and LA

Region	Country	LC Frameworks Scores	LC Outcomes Score
Latin America	BRA	0.94	1.10
	MEX	0.89	1.05
	COL	0.78	1.00
	ECU	0.78	0.72
	BOL	0.61	0.50
	VEN	0.61	0.44
	ARG	0.44	--
Africa	ANG	1.16	1.08
	NIG	0.89	1.08
	CHA	0.67	0.95
	GHA	0.89	--
	GUI	0.67	0.67
	TAN	0.50	0.50
	UGA	0.50	0.50

Based on this assessment, we found that the countries with higher local content outcomes were also countries where local content policies are well developed and structured. In all four countries with higher local content outcomes, requirements to promote local content are integrated into different strategies (employment generation, national industrial participation, and skills development etc.) and frameworks.

This analysis shows that there is a relationship between the local content specificity scores and the achieved outcomes in these countries. This is particularly clear in the cases of Brazil and Mexico (high LC specificity scores and high outcomes scores) and Argentina, Bolivia and Venezuela (low LC specificity scores and low outcomes scores). This relationship is also present in Angola and Nigeria (high LC specificity score and high local content outcomes) and in Guinea, Tanzania, and Uganda (low LC specificity score and low local content outcomes). This indicates that LC frameworks containing clear objectives and measuring and monitoring mechanisms are more likely to achieve better local content outcomes. Countries that have not achieved high positive local content outcomes, such as Bolivia, Tanzania, Ecuador and Venezuela, are also countries whose LC frameworks are less specific according to our evaluation.

For the second stage of the analysis (next section), we focused on the experiences in Brazil, Mexico, Angola and Nigeria in order to identify the factors that explain the achievement of these positive results. In particular, we analysed which specific institutions, state-led actions and/or policy measures to promote local content were present across the board.

Figure 1 shows the logic of the methodology described above. Thus, In the first stage of our research, we used local content outcomes and frameworks as comparison tools that allowed us to narrow our analysis down from 14 to 4. In the second stage of analysis (next section), we focused on these four case studies to identify the factors that could explain the achievement of positive local content outcomes (see Figure 1).

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Stage 1		Stage 2	
Analysed Countries	Aspects of Comparison	Analysed Countries	Aspects of Comparison
14 countries • 7 Africa • 7 Latin America	Local content outcomes	4 countries • 2 Africa • 2 Latin America	Factors that lead to positive local content outcomes

Figure 1: Comparative Research Methodology

During the assessment of both categories (specificity and outcomes), we also found that the National Oil Companies are actively involved in adopting and implementing local content in countries with higher local content outcomes. In most of countries that presented high positive outcomes, NOCs are used as a mechanism to enforce the provisions contained in legal frameworks mainly through their internal policies (aligned with the frameworks). The seven Latin American have a National Oil Company. Petrobras in Brazil and Pemex in Mexico have played very active roles implementing local content policy in comparison to other NOCs in the region such as Petroamazonas in Ecuador or PDVSA in Venezuela where local content promotion is the responsibility of private companies. The role of these NOCs goes beyond adopting local content laws since Petrobras and Pemex have local content divisions within their corporate structure and have been actively involved in the creation of programmes to develop worker and supplier capacities. In Africa, the cases of Sonangol (Angola) and NNPC (Nigeria) are similar since NOCs are a fundamental instrument through which the government puts local content strategies into practice.

IV. Comparative Evidence

Our previous finding was that well-structured local content frameworks and an active role by the NOCs when implementing local content policies can influence the achievement of positive outcomes. To support that, we crosschecked the results against the remaining 10 analysed cases to confirm that those factors were not present in the cases that registered low positive outcomes. Table 4 below presents the information gathered from each country on the existence of local content requirements for employment, national industry participation, training and technology transfer; monitoring and implementation mechanisms; government programmes to support oil and gas companies in their local content-related activities; and NOCs participation in local content strategies and programmes for all 14 countries.

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Table 4: Local Content Provisions in Case Study Countries

	Employment Requir.	NIP Requir.	Training Requir.	Tech. Transfer Requir.	Monitoring and Implementation Mechanisms	Government supports oil & gas companies	NOCs participation
Brazil	X	✓	X	✓	✓	✓	✓
Mexico	✓	✓	✓	✓	✓	✓	✓
Angola	✓	✓	✓	✓	✓	✓	✓
Nigeria	✓	✓	✓	✓	✓	✓	✓
Ecuador	✓	✓	X	X	X	X	X
Argentina	✓	X	X	X	X	X	X
Bolivia	✓	✓	X	X	X	X	X
Venezuela	✓	X	X	X	X	X	X
Colombia	X	X	✓	✓	X	✓	X
Chad	✓	✓	✓	✓	X	X	X
Ghana	✓	✓	✓	✓	X	✓	✓
Tanzania	✓	X	✓	X	X	X	X
Uganda	✓	✓	✓	✓	X	X	X
Eq. Guinea	✓	✓	✓	✓	X	X	X

Source: Columbia Centre on Sustainable Investment 2015, authors' own elaboration.

As the table shows our four case studies are indeed the countries with the best-structured frameworks around local content but more important, present at the same time monitoring and implementation mechanisms and their NOCs play a key role during local content implementation. It is important to highlight that while not all aspects of local content were present in every case - for example, in Brazil employment or training requirements are not included in national local content policy or appear only at a basic level - the existence of monitoring and implementation mechanisms proved to be relevant for the achievement of positive local content outcomes in all four countries. In contrast, these mechanisms are non-existent in the other 10 countries.

The existence of well-structured LC frameworks and NOCs involved in the local content implementation process are factors present in countries that have achieved higher positive local content outcomes. Here we analyse the extent to which these factors have contributed to the achievement of positive local content outcomes in Brazil, Mexico, Angola and Nigeria better than other cases in both continents.

a) Approaches to Local Content Frameworks

The analysis shows that the achievement of positive local content outcomes has a direct relation with the type of frameworks that oil and gas producing countries from Africa and Latin America have developed to promote local content. Morales et al. (2016) and Mushemeza and Okiira (2016) explore in detail the main provisions of local content frameworks in both regions and their achieved outcomes.

As shown in Table 4, Brazil, Mexico, Angola, Nigeria and Ghana are the only cases among the 14 countries that include within their LC frameworks monitoring and enforcing mechanisms, government programmes to support oil and gas companies in their local content-related activities and the participation of

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NOCs in local content implementation. These aspects could contribute to explain the positive outcomes these five countries have achieved[4]. In order to deepen the analysis, local content frameworks of the four case studies were studied to assess the approach each country has taken to understand the legal, institutional and operational steps these countries have taken, as well as to identify similarities and differences.

The LC frameworks in Brazil, Nigeria and Mexico contain a clear definition of local content unlike Angola. For the case of Brazil, it is interesting to observe that the definition and the main frameworks only focus on the promotion of the country's national industries through procurement practices and bidding processes as opposed to Mexico, Angola and Nigeria, who give importance to employment and skills development as well. Mexico and Nigeria understand local content from a broader perspective, which includes local employment and training for nationals. Despite varying definitions and emphasis on distinct elements of local content, one common denominator among the four countries is the inclusion of clear LC provisions in legislation and contracts, which we treat as specificity in our analysis. The implication of this finding which is in tandem with our hypothesis is that the more specific LC provisions a country has, the more likely it will achieve positive local content outcomes.

The specificity of local content frameworks also includes efforts to measure and monitor implementation. Mexico demonstrates the most concerted effort in this regard, having developed a methodology that has set the ground for monitoring local content compliance among relevant authorities. Brazil also includes the measurement of local content during the bidding process where providers' offers must include local content targets. Brazil and Mexico have created frameworks that prioritise the development of their national industries and have implemented programmes to achieve it. This might explain why more quantitative data is available for Brazil and Mexico on LC outcomes (Morales et.al. 2016) than Angola and Nigeria whose results are scattered across several documents (Nordas et al. 2003; Mushemeza and Okiira 2016).

Regarding institutions, Brazil, Angola and Mexico have designated the tasks of designing and monitoring local content implementation to different state entities such as the National Energy Policy Council (Conselho Nacional de Politica Energética or CNPE) and the National Petroleum Agency (Agencia Nacional do Petróleo or ANP) in Brazil, the Ministry of Finance in Mexico and the Ministry of Petroleum in Angola. Similarly, Nigeria has established the Nigerian Content Monitoring Board to guide, implement and monitor the provisions of the Nigerian Content Act. These institutional mechanisms have proven to play a fundamental role in the implementation of local content development in our selected case studies.

The implementation of LC frameworks has enabled the selected countries (Brazil, Mexico, Angola, and Nigeria) to establish national industry bases with varied strengths and results. Angola focuses on employment and therefore, its frameworks are focused on the establishment of quotas, procedures and penalties to promote jobs for nationals in the oil and gas sector; known as the "Angolanization" of the workforce. In Brazil, provisions relating to national workforce, goods and services are observable. When these frameworks are scrutinised further, the tendency to prioritise national industry participation compared to employment creation is observable. Brazil and Mexico have established mechanisms such as local content minimum requirements for bidding processes and capacity building programmes for suppliers. For their part, Angola and Nigeria prioritise employment by setting employment quotas that are easily adoptable in the short-term. Where local content policies are more focused on the procurement of goods and services (national industry participation) and skills development, countries have managed to develop their manufacturing sector and reduce dependence on oil revenues. Countries in Latin America such as Ecuador, Colombia, Venezuela and Bolivia have scattered provision within their oil and gas frameworks. Hydrocarbon Laws and other main frameworks from these countries are focused on fiscal terms instead of local content. Evidence of this investigation has showed that the development of well-structured frameworks adopted by the four case studies to promote local content have definitely forced the creation of institutions and additional mechanisms to promote and monitor the compliance of local content unlike other countries such as Ecuador, Bolivia, Venezuela, Equatorial Guinea, Chad or Colombia where this process has been slower resulting in less positive outcomes (or none).

b) The Role of National Oil Companies in Supporting the Achievement of Positive Local Content Outcomes

National Oil Companies control over 90% of the world's oil and gas reserves and 75% of production. Approximately 60% of the world's undiscovered reserves are in countries where NOCs have privileged access to these reserves and to major oil and gas infrastructure systems. For this reason, it is fair to say that NOCs have the potential to shape the economy and the energy needs of resource-rich countries (Tordo, 2011).

In Latin America and Africa, the creation of NOCs followed different interests and logics. In Mexico, Pemex was established as a mechanism to improve labour and wage conditions for workers whereas in

[4] Ghana is not part of the analysis since the country has been implementing its local content policies for too short time to report outcomes.

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Brazil Petrobras was created to promote self-sufficiency, respond to growing industrialisation and increase the participation of national companies along the oil and gas value chain. NOCs in Nigeria and Angola, as in many other countries in Africa, were created during post-independence periods as a mechanism to nationalize assets, regain state control, gain higher rents from foreign companies, generate employment and promote technology transfer (Lwanda 2011; Nwokeji 2007).

The experiences of Brazil, Mexico, Nigeria and Angola show that NOCs positively influence the adoption of local content. Unlike other NOCs in Latin America, like PDVSA in Venezuela or YPFB in Bolivia, Pemex and Petrobras follow clear institutional guidelines pertaining to local content that are embedded within the companies' strategies. In addition to existing local content laws, Pemex's work regarding local content is also guided by its Strategy for the Development of Local Contractors and National Content (Pemex, 2013) which recognises the NOC's role as a productive state company in charge of the development of the national industry along the oil and gas value chain.

Petrobras also has an institutional local content policy which indicates that all projects and acquisitions for Petrobras must support the company's strategic plan and maximise local content through the integration of the supply chain (by executing procurement in a coordinated manner), capacity development of local suppliers and supporting local market development to overcome technology gaps. The NOC's LC policy also determines the business areas that are considered a priority for the oil and gas sector and where local content goals need to be achieved. Despite their countries have some legal provisions on local content, neither Petroamazonas (Ecuador) nor YPFB and PDVSA have established local content divisions within the companies or have developed strategies to promote local content.

On the other hand, NOCs in Angola and Nigeria show a similar trend than Pemex and Petrobras whereby the NOC has very well defined guidelines and responsibilities regarding local content. The national LC frameworks clearly position the NOCs as key actors in the implementation process. Sonangol is considered the "national engine" for local content related growth and for the implementation of Angolanization policies intended to increase workforce participation and technology transfer in the oil and gas sector. Within Sonangol, the Local Content Department oversees the developing a local content strategy for the NOC in coordination with the Ministry of Petroleum.

NNPC in Nigeria works under a similar framework as Sonangol. The NOC does not have an internal local content strategy, but it does have a Nigerian Content Division (NCD) that comprises three departments in charge of capacity building, planning and monitoring. These departments identify best practices and advise NNPC on the adoption of local content measures, generate data related to the industry and develop strategies for capacity building.

Another aspect that Pemex, Petrobras, Sonangol and NNPC have in common is the existence of programmes specifically created to translate local content guidelines into practice. In countries like Ghana and Ecuador, where NOCs are relatively strong, there is not the same type of involvement by the NOCs in the local content strategy as in the analysed cases. In Ghana and Ecuador, NOCs adopt local content but are not necessarily seen as key partners when it comes to creating the conditions required for the successful adoption of LC strategies.

Pemex leads the Supplier Relations Programme, which aims to ensure that local suppliers have the necessary capacities to become Pemex suppliers. This programme is based on the idea of collaboration between the NOC and key suppliers at different stages of the value chain. As part of this programme, Pemex has for example developed several initiatives that include an online platform for registering and evaluating suppliers. The purpose behind this platform is to connect supply and demand across different operating areas. As a result of these initiatives Pemex has enabled the country to register positive local content outcomes (Pemex, 2013).

Petrobras has the longest trajectory interacting with suppliers and collaborating with various actors in Brazil to achieve and enhance the adoption of local content. For example, the National Programme for the Mobilisation of the National Oil and Gas Industry (PROMINP), seeks to increase the participation of Brazilian industry in the implementation of extractive projects. Petrobras and the Ministry of Mines and Energy coordinate this initiative. The NOC in Brazil is credited for promoting positive local content outcomes (Petrobras, 2015).

Sonangol in Angola leads various initiatives aimed at strengthening the capacity of local enterprises, establishing factories and technology transfer. Many of these initiatives are public-private partnerships (PPPs) aimed at resolving the challenges that hinder the participation of national industries along the oil and gas value chain such as inadequate infrastructure and engineering equipment, insufficient financial resources to drive change, low technical expertise and limited collaboration between companies. Sonangol participated in the formation of the Angolan Enterprise Program (AEP) designed to develop the capacities of SMEs with the support of IOCs such as Chevron. Another example is the Centre for Enterprise Support (Centro de Apolio Empresarial or CAE), an initiative developed in partnership between Sonangol, Chevron, Esso, Total and other IOCs. The CAE provides training for local SMEs in the fields of human resource

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management, supply chain management, health and safety, quality management and finance. In terms of local content outcomes, the project under the CAE generated 4,809 jobs, certified over 100 companies in various sectors and delivered over 224 business training courses. Participating SMEs won over 300 contracts (World Bank, 2015; Mushemeza and Okiira, 2016).

The Nigeria National Petroleum Company (NNPC) implements its local content strategy through the National Petroleum Investment Management Services (NAPIMS). NAPIMS oversees the monitoring the contracting procedures of NNPC ensuring that local content criteria are present in every contracting process. NAPIMS also provides capacity building for suppliers to ensure their ability to participate in the bidding processes of the industry. Within NNPC, the National Content Division is in charge of developing projects to bridge local capacity gaps in the industry, as well as certify and train local providers by partnering with IOCs through PPPs. The spirit of PPPs promoted by the government and the NOC gave birth to the Enterprise Development Centre (EDC) hosted by the Pan African University since 1991. In terms of local content outcomes, the EDC trained 46 trainers, including 16 women, to deliver Business Edge workshops to 1,367 individuals including 414 women. At least 24,000 entrepreneurs and small business owners submitted business plans to the first You WIN Competition and 1,200 won between $7,000 and $70,000 US dollars in seed funding to start or expand their business (Mushemeza and Okiira 2016).

Despite the lack of a strong and independent measurement and evaluation system, the NNPC is credited for spearheading several developments and local content outcomes. The Nigerian Content Development Monitoring Board estimates that local capture of oil industry spends have risen from 5 to 40% in the last decade. It is estimated that with an annual investment of $15 billion US dollars per year, local content practices could help retain over $5 billion US dollars in the Nigerian economy annually (Ovadia, 2014). Nigeria's Ministry of Petroleum Resources estimates that in 2012 implementation of the Local Content Act led to retention in the national economy of over $20 billion US dollars. Between 2010 and 2014, NNPC trained and employed 15,000 personnel representing 80% of local employees in the sector. In the same period, the NOC awarded contracts to national and local companies at a value of $52 billion US dollars - a clear success for national industry participation (Mushemeza and Okiira 2016).

It is important to highlight that, the fact that these NOCs have a fundamental role in the achievement of positive local content outcomes, does not mean that their activities are managed with transparency. Moreover, Petrobras and Sonangol have been recently involved in corruption scandals that reached international levels.

V. Policy Implications

The analysis leads to at least three key lessons. Unlike other oil and gas producing countries from Africa and Latin America, Angola, Nigeria, Brazil and Mexico have achieved positive local content outcomes due to these countries have structured their frameworks with specific provisions that addresses issues on technology, procurement, employment and training requirements, complemented by the establishment of monitoring and enforcement mechanisms, government support for oil and gas company programmes and the active participation of NOCs during local content implementation. Based on the evidence of Brazil, Mexico, Angola and Nigeria, it can be concluded that oil and gas producing countries that are in the process of designing local content o policies should pay attention to the development and structure of specific local content frameworks to achieve positive outcomes. These frameworks should be accompanied by monitoring and enforcing mechanisms as the ones assessed during these research (table 3).

While presence of NOCs can foster employment and technology transfer, it is not enough. Other factors can influence the extent to which existence of the NOC can lead to positive outcomes. These include the extent to which the NOC collaborates with private sector and international oil companies to enhance knowledge and technology transfer. For example, NNPC and Pemex adopted measures to promote the participation and competition of private companies and partners. The experiences of Petrobras and Sonangol highlight the importance that knowledge transfer can have for the development of strong technological basis in an oil company. These results show that openness to the participation of private stakeholders does not diminish the NOCs' influence; on the contrary it strengthens its capacity and performance. NOCs should play a prominent role when defining and implementing local content. Their involvement in this process can lead to positive local content outcomes despite other structural challenges such as limited independence from the government. The cases of Sonangol, NNPC, Petrobras and Pemex show that it is important that NOCs' policies are connected with local content frameworks. Thus, NOCs have legally binding obligations to adopt local content as part of their strategy and therefore are more likely to achieve positive local content outcomes. However, these case studies also highlight the importance of strengthening the institutional capacities of the extractive sectors in resource rich countries. While strong NOCs are desirable, they should not overrule the government. This misbalance can lead to corruption and lack of

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transparency that has also been found in all the analysed countries as part of this study.

VI. Conclusion

This paper started by comparing local content in 14 oil and gas producing countries across Africa and Latin America in order to identify their local content frameworks and the outcomes these countries have achieved. Through this comparison, it was possible to identify the countries with better local content outcomes in both regions, namely Mexico and Brazil in Latin America and Angola and Nigeria in Africa.

The comparative analysis shows that these four countries demonstrate several common features. On the one hand, the existence of sound local content frameworks that are well structured and positioned within the country's legislation, and which include clear implementation and monitoring mechanisms. On the other hand, National Oil Companies in these countries have played an important role during the design and implementation of local content policies. Unlike other NOC elsewhere, national oil companies in Brazil, Mexico, Angola and Nigeria are not only in charge of adopting local content, they are also involved in the policy design process and are the institutions in charge of promoting its adoption, and even measuring and monitoring its implementation.

Angola, Nigeria, Brazil and Mexico have achieved positive local content outcomes unlike other oil and gas producing countries from Africa and Latin America. These countries have structured their frameworks with broad provisions and with specific technology, procurement, employment and training requirements, complemented by the establishment of monitoring and enforcement mechanisms, government support for oil and gas company programmes and the active participation of NOCs during implementation. Evidence suggests that having a specific local content framework and a strong NOC with clear guidelines and strategy, can lead a country to achieve positive local content outcomes regardless of context. While presence of NOCs can foster the generation of employment and technology transfer, it is important to keep in mind that the mere existence of NOCs is not enough. There are specific dynamics and factors inside the management of a NOC that can shape local content. For example, it is valuable for a NOC to collaborate with the private sector and international partners to enhance knowledge and technology transfer. NNPC and Pemex adopted measures to promote the participation and competition of private companies and partners. The case studies show that openness to the participation of private stakeholders does not diminish the NOCs' influence; on the contrary it strengthens their capacity and performance. The experiences of Petrobras and Sonangol highlight the importance that knowledge transfer can have for the development of strong technological basis in an oil company. NOCs should play a prominent role when defining and implementing local content. Their involvement in this process can lead to positive local content outcomes despite other structural challenges such as limited independence from the government. However, these case studies also highlight the importance of strengthening the institutional capacities of the extractive sectors in resource rich countries.

Policy makers should consider short and long-term benefits when designing local content policies. The achievement of short-term positive outcomes might be easier to attain through certain mechanisms such as the establishment of workforce and procurement quotas and scholarships requirements. However, building linkages through local content policies is a measure that can bring about longer-term benefits to the country's economy. As analysed, Angola and Nigeria have focused their local content policies on the generation of jobs and this has not contributed to a decrease in either country's dependence on oil revenues. On the other hand, Mexico and Brazil have established local content policies more focused on the procurement of national goods and services and have thereby managed to develop their manufacturing sector and reduce dependence on oil revenues.

The factors analysed in this paper do not rule out or ignore the existence of other factors that can shape the positive achievement of local content outcomes such as the size and quality of a country´s natural endowments, the existing industrial capacity or the quality of governance institutions.

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Annexes

Annex 1: Scoring Matrix – Local Content Outcomes

STRATEGY	SOURCE OF DATA		
	DATA FROM OIL & GAS COMPANIES	CONTRACTS	SECONDARY SOURCES
LOCAL EMPLOYMENT (LE)	• High (1.5) – The company has at least 90% of national /local employees. • Medium (1) – The company has 80 to 90% of national employees. • Low (0.5) – The company has less than 80% of national employees.	• High (1.5) –Contracts a) are linked to/reflect national legislation regarding LE; b) include mechanisms to measure LE; ***and*** c) include mechanisms to monitor and implement LE. • Medium (1) –Contracts a) are linked to/reflect national legislation regarding LE; and b) include mechanisms to measure LE; ***or*** c) include mechanisms to monitor and implement LE. • Low (0.5) – Contracts are linked to/ reflect national legislation regarding LE.	• High (1.5) – a) There is evidence and data to support the outcomes reported by the companies; and b) there are press releases/articles about the companies' LE practices and their achieved outcomes that substantiate the achievement of LC outcomes. • Medium (1) – a) There is some evidence to support outcomes reported by the companies; b) there are press releases/articles about the companies' LE practices and their achieved outcomes that substantiate the achievement of LC outcomes. • Low (0.5) – There is little evidence supporting LC outcomes.
SKILLS DEVELOPMENT (SD)	• High (1.5) – SD investment per employee is $1,500 US dollars or higher. • Medium (1) – SD investment per employee is between $500 and $1,500 US dollars. • Low (0.5) – SD investment per employee is $500 US dollars or less.	• High (1.5) – Contracts a) are linked to/reflect national legislation regarding SD; and b) includes mechanisms to measure SD; ***and*** c) include mechanisms to monitor and implement SD. • Medium (1) –Contracts a) are linked to/ reflect national legislation regarding SD and b) includes mechanisms to measure SD; ***or*** c) include mechanisms to monitor and implement SD. • Low (0.5) – Contracts are linked to/reflect national legislation regarding SD.	• High (1.5) – a) There is evidence and data to support outcomes reported by the companies; and b) there are press releases/articles about the companies' SD practices and their achieved outcomes that substantiate the achievement of LC outcomes. • Medium (1) – a) There is some evidence to support outcomes reported by the companies; b) there are press releases/articles about the companies' SD practices and their achieved outcomes that substantiate the achievement of LC outcomes. • Low (0.5) – There is little evidence supporting LC outcomes.
NATIONAL INDUSTRY PARTICIPATION (NIP)	• High (1.5) –Contract values awarded to local or national providers represent more than 90%. • Medium (1) –Contract values awarded to local or national providers are between 80 and 90% • Low (0.5) – Contract values awarded to local or national providers are less than 80%.	• High (1.5) –Contracts a) are linked to reflect national legislation regarding NIP; and b) include mechanisms to measure NIP; ***and*** c) include mechanisms to monitor and implement NIP. • Medium (1) –Contracts a) are linked to/reflect national legislation regarding NIP and b) include mechanisms to measure NIP; ***or*** c) include mechanisms to monitor and implement NIP. • Low (0.5) –Contracts are linked to/reflect national legislation regarding NIP.	• High (1.5) – a) There is evidence and data to support outcomes reported by the companies; and b) there are press releases/articles about the companies' NIP practices and their achieved outcomes that substantiate the achievement of LC outcomes. • Medium (1) – a) There is some evidence to support outcomes reported by the companies; b) there are press releases/articles about the companies' NIP practices and their achieved outcomes that substantiate the achievement of LC outcomes. • Low (0.5) – There is little evidence supporting LC outcomes.

Source: data from oil and gas companies, contracts and secondary sources

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Annex 2: Specificity Scoring Criteria – Local Content Frameworks

STRATEGY	SPECIFICITY		
	LC PRESENCE IN OIL AND GAS FRAMEWORKS	MEASUREMENT	MONITORING & IMPLEMENTATION MECHANISMS
LOCAL EMPLOYMENT (LE)	• High (1.5) – There are LE provisions within specific LC laws and other oil and gas laws (i.e. hydrocarbons law) • Medium (1) – There are provisions within oil and gas legislation. There are no specific local content laws • Low (0.5) – Local content provisions are only included in general laws (i.e. labour law)	• High (1.5) – Entails a) LE quotas in % or other measuring mechanisms; *and* b) minimum requirements for the hiring of local employees in different positions, hierarchies or skills levels • Medium (1) –Entails a) LE quotas in % or other measuring mechanisms; *or* b) minimum requirements for the hiring of local employees in different positions, hierarchies or skills levels • Low (0.5) – LE provisions are declaratory; they do not include measuring mechanisms or minimum requirements for the hiring of local employees in different positions, hierarchies or skills levels	• High (1.5) – There are a) entities that ensure the adoption/monitoring of LE regulations; *and* b) fines and/or incentives for the implementation of LE regulations • Medium (1) – There are a) entities that ensure the adoption of LE regulations; *or*b) fines and/or incentives for the implementation of LE regulations • Low (0.5) – Provisions do not include monitoring/implementation mechanisms
SKILLS DEVELOPMENT (SD)	• High (1.5) – There are SD provisions within specific LC laws and other oil and gas laws (i.e. hydrocarbons law). • Medium (1) – There are provisions within oil and gas legislation. There are no specific LC laws. • Low (0.5) – LC provisions are only included in general laws (i.e. labour law)	• High (1.5) – There are mechanisms to measure a) % of SD investment; *and* b) technology transfer • Medium (1) – There are mechanisms to measure a) % of skills development investment; *or*b) technology transfer. • Low (0.5) – SD provisions are broad and declaratory; they do not include measuring mechanisms or minimum requirements for skills development or technology transfer	• High (1.5) – There are a) entities that ensure the adoption/monitoring of SD regulations; *and* b) requirements for training programmes or agreements with universities/ other SD institutions • Medium (1) – There are a) entities that ensure the adoption/implementation of SD regulations; *or* b) requirements for training programmes or agreements with universities/ other SD institutions • Low (0.5) – Provisions do not include monitoring/implementation mechanisms
NATIONAL INDUSTRY PARTICIPATION (NIP)	• High (1.5) – There are NIP provisions within specific LC laws and other oil and gas laws (i.e. hydrocarbons law). • Medium (1) – There are provisions within oil and gas legislation. There are no specific LC laws. • Low (0.5) – LC provisions are only included in general laws (i.e. labour law)	• High (1.5) – There are a) mechanisms to measure NIP; *and* b) minimum % of NIP requirements in the oil and gas sector • Medium (1) – There are a) mechanisms to measure NIP; *or* b) minimum % of NIP in the oil and gas sector • Low (0.5) – NIP provisions are declaratory; they do not include measuring mechanisms or minimum requirements for NIP	• High (1.5) – There are a) entities that ensure the adoption/monitoring of NIP; *and* b) NIP criteria included in bidding processes in the oil and gas sector • Medium (1) – There are a) entities that ensure the adoption/implementation of NIP; *or* b) NIP criteria included in bidding processes in the oil and gas sector • Low (0.5) – Provisions do not include monitoring/implementation mechanisms

Source: countries' legal frameworks.

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Perceived Effects on Community Development and Poverty Alleviation in Selected Local Government Areas of Oyo State of Nigeria

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Abstract- This research is to evaluate the performance of community Development programmes and poverty alleviation among the rural dwellers in Oluyole and Ibadan North East Local Government Areas of Oyo state. The study is aimed to assess the high rate of Community Development and poverty alleviation in some selected communities. The work was carried out in this local government and random sample techniques were used to select respondents in this study. The sample size used was 600 which gave 40% of the population to be sampled from each of the community. Primary and Secondary data were used for the study. Six hundred and ten (610) questionnaires were personally administered to the respondents randomly selected from the six communities within the Local Government. The data collected was coded and processed into computer and spss software package was used to analysis the data collected. The tools of analysis were frequency distribution (percentage) and Chi-Square analysis.60% of the respondents sampled where male while 40% were female. 46.0% with frequency of 276 were Christian.

Keywords: *poverty, alleviation, rural, dwellers, community development, programmes.*

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Perceived Effects on Community Development and Poverty Alleviation in Selected Local Government Areas of Oyo State of Nigeria

Agbebaku[α], E.E. O., Ugioro[σ], O.., Orisasona[ρ], T.M ., Famuyiwa B.S ., Uwagboe[ω], E. OWilliams[¥], O. A & Oluyole K.A[§]

Abstract- This research is to evaluate the performance of community Development programmes and poverty alleviation among the rural dwellers in Oluyole and Ibadan North East Local Government Areas of Oyo state. The study is aimed to assess the high rate of Community Development and poverty alleviation in some selected communities. The work was carried out in this local government and random sample techniques were used to select respondents in this study. The sample size used was 600 which gave 40% of the population to be sampled from each of the community. Primary and Secondary data were used for the study. Six hundred and ten (610) questionnaires were personally administered to the respondents randomly selected from the six communities within the Local Government. The data collected was coded and processed into computer and spss software package was used to analysis the data collected. The tools of analysis were frequency distribution (percentage) and Chi-Square analysis.60% of the respondents sampled where male while 40% were female. 46.0% with frequency of 276 were Christian. 12.0% of the people sampled had primary education, 8.0% had secondary education, 38.0% tertiary education, and 8.0% indicated no formal education while 14% indicate others.28.0% of the population was single, 40% were married, and 20.0% were separated while 12.0% were widow (er). Highest level of income was observed in 22% of the respondent that received #30,000 and above per annum. Development Programmes, such as NAPEP, NDE, FADU, among others, which has help young school leavers and graduates to benefit to different Agricultural Programmes in Oyo State and Nigeria at large. The benefit of Community Development Programme on poverty alleviation has help in improving the life of rural dwellers in Oluyole and Ibadan North East Local of Oyo state, and also in Nigeria in general by putting food on their table and labour employment to populace.

Keywords: poverty, alleviation, rural, dwellers, community development, programmes.

I. Introduction

Community development programmes are designed to alleviate the poverty condition of the rural people, who are majorly farmers. This has been demonstrated through programmed like National Poverty Alleviation Programme (NAPEP), Local Empowerment and Environmental Management Programme (LEEMP), National Directorate of Employment (NDE), Federal Agricultural Development Union (FADU), Oyo state Agricultural Development Project (OYSADEP) (FADAMA) among others. Oyo state has embarked on some community development projects, which include rural electrification, sinking of boreholes, roads constructions and establishment of health facilities for rural dwellers. Some of these programmes were completed while some are abandoned (LEEDS ATB and Government OYW, 2007). The income dimension of poverty defines poverty as a situation of low income or low consumption.

Accordingly people are counted poor when their measure standard of living in term of income or consumption is below poverty lines. Thus, poverty lines are a measure that separates the poor from the non-poor. However, poverty has both income and non-income dimension usually intertwined. The poor are those who are unable to obtain an adequate income, find a stable job, own property or maintain healthy conditions. They also lack an adequate level of education and cannot satisfy their needs.(Sancho, 1996).Thus, the poor are often illiterate, in poor health, and have a short life span (World Bank,1995).They have no or limited access to basic necessities of life such as food, clothing, decent shelter, are unable to meet social and economic obligations, they lack skills and gainful employment, have few, if any economic assets, and sometimes lack of self-esteem (Olayemi,1995).Very often, the poor lack the capacity to escape from their situation by themselves. This characteristic is what causes the social condition of extreme poverty to persist and to be transmitted from one generation to the next. Sen, (1992) saw poverty as low levels of capability or the failure of basic capability to reach certain minimally acceptable level. However, there were various challenges and constraints which serve as an impediment to the social and economic development, and poverty alleviation of the people of the communities in general which necessitated this study.

II. Objectives Of Study

1. To determine the socio-economic characteristics of people in study areas.

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2. To examine the influence of community development programmed on poverty alleviation among rural dwellers in oluyole and Ibadan North East Local Government Areas of Oyo State.
3. To provide possible solutions in poverty reduction in the areas of study.

III. Methodology

a) Study Area

The study area for this Research work consist of all rural dwellers in six, community in two selected local Government. The two rural areas are oluyole and Ibadan North- Local Government of Oyo state.

b) Sample and Sampling Techniques

Random sample techniques were used to select respondents in this study. This gave the members in the simply fare equal chances of being selected. The sample size used was 600 which gave 40% of the population to be sampled from each of the community, One hundred respondents 100) were selected and used for the study. The samples comprised of adult rural dwellers between the ages of 18 and above.

c) Methods of data collection

Primary and Secondary data were used for the study. Six hundred and ten (610) questionnaires were personally administered to the respondents randomly selected from the six communities within the Local Government. Ten questionnaires were added to give room for those that might be discarded as a result of non-responses or other lapses in filling the questionnaires.

d) Data analysis

The data collected was coded and processed into computer and spss software package was used to analysis the data collected. The tools of analysis were frequency distribution (percentage) and Chi-Square analysis.

IV. Result And Discussions

a) Demographic information

Table1 Indicated that 60% of the respondents sampled where male while 40%were female. This implies that majority of the respondents sampled were male.

Table 1: Distribution of respondents by sex

Sex	Frequency	Percentage
Male	360	600
Female	240	400
Total	600	1000

Source: Field Survey, 2016

Table 2: also shown that 6.0% of the respondents sampled were in the age bracket 18-25 years,16.0% (26-35) years, 46.0% (36-45) years,18.0% (46-55 years) and 14.0% (56 and above). From the result, it was observed that 46.0% had the highest frequency, followed by 18.0% and the least was observed for 6.0% with frequency of 36 respectively. According to OECD (2000), the processing causing poverty affects both male and female in different ways and degrees. Female poverty is of more prevalent and typically more severe than male. He further stated that "Women suffer violence by Men on large scales. They are more likely to be illiterateas well as politically, social excluded in their communities. Hence, ability for women to overcome poverty is generally different from those of men."

Table 2: Age distribution of respondents

Age	Frequency	Percentage
18-25 Years	36	60
26-35 Years	96	160
36-45 Years	276	460
46-55 Years	108	180
56 Years and above	84	140
Total	600	1000

Source: Field Survey, 2016

Table3 shows that the distribution of respondents religion was 46.0% with frequency 276 were Christian, followed by Islam with 38.0% (228) and the least was observed for others 16.0% (96) respectively.

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Table 3: Distribution of respondent by religion

Religion	Frequency	Percentage
Christianity	276	460
Islam	228	380
Others	96	160
Total	600	1000

Source: Field Survey, 2016

Table4 indicated that 12.0% of the people sampled had primary education, 8.0% had secondary education, 38.0% tertiary education, 8.0% indicated no formal education while 14% indicate others. This implies that majority of the respondents were educated.

Theoretically, rural areas lie outside the density –built up environments of towns, cities and sub-urban villages' and their inhabitants are engaged primarily in agriculture as well as the most basic of rudimentary form of secondary and tertiary activities. (Adebayo,1998).

Table 4: Distribution of respondents by level of education

Level of Education	Frequency	Percentage
Primary Education	72	120
Secondary Education	168	280
Tertiary Education	228	380
No Formal Education	48	80
Others	84	140
Total	600	1000

Source: Field Survey, 2016

Table5 showed the distribution of respondents by marital status of which 28.0% of the population were single,40%were married, 20.0% were separated while 12.0% were widow(er).This eventually confirm that majority of the respondents sampled were married. Marital status, according to (Ahmed, 2002) stated that women are the recipients of credit; the credit ends up with the male member of the family, leading to misappropriations and credit diversion. Nenison, (2008), and Bowman (2010) strongly emphases that partial / un-equal education do lead to increase in poverty.

Table 5: Marital Status of respondents.

Marital	Frequency	Percentage
Single	160	280
Married	240	400
Separated	120	200
Widowed	72	120
Total	600	1000

Source: Field Survey, 2016

Table 6 shows the distribution of respondents by level of income per annum. Highest level of income was observed in 22% of the respondent that received #30,000 and above per annum while 28% of the respondents that falls within less than #10,000 per annum had the least.

Table 6: Distribution of respondents by level of income per annum

Level Of Income Per Annum	Frequency	Percentage
Less Then N10,000	168	280
N10,000-30,000	180	300
N20,000-30,000	120	200
N30,000 and above	132	220
Total	600	1000

Source: Field Survey, 2016

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Table 7 explains occupational distribution of the respondents.73.3% of the sampled respondents were unskilled labor while 26.7% were skilled labour. This connotes that majority of the respondents were unskilled labor. A corollary to the above entrepreneur theory by (Sheriffden 1997), which posits that the exploitation of the poor by means of poor conditions of services and low wages accounts for high incidence of poverty in urban areas. The central Bank of Nigeria (1991) views poverty as a state where an individual is not able to meet his social economics obligations such as employment of occupation of skills chances of his or her welfare to the limit of his or her capabilities.

Table 7: Distribution of respondents by occupation

Occupation	Frequency	Percentage
Unskilled Labour	400	733
Skilled Labour	160	267
Total	600	1000

Source: Field Survey, 2016

Table 8 indicated that 6.0% of the respondents sampled had lived in the community between 3-5 years with frequency of 36, 23.8% lived in the community for 6-8 years with frequency of 143, 32.2% lived for 9-11 years, and 38.0% lived for 12 years. Majority of the respondents had been living in the community for more than 10 years.

Table 8: Distribution of respondents by the year of living in the community

How Long Have You Been In This Community?	Frequency	Percentage
3-5 Years	36	60
6-8 Years	143	238
9-11 Years	193	322
12 Years and above	228	380
Total	600	1000

Source: Field Survey, 2016

As shown below on table 9. X^2 cal $=34.302 < X^2$ tab $=5.99$ at 0.05 level of significance. Therefore, we reject that there is no significant effect on provision of social amenities programmes on poverty alleviation of rural dwellers in Oyo state. Therefore, there is great significant effect on provision of social amenities programmes on poverty alleviation of rural dwellers in Oyo state. provision of infrastructure and social amenities gear toward helping to improving the welfare of the rural dwellers. williams (1981).

Table 9: Effect of provision of social amenities programmes on poverty alleviation

Observed	Expected	X^2 cal	X^2 tab	Df p
Little extent 206	1000	34.302	5.99	0.00
Small extent 1415	1000			
Great extent 13751	1000			

Source: Field Survey, 2016

Table 10 showes X^2 cal $=40.683 < X^2$ tab $=7.815$ at 0.05 level of significant. Hence there is significance influence of education programmes on poverty alleviation of rural dwellers in Oyo state.

Table 10: Influence of education programmes on poverty alleviation

Observed	Expected	X 2 Cal	X 2 tab	Dfp
No Extent 306	750	40.683	7.815	3.000
Little Extent 172	750			
Small Extent 1256	750			
Great Extent 1266	750			

Source: Field Survey, 2016

Table 11 as shown below X^2 cal $=82.424 < X^2$ tab $=7.815$ at 0.05 level of significance. Therefore, no significant influence of health Programmes on poverty alleviation on rural dwellers in Oyo state. Hence, there is significance influence of health programmes on poverty alleviation of rural dwellers in Oyo state.

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Table 11: Influence of health programme on poverty alleviation

Observed	Expected	X^2 cal	X^2 tab	DF
No Extent 50	750	82.424	7.815	3
Little Extent 33	750			
Small Extent 1502	750			
Great Extent	1266	750		

Source: Field Survey, 2016

From the findings, it was concluded that there was appreciable significant effect on provision of social amenities, education and health programmes on poverty alleviation of rural dwellers in Oyo state. This brought expansion of business activities of the community, access to computer education, vocational training and reduce literacy through adult education programme. The health programme promotes good sanitation and gives room for easy access to health care services in the maternal mortality and morbidity. According to (Nenison, 2008, Bowman 2010) stated unequal education tends to have a negative impact on per capital income and thereby increase poverty in many countries.

V. Conclusion and Recommendations

This finding shows that poverty alleviation is an issue that concerns every person in the society. People come together for the satisfaction of their common needs which bring change for better living. Thus, this change will help to build capacity building, reduces suffering and creates employment that will better the way of life of the rural dwellers. This comes in various forms through educational, health, agriculture, socio-economic, women empowerment, and housing and employment opportunities.

Based on the result of the findings, the following recommendations were made:

- The government should make concerted efforts to ensure that all abandoned community development programmer in selected local government areas are completed and commissioned for people's usage.
- Community members should reciprocate the government's good gesture through active participation and involvement in community development programme.
- Community should ensure sustainability of community development programmes.
- Non-Governmental organizations should compliment government efforts by providing socio-economic, educational and health programmes for rural dwellers in local government, health and other needed areas of human life.
- More resources should be annexed towards community development particularly Oyo state and Nigeria in general, to ameliorate the suffering of the people in the rural society.
- All community programmes must be rehabilitative, Productive and being re-creative in nature. This will help to retain sustainability of knowledge acquired in the training.

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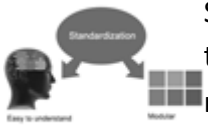


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