

# GLOBAL JOURNAL

OF MANAGEMENT AND BUSINESS RESEARCH: B

## Economics and Commerce

Capitalism & Unequal Development

Analysis of Profitability Performance

Highlights

Quality of Destination Attributes

Effects Diversification to Eco-System

Discovering Thoughts, Inventing Future

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ECONOMICS AND COMMERCE

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## Attribute of the Effects Diversification to Eco-System from Large Investments in Supply Chain

By Dr. Maria F. Sartzetaki

*University of Thrace*

**Abstract-** In most of the cases the decision to invest in a new large transport infrastructure project is not simple, mainly, because the complications in planning process, the amount of capital need to invest before the business establishment and the high number of stakeholders involved in decision process. The decision process is more complicated in restricted economic conditions and financing assumptions, where the project business plan performance is strongly related to regional development prospects and business sectors enlargement. This paper provides an attribute methodology approach to support decisions in large transport infrastructure projects based on the effects diversification to ecosystem affected by the new projects. The proposed methodology provides an evaluation framework based on a combination of an ex-ante assessment analysis taking into consideration the large transport infrastructure projects economic impact and its contribution to enlargement of the sectors of the ecosystem.

**Keywords:** *transport infrastructure investment, effects diversification, economic impact, ecosystem.*

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# Attribute of the Effects Diversification to Eco-System from Large Investments in Supply Chain

Dr. Maria F. Sartzetaiki

**Abstract-** In most of the cases the decision to invest in a new large transport infrastructure project is not simple, mainly, because the complications in planning process, the amount of capital need to invest before the business establishment and the high number of stakeholders involved in decision process. The decision process is more complicated in restricted economic conditions and financing assumptions, where the project business plan performance is strongly related to regional development prospects and business sectors enlargement. This paper provides an attribute methodology approach to support decisions in large transport infrastructure projects based on the effects diversification to ecosystem affected by the new projects. The proposed methodology provides an evaluation framework based on a combination of an ex-ante assessment analysis taking into consideration the large transport infrastructure projects economic impact and its contribution to enlargement of the sectors of the ecosystem. The Input Output analysis framework is used to determine the economic footprint of the transport infrastructure projects development and the diversification of the ecosystem sectors affected based on entropy theory is introduced to review the project's effects diversification to regional ecosystem. The numerical application focused on two different large transport infrastructure projects airport in two different regions in the nation of Greece in south-east Mediterranean. Conventional wisdom is to present a systematic approach appropriate to apply to relevant projects, providing the essential tool to support decisions at level of strategic planning.

**Keywords:** *transport infrastructure investment, effects diversification, economic impact, ecosystem.*

## I. INTRODUCTION

The development of transport infrastructure to meet future demand needs is on the top of the agenda for governments, and regional development stakeholders. This is due to the recognition that transport infrastructure development has a vital role in contributing to wider socioeconomic development principles and is a key driver for new income generation and business growth (Dimitriou and Sartzetaiki, 2019a). Consequently, there is a risk that a significant share of the predicted growth in transport demand will be left unaddressed if existing transport infrastructures are not expanded and/or new infrastructures are not built to meet this demand (Dimitriou et al., 2017). The key challenge is that the complexities of current

financing schemes and the uncertainty in economy mean that decision making for investments in new infrastructure projects are made within a complicated, and high risk economic framework in terms of project financing conditions and regional economy risks (Dimitriou et al., 2015).

Decision makers have recognized the contribution of large transport infrastructure investment to the economy (Elliasson et al., 2012). Governments and authorities therefore rightly acknowledge the benefit of investments in transport infrastructure projects in order to achieve socioeconomic goals. In principal, the stakeholders of all functions of transport, economic, social and environmental system involved in decision process consider different perspectives. In terms of diversity of the decision maker's expectations, this may lead to conflicts in planning and implementation of strategic plans, making authorities and different stakeholders defense to accommodate additional demand.

This paper focuses on an evaluation framework that provides a step up and down methodology, which in two stages makes use of a combination of assessment and evaluation methodologies. The proposed methodology provides an evaluation framework based on a combination of an ex ante assessment analysis taking into consideration the large transport infrastructure's economic impact and the effects diversification to regional ecosystem. This approach is essential to provide key messages to national governments, decision makers and stakeholders regarding the contribution of new large transport infrastructure investment towards regional development. The case study adopted to illustrate the application of this methodology is two new large transport infrastructure projects in two different regions in the nation of Greece in south-east Mediterranean.

The paper is organized as follows: Following from this introduction, the key literature sources and concept analysis are presented, along with a description of the methodology assessment framework. The case study is considered in the next section with the application of the framework. This results in a comprehensive assessment through the incorporation of the methodology framework. The paper finally outlines the conclusions and references.

## II. TRANSPORT INFRASTRUCTURE AND ECONOMIC DEVELOPMENT

It is widely recognized that transport infrastructure projects play an important role in regional economic development and are a crucial generator of socioeconomic prosperity for countries. The supply of these infrastructure projects as well as a service on health, education, justice, security, communications, the environment and the functioning of the public sector is a priority and concern of the governments. Although regional development is essentially a multidimensional concept, it is very often limited to employment, production or income indicators. A major aim of many regional policies is to reduce disparities, so that the overall picture of the economy is more in agreement with socio-economic objectives regarding equity.

According to Mackie et al., 2014, the implementation of an effective and efficient strategy requires an integrated approach which while considering the external socioeconomic environment interaction with the transport infrastructure project, which is defined by two basic parameters - economic development and political aiming. In order to investigate further the relationship between the external environment and the transportation system, the external environment has to be categorized into several dimensions, such as, territorial, institutional, economic and social.

Adequate infrastructure is a fundamental precondition for transport systems. Decision-makers in governments and international organizations face difficult challenges. These include the existence of physical barriers or hindrances, such as insufficient or inadequate transport infrastructures, bottlenecks and missing links, as well as lack of funds to remove them. Transportation agencies face municipal, state and federal; budget constraints, so awareness of funding priorities based on the physical condition of transportation system is key. The decisions to rehabilitate, expand, and construct new systems depend on the conditions of existing systems and competing modes. Furthermore, the scarcity of traditional transportation funding is contributing to a growing gap between the funds required for improvements and the funds available to do so. A well functioning and efficient transportation system depend on both its capacity and infrastructure condition.

Infrastructure investment covers spending on new transport construction and the improvement of the existing network. Infrastructure investment is a key determinant of performance in the transport sector. Inland infrastructure includes road, rail, inland waterways, maritime ports and airports and takes account of all sources of financing. Efficient transport infrastructure provides economic and social benefits to both advanced and emerging economies by: improving market accessibility and productivity, ensuring balanced

regional economic development, creating employment, promoting labour mobility and connecting communities. Decision makers have long been concerned with the question of whether transport and large transportation infrastructure investment leads to economic development (Dimitriou, et al., 2017; Macharis et al., 2015; Van et al., 2014; Bismark et al., 2014). Decision making implies making choices, specifically in the case of large transportation infrastructures related to policy making for budget allocations and choices between alternatives for a new road or a new railway or another large transportation infrastructure project (Kelly et al., 2015).

Governments and decision makers promote public investment in large transportation infrastructure projects in order to achieve socioeconomic goals. Arguments for significantly boosting investment, especially in large infrastructures, in order to achieve sustained growth rest on high returns on investment in capital-scarce environments and the pressing deficiencies in these areas. One of the most critical issues for decision makers is to select which public investment projects will be funded.

There are many empirical analyses and ex-post assessments in literature that analyse the economic impact of large transportation infrastructure projects (Reisa et al., 2009; Correa et al., 2001; Mackie et al., 2014; Elliasson et al., 2012; Nelson et al., 2010). Crescenzi et al. (2012) emphasise the fact that transport infrastructure has represented one of the cornerstones of development and cohesion strategies in the European Union (EU) and examine to what extent transport infrastructure endowment – proxied by regional motorways – has contributed to regional growth in the EU between 1990 and 2004. The results of the panel data regressions indicate meagre returns for infrastructure endowment on economic growth, raising interesting questions about the opportunity costs of further infrastructure investment across most of Western Europe.

In order to better understand the impact of transportation infrastructure expenditures on national economies, Bismark et al. (2014) undertook an aggregate study of the relationship between transportation infrastructure expenditure and gross domestic product from the economies of 40 countries using three econometric frameworks (ordinary least squares, random-effects and random-parameters models) and data from 1992 to 2010. The estimated results show considerable variability across countries, with the impact of transportation infrastructure expenditure varying as a function of the country's existing transportation infrastructure and the reliance of specific economic sectors on transportation in each nation.

In addition there has been an extended interest in analyzing the economic effects of transportation of

specific transportation networks, such as the impact on highways on regional economic development and urban regional development (Baum-Snow, 2007; Duranton et al., 2012; Datta, 2012).

Investment decisions are made in the face of uncertainty over future impacts. Ex-ante appraisals of the effectiveness of transportation infrastructure projects minimise this uncertainty and play a large part in the decision making and selecting projects for funding. Kelly et al. (2015) analysed the project level outcomes of ten large transport projects spread over eight countries that had benefited from EU Cohesion and ISPA funding and found that there is a clear need to improve the quality and consistency of ex-ante analysis, particularly in the areas of capital cost estimation, travel demand modelling and risk analysis. They also identified the limited role that formal decision-making analytical methods such as cost-benefit analysis and multi-criteria analysis play in the decision-making process of the countries surveyed.

Limitations in large project ex-ante evaluations stem from issues where such projects are capital intensive and require long project preparation periods and even longer project pay-back periods where both intentional or unintentional risks from the evaluation may arise and/or market trends may alter. Salling et al. presented a decision support system that enables decision makers to assess various project appraisal uncertainties in a systematic and explicit manner and concluded that the appraisal of large infrastructure projects can be effectively supported by addressing uncertainty issues. Mohamed et al. 2013 proposed a method capable of modelling the effects of both monetary and non-monetary aspects of an investment option, using interval mathematics to assess the inherent uncertainty associated with such aspects

### III. ECONOMIC IMPACT ANALYSIS OF TRANSPORT INFRASTRUCTURE PROJECTS

Economic impact analysis (EIA) unveils how transportation facilities and systems affect businesses, governments and households. Many researchers claim that transportation infrastructure and investments are vital for the economy and serve as engines that fuel economic growth.

Concerning the role of transport infrastructure investments to economic development, many researchers review the relationship of transport infrastructure projects and economic development. Investments in transport infrastructure, the development of management expertise and cultural exchange benefits affect various sectors of the regional economy (Dimitriou et al., 2017; Dywer et al., 2014).

Especially the transport infrastructures projects that affect tourism industry, their contribution is more essential to regional economic development (Lee et al.,

2008). There many researchers that have analyzed the main methodology framework to estimate the impact on the economic system especially for the regions heavily depended on tourism (Dimitriou and Sartzetaki, 2018; Dimitriou et al., 2017; Dimitriou and Sartzetaki 2017b; Dimitriou et al., 2015). Institutions, associations and governmental bodies widely recognize the need for monitoring transport demand and adopting strategies to exploit the economic benefits for local society (Dimitriou and Sartzetaki, 2016).

Economic impact analysis traces the effects of expenditures of the transport sector through the economy. An initial expenditure circulates through the economy and creates and chain reaction of additional expenditures (Dimitriou and Sartzetaki, 2019a). The quantification of benefits is calculated through economic impact analysis. Economic impact analyses usually are based on two different methods for analyzing economic impact. The methods employed are the input-output analysis (IO analysis) and General Equilibrium Models (CGE).

### IV. ECONOMIC IMPACT CATEGORIES

There are four distinguished categories of transport infrastructure economic impact.

*Direct impact:* Direct impact is the impact with local firms providing support services to the t. These jobs are dependent upon this activity and would suffer immediate dislocation if the seaport activity were to cease. For the case of ports, direct jobs include jobs with railroads and trucking companies moving cargo to and from Port marine terminals and private terminals, freight forwarders, terminal operators, etc (Dimitriou et al., 2017). For the case of air transport direct impact is generated by air carriers, operations, aircraft maintenance, air traffic control and activities directly serving air passengers, such as check-in, baggage-handling, on-site retail and parking. (Dimitriou and Sartzetaki, 2018).

*Indirect impact:* Indirect impact generated in the local or regional economy is the income as the result of local purchases by the firms directly dependent upon the transport infrastructure activity. These indirect jobs generated include jobs in supply firms, equipment and parts suppliers, maintenance etc. For the case of air transport, the indirect contribution of air transport is quantified as the total number of jobs in the region that support the air transport activity, including the suppliers to air transport, for example, jobs linked to aviation fuel suppliers; facilities management and construction companies; the providers of products sold in airport retail shops, and a wide variety of supporting activities related to the air transport services sector (call centres, IT, etc.) (Dimitriou and Sartzetaki, 2018).

*Induced impact:* Induced impact is the income created throughout the regional economy due to purchases of

goods and services by those directly and indirectly employed (Cervero et al., 2003). Therefore, induced contribution captures the secondary impacts to the economy as direct/indirect sales, and payroll impacts are circulated to supporting industries through multiplier effects (Dimitriou and Sartzetaki, 2018).

**Catalytic impact:** Catalytic impact identifies the drivers of national economic development interacted with transport sector. For the case of ports, the catalytic is throughout the state with manufacturing and wholesale and retail distribution firms using the seaport terminals for the shipment and receipt of cargo (Dimitriou et al., 2017). For the case of air transport catalytic there are many and different sources of catalytic economic impact, covering most of the business activities and tourism. Therefore, the catalytic effects represent the income generated by the air transport international tourist arrivals are the spillovers effects due to tourism spending. (Dimitriou and Sartzetaki, 2018)

#### a) Economic Impact Models

In literature there are many researchers used IO analysis to estimate the economic impact of transport infrastructure in economy. Setol et al. (2009) used an input output inoperability model as a mechanism for analyzing the induced effects caused by critical infrastructure dependencies and interdependencies. Developed by Wassily Leontief in the 1930s, Input-Output analysis analyzes the interdependence of industries within a given economy.

Dimitriou et al. (2011) presented an instructive defensible picture of the economic and employment impacts that can arise from the development of the new airport in a Greek island. As was calculated in the input output analysis approximately 4000 direct, 1500 indirect jobs are estimated to be supported inside the airport. The circulation of direct and indirect impacts through the regional economy will generate additional multiplier impacts associated with suppliers and additional earnings and wages. The application of the method suggested that these impacts will result in an additional 10.200 regional jobs and output of 970 million Euros in the region. The total value added of the airport on the Region of Crete will be 970 million Euros.

Dimitriou and Sartzetaki (2018) analyzed the air transport sector contribution in Greece in last eight years. The results indicated that thorough the last year's economic downturn there is a high dependence of air transport sector to economy. The results indicated that in terms of generated income, while the total income in Greek economy is reduced about 25% between 2008 and 2016, the income caused by air transport is reduced less than 7% in the same time, providing evidence of the aviation business resilience. The results highlighted key messages to decision makers and stakeholders regarding the air connectivity and economy linkage and provide an essential tool to

estimate the impact of alternative policies and investments in industries related to air connectivity, aviation and tourism.

Dimitriou et al. (2017) estimated the macroeconomic impact arising from the major seaport assets using an Input–Output Analysis model. The results indicated in terms of employment, the port-related and shipping related jobs represent the 10% of total employment and represents 9.2% of Greece total income nationwide in 2014. The findings highlight the high contribution and especially of the manufacturing sector across the State, who export products and materials through the main ports of Greece, to economic growth.

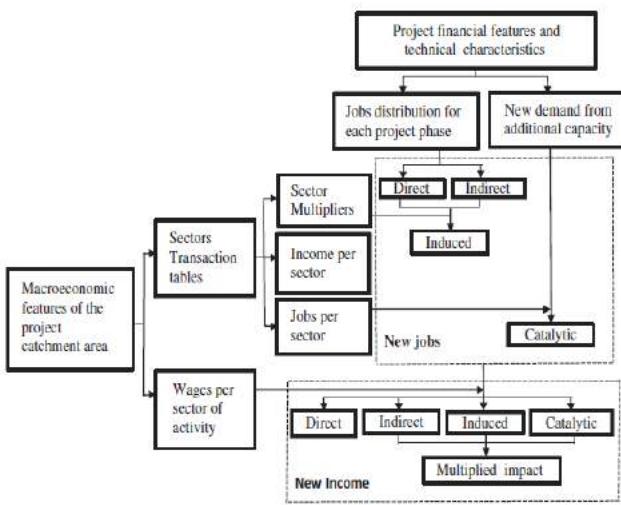
Dimitriou et al. (2017) estimated the contribution of air transport sector in 2014 and investigated the forward linkage sectors of the average annual estimated macro-economic effects associated with the air transport sector highlighting those key economic sectors that will mainly benefit from air transport industry. The key sectors were highlighted to be wholesale trade, transportation, accommodation and food service activities. The estimated results provide a strong evidence of the existence of long run cointegrating relationship among economic growth, air transport and unemployment reduction investigating the high level of coverage of national socioeconomic targets caused by air transport industry.

#### b) Foundation of the IO Model

The Input-Output analysis has been developed by the economist Wassily Leontief and shows how the parts of a system are affected by a change in one part of that system (Leontief, 1986). The basic structure of input output model and the collection of data to describe and quantify that structure, provide decision makers with a more thorough understanding of the internal processes of the institution being studied. Input-Output analysis is based on a system of linear equations that describe the distribution of an industry's product throughout an economy.

IO analysis based on the concept of multipliers is an appropriate approach to evaluate how an economy may react to specific policies or external shocks or changes such an investment in a new transportation infrastructure project. More specific, IO tables provide a complete picture of the flows of products and services in an economic system for a given year, illustrating the relationship between producers and consumers and the exchange of goods and services among economic sectors (Dimitriou et al., 2015; Zeng 2010). In other words, they illustrate all monetary market transactions between various businesses and between businesses and final demand sectors (i.e. consumers, government, investment, exports, etc.). Thus, they can be used to construct disaggregated multipliers in order to estimate apart from the direct impacts of a particular investment

also its indirect and induced impacts. (Dimitriou et al., 2017).



*Graph 1:* IO model depiction (Dimitriou et al., 2015 ).

According to Miller and Blair (2009), it is assumed that the economy can be categorized into  $n$  sectors. If the total output is denoted by  $x_i$  and by  $f_i$  the total final demand for sector  $i$ 's product, then the simple equation accounting for the way in which sector  $i$  distributes the product through sales to other sectors and to final demand is:

$$x_i = a_{i1} + \dots + a_{ij} + \dots + a_{in} + b = \sum_{j=1}^n a_{ij} + b_i \quad (1)$$

In IO analysis, the fundamental assumption is that the flows of sector  $i$  to  $j$  depend on the total output of sector  $j$ . The  $a_{ij}$  terms represent inter industry sales by sector  $i$  (also known as intermediate sales) to all sectors  $j$  (including itself, when  $j = i$ ).

An economic system is expressed by a monetary input output table. This table the sum of every sectoral final output value equals the sum of every sectoral value-added, which is called the gross national product (Zeng, 2010).

### c) Technological coefficients derivation

The fundamental step after the assumptions and definitions is to convert the inter-industry transaction table into the Direct purchase coefficients table (McCann, 1998; Zeng, 2010). Based on the fundamental assumption of the IO model that the flows of sector  $i$  to  $j$  depend on the total output of sector  $j$ , the technical coefficient can be derived by dividing the inter-sectoral flows from  $i$  to  $j$  ( $a_{ij}$ ) with total output of  $j$  ( $X_j$ ). This will be the output by dividing each inter-industry transaction in the IO table by each industry's total Input. The Equation that derives the Technical Coefficient Table is

$$f_{ij} = \frac{a_{ij}}{X_j} \quad (2)$$

where,  $a_{ij}$  is also often termed as IO coefficient and (direct) input coefficient. The  $a_{ij}$  is regarded as determining fixed relationships between a sector's output and its inputs so can be expressed as follows:

$$a_{ij} = \frac{f_{ij}}{X_j} \quad (3)$$

IO model describes an economic system in which  $n$  industries (each producing a single commodity) interact with each other using, as inputs, the outputs of the  $n$  industries. In its basic formulation the equilibrium equation of this model can be written in matrix form as Miller and Blair, 2009 define:

$$(I - A)^{-1}X = F \quad (4)$$

Where

$I = n \times n$  unit matrix

$X =$  nonnegative vector of gross output of each production sector

$F =$  nonnegative vector of final demand

$A = n \times n$  nonnegative matrix of technological coefficients or the input-output matrix

$n =$  number of production sectors in which  $(I - A)^{-1}$  is referred to as the multiplier, or Leontief inverse matrix (Miller and Blair, 2009).

The matrix  $(I - A)^{-1}$  which is the inverse of  $(I - A)$  in the case of  $n$  sectors is the Leontief matrix and is the key ingredient of the model. It is a representation of the nation's (or the region's) economy and helps to predict the effect of changes in one industry on others and shows all the connections between the different sectors of the economy.

## V. ATTRIBUTE OF TRANSPORT INFRASTRUCTURE EFFECTS DIVERSIFICATION TO ECOSYSTEM (EDES)

The Economic Impact Diversification to Ecosystem Indicator (EDI) is used as a measure of the ecosystem sectors entropy. The entropy measure compares the existing employment or income distribution among different sectors in a region to an equiproportional distribution. Higher entropy performance indicator values indicate greater relative diversification, while lower values indicate relatively more specialization. The maximum value of the measure would result with the equal distribution of employment among all sectors. The minimum value of zero (maximum specialization) would occur if employment were concentrated in one sector. On the other hand, if employment were distributed equally among the  $N$  sectors, the entropy index would reach its maximum value, indicating perfect diversity.

**Table 1:** Sectors of A10 classification according to Nace Rev. 2

A	Agriculture, forestry and fishing	A1
B_C_D_E	Mining and quarrying, manufacturing, electricity, gas, steam, air conditioning and water supply, sewerage, waste management and remediation activities	A2
F	Construction	A3
G_H_I	Wholesale and retail trade, repair of motor vehicles and motorcycles, transportation and storage, accommodation and food service activities	A4
J	Information and communication	A5
K	Financial and insurance activities	A6
L	Real estate activities	A7
M_N	Professional, scientific and technical activities, administrative and support service activities	A8
O_P_Q	Public administration and defense, compulsory social security, education, human health and social work activities	A9
R_S_T_U	Arts, entertainment, recreation, other service activities, activities of households as employers, undifferentiated goods and services producing activities of households for own use, activities of extraterritorial organizations and bodies	A10

The framework is based on employment data for 38 sectors (classification ISIC Rev. 4/ NACE Rev. 2), grouped in 10 categories(A10)according to ISIC 4 Rev. 4/ NACE Rev. 2, as analytically given in table 1.

The equation is based on the following formula:

$$EI_t = \sum_{i=1}^N S_i \ln\left(\frac{1}{S_i}\right) \quad (5)$$

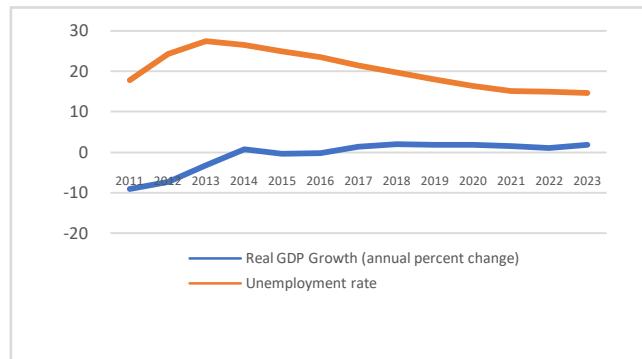
where N= is the number of grouped sectors, Si =share of economic activity in ith sector and ln is natural logarithm.

EDES evaluates the diversification of the regional ecosystem sectors of the case study area economic system prior and after the large transport infrastructure development.

## VI. NUMERICAL APPLICATION

### a) Case study area economic features

Greece's after a depression since 2011 until 2016 (Graph 2), in 2017 economic recovery is gaining traction. GDP has started to recover after having fallen by a quarter from 2011 (Graph 2). In the last two years, the pace of reforms has accelerated and broadened (IMF, 2018). Despite these positive developments, challenges abound GDP per capita is still 25% below its pre-crisis level (IMF, 2018).



**Graph 2:** Real GDP growth and unemployment rate (2011-2017) and projections for 2018-2023 for Greece (IMF, 2018).

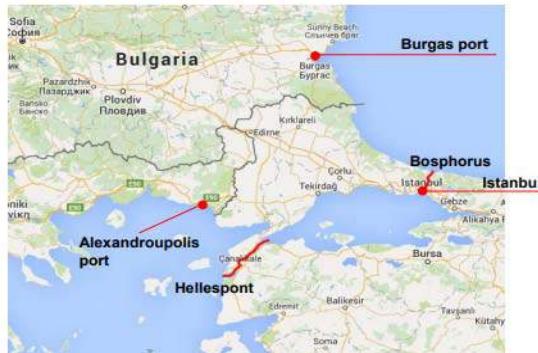
*Case study 1: Logistic centre development in North Greece*

The framework is applied in a strategic logistics hub in North Greece. The new large transport infrastructure investment project aims to optimize the transportation system, to enhance the performance of logistics and multimodal transport chains, advances the continuous integration of transport infrastructure and transport development (Sartzetaki and Dimitriou, 2019a).The investment will satisfy the overall need for developing a logistics hub in North Greece to support multimodal transportation between Greece and Bulgaria.

The development of transit hub includes infrastructure development of integrated management

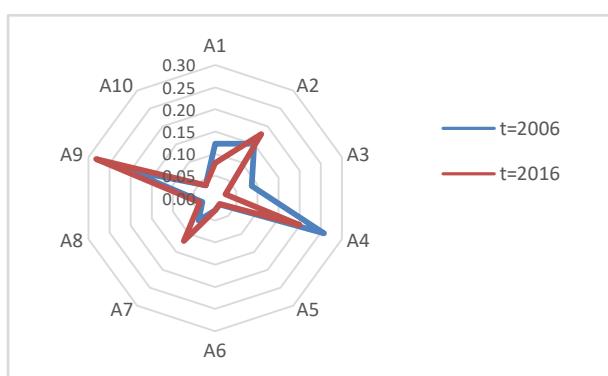
through multimodal land (road and rail) with the network of international ports in the region. The project also involves the renovation of 180km single rail track between the Alexandroupolis city and Ormenio/Bulgarian border. This project is expected to attract more international transit traffic to fully exploit the strategic location of the country.

From a geostrategic point of view, this project will further strengthen the country's role, as it will be connected with the port of Burgas, enabling this way Greece to become an international freight hub for Central and Eastern Europe.



*Graph 3:* Strategic location of the project area (source: Dimitriou and Sartzetaki, 2019)

The regional ecosystem of the new project catchment area is driven mainly by the A4 thus wholesale and retail trade, transportation and storage, accommodation and food service activities and A9 thus public administration social security, education, human health and social work activities. The regional ecosystem sectors diversification change in last ten years is analytically depicted in following graph.



*Graph 4:* Sectors diversification (A10) in regional ecosystem for case study 1 project catchment area

#### Case study 2: Airport development in South Greece (Crete island)

Crete island in Greece is a faraway European destination (over 3.000 miles) from the countries that represent the main sources of tourist market, and is highly depended on air transport. Heraklion airport (IATA: HER) is the biggest airport in Crete and the

second busiest airport in Greece, with very fast growing traffic volumes, handling above seven million tourists a year (7.97 million passengers in 2018), (25) with 83% International passengers share. The 80% of total passenger traffic concerns the tourism season (May – October) and around 50% concerns the peak season extend from July to September each year (HCAA, 2019).

As the airport has constraints imposed by its limited runway length, terminal facilities and safety standards, operational constraints, the airport capacity needs to increase as failure to increase the capacity will have a negative impact on regional and national economic growth and international competitiveness. In response to this situation, a new airport will be developed under an international tender, located in Kasteli, a new site 20 km north of the city of Heraklion. The Government acknowledges that this new gateway will help the still struggling economy to recover. In 2018 there was bidder in the international tender for the project development.



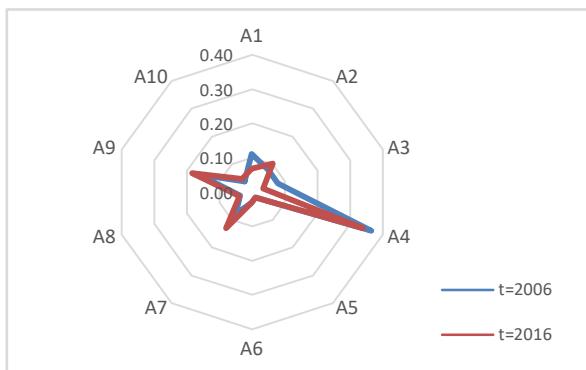
*Graph 5:* Case study airport location (source: google maps; accessed July 2019)

#### b) Project key features

The Project concerns the design, construction and commissioning of a new international airport in the area of Kasteli of Crete, with a capacity of fifteen (15) million passengers per year. The construction cost of the new airport is estimated at EUR800 million comprised mainly of the construction costs of runways, terminal, roads, parking lots and control tower and is expected to start operation after 5 years construction period. The project financing and management scheme will follow Public-Private Partnerships (PPP) Guidelines. The new airport will be developed on a design, build, finance, operation and maintenance (DBFOM) basis for a period of 35 years. The key technical features for the new airport in comparison with the existing one depicted in the Table 2.

The regional ecosystem of the new project catchment area is driven mainly by the A4 thus wholesale and retail trade, transportation and storage, accommodation and food service activities especially

based on tourism. The regional ecosystem sectors diversification change in last ten years is analytically depicted in following graph.



*Graph 6:* Sectors diversification in regional ecosystem for case study 2

## VII. RESULTS - EFFECTS DIVERSIFICATION TO REGIONAL ECOSYSTEMS

### Case study 1

#### a) Economic effects based on IO modeling results

Considering the uncertainties in future estimates of the financial parameters and the characteristics of the investment involving a payback period for the project over 30 years and based on the most likely demand scenarios the IO modelling framework is applied to derive the direct, indirect and induced total impact created by the project on the annual output (in million €). The large transport infrastructure project results in an annual increase of the total income ranging from €1.5m to €0.6m for direct income generation, from €1.8m to €0.75m for indirect income creation, from €3.02m to €1.2m for induced income generation, for the 5 year of operation as depicted in following table.

*Table 2:* Effects in terms of income generated due to logistic center development

Income (€ million)	Direct	Indirect	Induced	Total
1st year	1.500	1.800	3.028	6.328
2nd year	0.900	1.080	1.817	3.797
3rd year	0.600	0.720	1.211	2.531
4th year	0.612	0.734	1.235	2.582
5th year	0.624	0.749	1.260	2.633
5-year Average	0.8472	1.0166	1.7102	3.5742

#### b) Effects Diversification to regional ecosystem

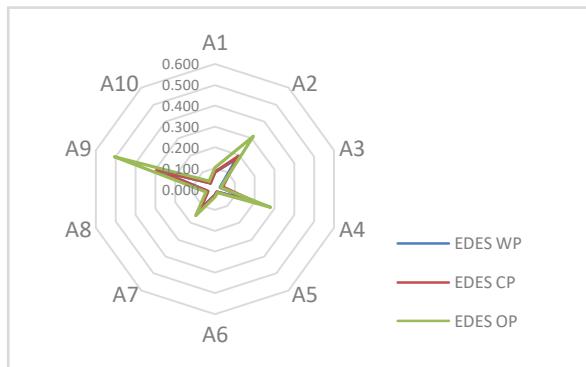
Analyzing the diversification index and investigating the forward linkage sectors of the average annual estimated macro-economic effects associated with the two different case study transport infrastructure projects, those key economic sectors that will mainly benefit from the projects are highlighted.

During construction period, the key sector that moves from the value 0.17 to value 0.30 will be the construction sector. This indicates that a unit change in final demand in this sector will create an above average increase in activity in the economy, and unit change in all sectors of the final demand will create an above average increase of output in this sector. During Operational period the key sector that are enlarged are the trade, transportation and accommodation, therefore the group of sectors corresponding to Wholesale and retail trade, repair of motor vehicles and motorcycles, transportation and storage, accommodation and food service activities move form value 0.20 to 0.28.

*Table 3:* Effects diversification to ecosystem results

	CASE STUDY I		
	WP	CP	OP
A1	0.079	0.080	0.103
A2	0.178	0.195	0.313
A3	0.025	0.040	0.027
A4	0.200	0.220	0.280
A5	0.017	0.018	0.022
A6	0.029	0.030	0.037
A7	0.120	0.126	0.156
A8	0.036	0.037	0.046
A9	0.281	0.295	0.506
A10	0.035	0.037	0.046

This EDES evaluated the diversification of the different sectors of the case study area ecosystem without the projects (WP) prior and after the project implementation and thus the contribution of the project to the differentiation of the economic system and therefore towards economic and business development.



*Graph 7:* Effects Diversification from logistic center development to regional ecosystem

### Case study 2

#### a) Economic effects based on IO modeling results

Based on an assumed peak on-site construction workforce of 1000 employees (ACI, 2015), direct employment supported by implementation of the proposed airport development is estimated to average 1100 FTE positions a year for four years, giving a total of

4000 annual FTE positions over the five years of construction period. Flow-on employment is estimated to average 324 FTE positions a year for five years, giving a total of 1620 annual FTE positions over the five years construction period. Total employment supported by implementation of the proposed development is estimated to average 570 FTE positions a year for five years, giving a total of 2855 annual FTE positions over the five-year construction period.

Table 4 presents analytically the calculated annual impacts in terms of employment and income for the five years of the new airport construction period.

**Table 4:** Effects in terms of income generated due to airport development

Income (€ million)	Direct	Indirect	Induced	Total
<b>CP- Construction Period</b>				
1st year	16	5.0	64	85
2nd year	24	7.5	96	127.5
3rd year	24	7.5	96	127.5
4th year	20	6.0	80	106
5th year	10	3.0	38	51
5 years average	18.8	5.8	74.8	99.4
<b>CO- Operation Period</b>				
	Low scenario	Basic scenario	High scenario	
Annual direct income	78	109	150	
Annual indirect income	24	33	45	
Annual induced income	55	100	138	
Annual Catalytic income	330	450	600	
Total annual income	409	691	933	

In terms of income it is estimated that due to airport project in the construction period will be generated EUR18.8 mio direct, EUR 5.8mio indirect, EUR 74.8mio induced and EUR 99.4mio total on average annually for the 5years period.

The operating life of the airport is set at 35 years. Assumption scenarios for the direct impact of the airport have been constructed for the first year of operation of the new airport. The relocation and expansion of the airport is expected to enable an increase of air passengers and reach 10-12 million passengers in the initial stage of operation (first year of operation).

According to ACI, 2015 analysis on the social and economic impact of European airports suggested that every 1000 passengers travelling through European airports is associated with an average 0.954 direct jobs (26), highlighting that economies of scale are significant in the airport environment even though different airline business models and operations require different number of workers on and around the airport campus. Based on this analysis and other evidence that connecting passengers create 3% less direct jobs than Origin/Destination passengers and Low Cost Carriers

(LCC) passengers generate 20% less direct jobs than non LCC passengers; an analysis of the data traffic at Heraklion 2012-2017 and information regarding the use of the airport by LCCs indicates estimation of average of 700 employees for the months of high demand (7 months of high demand for the low scenario, 9 months of high demand for the basic and full season demand (12 months) for the high scenario) and of 400 employees for the non-high demand months.

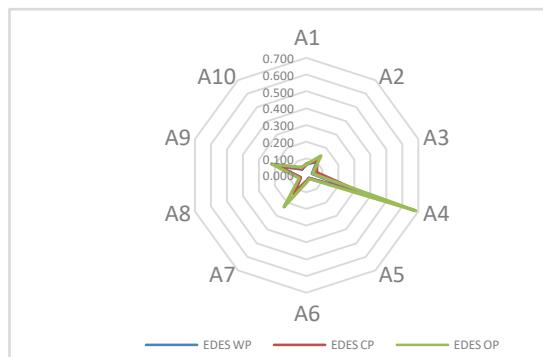
#### b) Effects Diversification to regional ecosystem

During construction period, the key sector that moves from the value 0.034 to value 0.062is the construction sector. This indicates that a unit change in final demand in this sector will create an above average increase in activity in the economy, and unit change in all sectors of the final demand will create an above average increase of output in this sector. During Operational period the key sector that are enlarged are the trade, transportation and accommodation, therefore the group of sectors corresponding to Wholesale and retail trade, repair of motor vehicles and motorcycles, transportation and storage, accommodation and food service activities move form value 0.341 to 0.682.

**Table 5:** Effects diversification to ecosystem results

	CASE STUDY 2		
	WP	CP	OP
A1	0.069	0.071	0.069
A2	0.104	0.107	0.146
A3	0.034	0.062	0.038
A4	0.341	0.375	0.682
A5	0.019	0.020	0.025
A6	0.031	0.032	0.037
A7	0.130	0.136	0.233
A8	0.039	0.041	0.047
A9	0.183	0.193	0.220
A10	0.049	0.052	0.059

This EDES evaluated the diversification of the different sectors of the case study area economic system prior and after the airport project implementation and thus the contribution of the project to the differentiation of the economic system and therefore towards economic development.



**Graph 8:** Effects Diversification to regional ecosystem from the airport development

### VIII. CONCLUSIONS

The paper provided the evaluation methodology approach into a context to support decisions towards new large transport infrastructure projects. The proposed methodology provided an evaluation framework based on a combination of an ex ante assessment analysis taking into consideration the transport infrastructure economic effects and their diversification to regional ecosystems. The Input Output analysis framework was used to determine the economic footprint of the two case study projects development and an entropy-based index was introduced to review the projects effects diversification in a given regional ecosystem.

The results for the construction period provide strong evidence of the existence of a long term co-integrating relationship between economic growth, infrastructure investment and unemployment reduction resulting in the achievement of regional economic targets especially in difficult economic circumstances under stress for both projects. Increasing and sustaining the level of air transport investment can make a positive contribution to the achievement of the objectives of accelerated and regional economic growth, contribute to achieve and cover the targets for socioeconomic development.

In contrast in operation period the results suggest that investment in an airport infrastructure in restricted economic conditions and financing assumptions, where the project business plan performance is strongly related to regional development prospects and future airport business affect significantly the sector diversification to the regional ecosystem in the operation period in comparison with the logistic center development.

It is imperative, therefore, to encourage decision makers to invest in such infrastructures as part of a decision-making process to bring about a sustained recovery in economies suffering from stress and reduce the high levels of poverty and unemployment within a country and achieve the enlargement of business sector diversification to regional and national ecosystem.

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## Analyse Du Pass-Through Du Taux D'intérêt Au Maroc

By Khalid Harraou

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**Résumé-** Le taux d'intérêt du marché monétaire joue un rôle fondamental comme courroie de transmission de la politique monétaire. En effet, à travers ce canal, la banque centrale transmet ses impulsions monétaires au secteur réel de l'économie via les répercussions sur les taux d'intérêt offerts par les institutions bancaires. La connaissance du degré d'ajustement des taux bancaires par rapport aux taux du marché monétaire s'avère incontournable compte tenu du fait que cela permet de mesurer l'efficacité de la politique monétaire à travers le canal du taux d'intérêt.

Cet article est consacré en particulier, à l'examen de la relation entre le taux du marché monétaire et les taux bancaires à travers l'analyse du pass-through et aussi à étudier la présence d'asymétrie dans la dynamique de transmission de la politique monétaire au niveau du système bancaire Marocain. Pour ce, un Modèle à Correction d'Erreur est utilisé pour mesurer le degré de réactivité des taux bancaires suite aux modifications des conditions monétaires.

**Mots clés:** *pass-through, politique monétaire, canaux de transmission, taux débiteurs, taux créditeurs, taux interbancaire, modèle à correction d'erreur (MCE).*

**GJMBR-B Classification:** JEL Code: H29



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**Résumé-** Le taux d'intérêt du marché monétaire joue un rôle fondamental comme courroie de transmission de la politique monétaire. En effet, à travers ce canal, la banque centrale transmet ses impulsions monétaires au secteur réel de l'économie via les répercussions sur les taux d'intérêt offerts par les institutions bancaires. La connaissance du degré d'ajustement des taux bancaires par rapport aux taux du marché monétaire s'avère incontournable compte tenu du fait que cela permet de mesurer l'efficacité de la politique monétaire à travers le canal du taux d'intérêt.

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Pour tester la présence d'asymétrie dans la transmission des chocs monétaires, un modèle à seuil est donc utilisé, lequel est un prolongement du modèle à correction d'erreur. Les résultats des estimations ont révélé un degré élevé du pass-through des taux débiteurs et un faible pour les taux créditeurs, avec des effets asymétriques dans certains cas.

**Motsclés:** *pass-through, politique monétaire, canaux de transmission, taux débiteurs, taux créditeurs, taux interbancaire, modèle à correction d'erreur (MCE).*

## INTRODUCTION

Dans la poursuite de ses objectifs, qui consistent principalement en la stabilité des prix, la Banque Centrale du Maroc dispose de plusieurs canaux de transmission lesquels permettent la mécanisation des impulsions monétaires au niveau du secteur réel de l'économie du pays.

Au cours de ces dernières décennies, il existe une abondante littérature sur les mécanismes de transmission de la politique monétaire à travers le canal du taux d'intérêt. Toutefois, le taux d'intérêt du marché monétaire joue un rôle prépondérant dans la transmission des décisions des autorités monétaires sur les taux d'intérêt du marché bancaire. Ce mécanisme est plus généralement connu comme le pass-through des taux directeurs sur les taux offerts par les institutions bancaires. La connaissance du degré et de la vitesse de ce mécanisme est fondamentale pour la banque centrale dans la mesure où elle renseigne surtout sur l'efficacité de la politique monétaire.

Suite à une variation des taux du marché monétaire, l'ajustement des taux bancaires se fait de manière plus ou moins rapide selon qu'il s'agit des taux sur les dépôts ou encore sur les prêts, étant donné les coûts d'ajustement supportés par les banques commerciales. La transmission dépendra alors de plusieurs facteurs dont le niveau de développement du marché financier, le degré de concurrence, la volatilité des taux directeurs pour ne citer que ceux-là.

Parmi les points révélateurs dans la littérature économique sur la transmission des impulsions monétaires via le taux directeur sur les taux bancaires, on retient que le pass-through est parfois lent et incomplet à court terme mais complet à long terme. Ainsi, les changements opérés au niveau du marché monétaire domestique, suite aux décisions de politique monétaire, qui modifient les conditions du marché, se transmettent avec des retards sur les taux bancaires. Ce phénomène se traduit par la notion de viscosité<sup>1</sup> des taux bancaires.

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<sup>1</sup> La viscosité des taux bancaires s'explique par le fait que ces taux s'ajustent parfois très faiblement et lentement suite aux modifications des conditions du marché découlant des décisions de politique monétaire.



L'une des premières tentatives d'explication de cette viscosité ou encore du degré d'inertie des taux bancaires a été l'œuvre de Stiglitz et Weiss (1981). Le fait est qu'il existe de l'asymétrie informationnelle au niveau du marché bancaire peu concurrentiel, ce qui conduit à un rationnement du marché. Dès lors, les gains espérés des banques sont une fonction des taux d'intérêt sur les prêts.

Etant donné que la probabilité d'avoir un défaut de paiement augmente d'autant que les taux d'intérêt sont élevés, alors toute hausse des taux d'intérêt est susceptible de provoquer une hausse des risques de portefeuille des prêts bancaires par sélection adverse ou aléa moral. Dans cette logique, les banques ne peuvent pas augmenter les taux débiteurs même dans les cas où elles font face aux coûts marginaux. Tout ceci peut se traduire par le fait que les investisseurs prudents seraient découragés et d'autres plus averses au risque seraient attirés par ces taux élevés. Autrement dit, les prêteurs auront tendance à investir dans des projets plus risqués à cause des taux d'intérêt élevés. En effet, l'existence de l'asymétrie informationnelle entre prêteurs et emprunteurs sur le marché des prêts peut générer une certaine viscosité des taux d'intérêt sur les prêts bancaires.

L'objectif de ce papier est d'examiner le degré et la vitesse d'ajustement des taux bancaires suite aux variations des taux du marché monétaire (le degré de pass-through) et à déceler la présence éventuelle d'effets asymétriques dans la dynamique de transmission de la politique monétaire. Pour ce, nous allons recourir à l'estimation d'un Modèle à Correction d'Erreur (ECM) en utilisant des données trimestrielles pour la période 2008-2017, puis une variante du modèle ECM (modèle à seuil) pour étudier la dynamique asymétrique.

Notre article se fera comme suit : en première partie, nous fournissons une brève revue de la littérature du taux d'intérêt et du pass-through. Dans la suite de ce papier, nous nous intéresserons à la méthodologie adoptée dans le cadre de cette étude, enfin la présentation et l'interprétation des résultats empiriques.

## CADRE THÉORIQUE

### I. LITTÉRATURE THÉORIQUE DU TAUX D'INTÉRÊT ET DU PASS-THROUGH

#### a) Théorie du taux d'intérêt

Le taux d'intérêt d'un prêt ou d'un emprunt, détermine la rémunération du capital prêté par un agent économique à un autre. Le montant remboursé par le prêteur est égal à la somme du capital et des intérêts. Ce taux du prêt dépend de la durée de prêt, de la nature des risques, de l'unité de compte et des garanties offertes par le prêteur.

La définition du taux d'intérêt a créé plusieurs débats théoriques dans la littérature économique. On présente dans ce qui suit les idées de chaque théorie.

##### i. Théorie classique

Selon les classiques, le taux d'intérêt est déterminé par l'offre d'épargne et de la demande d'emprunt. C'est le prix de l'abstinence à la consommation présente pour les ménages épargnantes. La demande d'emprunt est créée par les besoins d'investissement. Ce taux d'intérêt égalise donc l'épargne et l'investissement.

- La demande d'emprunt

La demande d'emprunt se compose de la demande à des fins productives et de consommation. Le capital est demandé par les investisseurs parce qu'il est productif. Mais la productivité du capital est soumise à la loi des proportions variables. C'est-à-dire la productivité marginale du capital diminue en ajoutant des unités de capital.

Il arrive un moment quand la productivité marginale du capital devienne nulle, et donc l'investisseur à un certain moment n'aura plus intérêt à investir, parce que la productivité devient inférieure au taux d'intérêt. On conclut que la demande du capital est inversement liée au taux d'intérêt. Il y'a cependant d'autres facteurs qui régissent la demande de capitaux, tel que la croissance de la population, le progrès technique, le niveau de la vie de la communauté...

- L'offre d'épargne

L'offre du capital dépend de l'épargne. Certains agents épargnent indépendamment du taux d'intérêt, ils continueraient à épargner même si le taux d'intérêt devient nul. Cependant, il y'a d'autres qui épargne parce que le taux actuel les incite à épargner. Cette épargne est une abstinence à la consommation actuelle.

Plus le taux d'intérêt est important, plus les agents seront incités à épargner, plus l'offre de capital sera grande. La courbe d'offre se déplace donc à droite.

- L'équilibre de l'offre et de la demande

Le taux d'intérêt est déterminé par l'intersection de la courbe de la demande et la courbe de l'offre. Ceci est montré dans la figure 1 ci-dessous, avec **E** point d'intersection des courbes **I** et **S**, et **Q** représente la quantité du capital en offre et en demande à un taux d'intérêt **R**.

Si le taux d'intérêt augmente, la demande d'investissement diminue et l'offre de capital augmente.

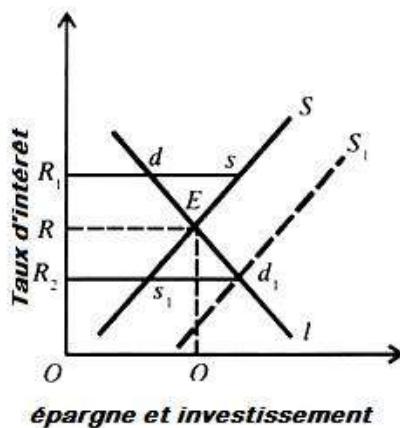


Figure 1: Equilibre entre l'épargne et l'investissement

Cependant, la théorie classique énoncée par Marshall et Pigou a été critiquée par Keynes :

- Le revenu n'est pas constant mais variable : la théorie classique suppose que le niveau de revenu est donné, et considère le taux d'intérêt comme un mécanisme d'équilibre entre la demande et l'offre de fonds. Selon Keynes, le revenu est une variable et non une constante et l'égalité entre l'épargne et l'investissement est provoqué par des variations de revenu et non par des variations du taux d'intérêt.

- L'indépendance entre épargne et investissement : les deux déterminant du taux d'intérêt : les courbes d'offre et de demande sont considérées comme indépendantes, c'est-à-dire si la demande change, la courbe de demande se déplace sans affecter la courbe d'offre. Mais selon Keynes, les deux courbes sont dépendantes. Un déplacement de la courbe d'investissement en haut, le revenu augmente, ce qui va donner une épargne supérieure et par suite la courbe d'offre se déplace aussi en haut. De même un changement dans la courbe d'offre entraînera une variation de la courbe de demande.
- Néglige les effets de l'investissement sur le revenu : la théorie classique néglige l'effet de l'investissement sur le niveau de revenu. Une augmentation du taux d'intérêt par exemple, entraînera une baisse de l'investissement en rendant moins rentable. Cela entraînera une diminution de la production, de l'emploi et du revenu. Ce dernier à son tour, entraînera une diminution d'épargne, ce qui est contradictoire à l'affirmation classique selon laquelle l'épargne est une fonction directe du taux d'intérêt.

D'autre part, un faible taux d'intérêt encourage l'investissement, augmente la production, l'emploi et par suite le revenu et l'épargne.

Selon Keynes, l'investissement ne dépend pas du taux d'intérêt mais dépend de l'efficacité marginale du capital. Même si le taux d'intérêt baisse à zéro, Keynes affirme que l'investissement n'aura pas lieu si l'espérance du profit est faible.

D'autres critiques de la théorie classique c'est qu'elle néglige les autres sources d'épargne, l'hypothèse de plein emploi qui est loin de la réalité, néglige les facteurs monétaires.

### *ii. Théorie Keynésienne*

L'approche keynésienne du taux d'intérêt est le prix qui égalise l'offre et la demande de monnaie. C'est le prix de la renonciation à la liquidité. L'épargne est un résidu qui ne dépend pas du taux d'intérêt, en effet c'est le revenu qui s'ajuste pour équilibrer l'épargne et l'investissement.

La demande de la monnaie chez Keynes est déterminée par trois motifs : motif de transaction, de précaution et de spéculation. Ce sont les motifs de détention de la liquidité par les agents économiques. Par ailleurs l'offre de monnaie est exogène, elle est déterminée par les autorités monétaires du pays.

- La demande
  - Keynes stipule dans son ouvrage « Théorie générale de l'emploi, de l'intérêt et de la monnaie » que le besoin pour la liquidité ou la demande de monnaie se base sur trois motifs :
  - Motif de transaction
 

Les individus ont besoin de la monnaie pour effectuer leurs transactions courantes. En effet comme les dépenses se font pendant une période et les revenus sont généralement reçus à la fin de chaque période, les agents économiques ont besoin de la monnaie sous forme d'espèces pour financer leurs transactions.

Le besoin de la monnaie dépend donc du niveau de revenu de chaque agent. Les agents ayant des revenus plus élevés conservent plus d'argent liquide pour répondre à leurs transactions. En d'autres termes la demande de transaction est une fonction croissante de revenu.

$T_{dm} = f(Y)$  où  $T_{dm}$  : représente la demande de monnaie pour transaction et  $Y$  : le revenu.

- Motif de précaution

Puisque l'avenir est incertain, pour Keynes, non seulement les agents détiennent la monnaie pour effectuer des transactions courantes, mais également pour faire face aux imprévus comme la maladie, la mort, les accidents, le risque de chômage, etc. Le montant de l'argent détenu dans le cadre de ce motif, dépend également du niveau de revenu de l'individu.

Les personnes ayant des revenus plus élevés peuvent se permettre de conserver plus d'argent liquide pour faire face à ces situations d'urgence. Cela signifie que ce type de demande d'argent est également une fonction croissante du revenu.

$P_{dm} = f(Y)$  où  $P_{dm}$  : représente la demande de monnaie pour précaution.

- Motif de spéculation

Ce type de demande est la vraie contribution de Keynes concernant la demande de la monnaie. Le motif spéculatif se réfère à la volonté des agents économiques de détenir des actifs liquides pour pouvoir profiter des mouvements de marché des titres en fonction des variations de taux d'intérêt.

Le montant détenu dans le cadre de ce motif sert à réaliser des gains en vendant ou achetant des titres selon l'évolution prévue de taux d'intérêt. En effet le taux d'intérêt est inférieur au taux qui compense la préférence pour la liquidité, alors les agents vont renoncer aux placements financiers et conservent des liquidités. Par conséquent la demande spéculative d'argent est une fonction décroissante du taux d'intérêt.

$S_{dm} = f(r)$  où  $r$  : le taux d'intérêt.

- La demande totale de monnaie

La demande totale de la monnaie est la somme des trois demandes présentes ci-dessus.

$$D_m = T_{dm} + P_{dm} + S_{dm}$$

Compte tenu de la relation inverse entre le taux d'intérêt et la demande spéculative de la monnaie cette demande globale  $D_m$  possède une pente négative en fonction de taux d'intérêt.

- L'offre de monnaie

L'offre de la monnaie  $S_m$  selon Keynes est exogène car, elle dépend de la politique de la banque centrale du pays. Elle est donnée d'une manière institutionnelle.

- La détermination du taux d'intérêt

Le taux d'intérêt est déterminé par la confrontation de l'offre et la demande de monnaie.

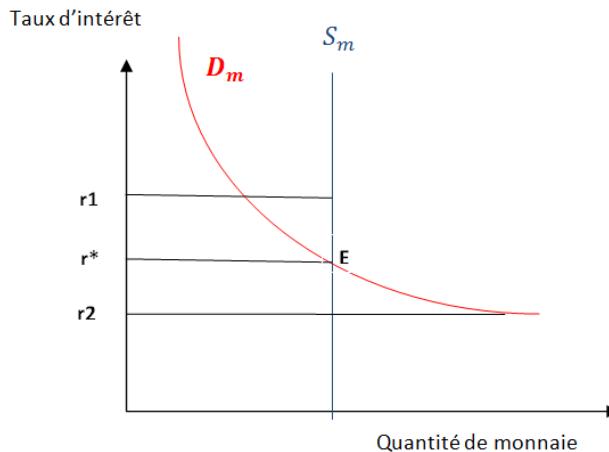


Figure 2: Théorie keynésienne de la monnaie

$S_m$  Est le montant total fourni par la banque centrale. Au point E l'offre de la monnaie égalise la demande  $D_m$ , ainsi le taux d'intérêt d'équilibre  $r^*$  est déterminé.

Si le taux d'intérêt est supérieur au taux d'équilibre  $r^*$  l'offre de la monnaie dépassera la demande. Les gens achèteront plus de titres. Par conséquent, leurs prix augmenteront et le taux d'intérêt diminuera jusqu'à ce que la demande de monnaie soit égale à l'offre.

D'autre part, si le taux d'intérêt devient inférieur au taux d'équilibre, la demande de la monnaie dépassera l'offre, les gens vendront leurs titres. Le prix des titres baissera et le taux d'intérêt augmentera jusqu'à ce que nous atteignions le point E. Ainsi, le taux d'intérêt est déterminé uniquement par les variables monétaires.

Toutefois, comme la théorie classique, la théorie Keynésienne présente des limites :

Premièrement, Keynes a critiqué la théorie classique pour le fait qu'elle suppose un niveau d'emploi fixé. La même critique s'applique à la théorie de la monnaie keynésienne puisqu'elle suppose un niveau de revenu donné. En effet pour Keynes c'est l'offre et la demande de monnaie qui détermine le taux d'intérêt. Sans connaître le niveau de revenu on ne peut pas connaître la demande de transaction et la demande spéculative. Par conséquent un changement de revenu entraînera une modification de la demande de monnaie et donc une modification de taux d'intérêt.

On ne peut pas donc déterminer le taux d'intérêt que si le niveau de revenu soit connu et que le niveau de revenu ne peut être déterminé que lorsque le taux d'intérêt est connu. D'où l'indétermination. Hicks et Hansen ont résolu ce problème dans leur analyse IS-LM<sup>2</sup> en déterminant simultanément le taux d'intérêt et le niveau de revenu.

Deuxièmement, Keynes a rejeté les facteurs réels comme déterminants de la détermination du taux d'intérêt.

<sup>2</sup> Le modèle IS-LM est considéré comme une version formalisée des idées de J.M. Keynes, une représentation algébrique et graphique d'un certain nombre de relations posées plus ou moins explicitement par J.M. Keynes dans la théorie générale. Le principal apport du modèle original réside dans la détermination simultanée, en économie fermée, du revenu national et du taux d'intérêt à partir d'une interaction entre les marchés des biens et services (IS) et le marché de la monnaie (LM).

Troisièmement, la théorie de Keynes permet de choisir entre la tenue d'obligations risquées et l'argent sans risque. Une personne détient soit des obligations soit de l'argent liquide et non pas les deux en même temps. En réalité l'incertitude et le risque oblige un individu à tenir les deux. Cet écart dans la théorie de Keynes a été rempli par James Tobin. En fait, aujourd'hui, les gens font des choix entre une variété d'actifs.

### *iii. Théorie des fonds prêtables*

La théorie des fonds prêtables vient comme alternative combinant les deux théories : classique et keynésienne. Elle stipule que le taux d'intérêt est déterminé par la confrontation de l'offre et de la demande des fonds prêtables. L'offre intègre les actifs monétaires et non monétaires, de même la demande est composée des liquidités désirées par les agents ainsi que la demande d'investissement.

### *b) Littérature théorique du pass-through du taux d'intérêt*

Le pass-through du taux d'intérêt est une composante clé de la transmission de la politique monétaire à travers le canal du taux d'intérêt, il permet de décrire comment un changement du taux directeur est transmis aux taux débiteur et créditeur sur le long terme.

L'estimation numérique des coefficients du pass-through divergent considérablement selon les pays, les marchés. Ceci implique qu'un changement de la politique monétaire produit des différentes réponses au niveau des taux bancaires.

Théoriquement, le pass-through des taux directeurs sur les taux bancaires peut être influencé positivement ou négativement par des facteurs d'ordre institutionnel ou financier. La littérature empirique a permis d'isoler certains déterminants lesquels sont intimement liés à la structure de l'économie et du marché monétaire. Les déterminants du pass-through des taux directeurs sur les taux bancaires :

#### *i. La structure des dépôts bancaires*

La littérature économique retient la structure de la dette d'une économie comme facteur explicatif de la vitesse de transmission des impulsions monétaires sur les taux bancaires. En effet, la vitesse de la transmission de la politique monétaire dépend de la structure de la dette : si celle-ci est composée principalement des taux variables, la transmission des changements du taux directeur se fait plus rapidement. Par contre, si les dépôts sont soumis à des taux fixes, cette vitesse sera plus faible.

#### *ii. La concurrence dans le marché bancaire*

Le niveau de concurrence au niveau du marché bancaire joue un rôle fondamental dans la qualité de transmission des chocs monétaires sur les taux offerts par les banques commerciales. Selon que la pression concurrentielle soit plus ou moins forte, l'ajustement des taux bancaires devrait être plus ou moins complet. D'une manière générale, se basant sur certains éléments théoriques et empiriques, il est admis que la transmission des impulsions monétaires sur les taux bancaires se fait de manière nettement plus rapide dans une économie où la pression concurrentielle entre banques est très élevée (Cottarelli et Kourelis<sup>3</sup>)

Une des approches retenues pour évaluer l'influence de la concurrence sur le pass-through consiste à déterminer l'indice de concentration. Il s'agit de calculer le ratio entre le total des

<sup>3</sup>Cottarelli, C., and A. Kourelis (1994), Financial Structure, Bank Lending Rates, and the Transmission Mechanism of Monetary Policy, IMF Staff Papers, 41(4), 587-633.

actifs d'une banque ou d'un groupe de banques par rapport au total des actifs du système bancaire.

iii. *L'inflation*

L'inflation est l'un des facteurs qui détermine le pass-through du taux directeur sur les taux débiteurs et créditeurs, car elle permet un réajustement par les prix relatifs (Mojon, 2000). En effet l'inflation croît à un rythme supérieur que celui des taux d'intérêt bancaires (nominaux), dans ce cas le taux d'intérêt réel diminue. Les banques augmentent leurs taux débiteurs car la baisse des taux d'intérêt réel représente une dégradation des profils bancaires, et par suite alimente la demande du crédit. La présence d'inflation peut donc améliorer la vitesse et la qualité de transmission.

Même s'il est difficile de conclure sur l'effet de l'inflation sur la vitesse de la transmission, plusieurs études empiriques ont donné des résultats favorables d'un effet négatif. si on a une forte inflation, le taux d'intérêt réel sera très faible. Cet effet peut être nuisible à la transmission, car les agents économiques sont affectés différemment par les variations du taux monétaire qui seront compensés et amortis par la forte inflation.

iv. *La croissance économique*

La croissance peut avoir un impact positif sur le pass-through de la politique monétaire. En effet la croissance agit positivement sur l'investissement et l'endettement.

En présence d'une croissance économique, et si une forte demande est anticipée avec de bonnes perspectives en termes de profits et de débouchés, les entreprises anticipent une hausse de l'activité économique, alors elles seront incitées à investir. Toute hausse de la croissance économique engendre une hausse préalable au niveau d'investissement<sup>4</sup>.

Pour financer leurs investissements, les entreprises ont recours soit au crédit, soit à la finance directe. Cette augmentation de la demande et du volume des crédits peut agir positivement sur le pass-through.

v. *La volatilité des taux directeurs*

L'incertitude au niveau de la politique monétaire, a un impact négatif sur la capacité des banques à ajuster leurs taux. En effet un niveau d'incertitude élevé induit un risque de taux d'intérêt, par conséquent des coûts d'ajustement supérieurs.

Sachant que les emprunteurs sont averses au risque, ils préfèrent des taux fixes, ceci poussera les banques à privilégier la stabilité de leurs taux, et vont adopter un comportement de lissage des variations du taux monétaire.

Le niveau d'incertitude est lié empiriquement à la variance du taux directeur. En effet, une variance importante du taux directeur se traduit par une viscosité dans le pass-through. La crédibilité de la politique monétaire agit positivement sur la transmission des variations du taux directeur aux taux bancaires.

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<sup>4</sup> Multiplicateur keynésien

## II. LES CANAUX DE TRANSMISSION DE LA POLITIQUE MONÉTAIRE

Les canaux de transmission jouent un rôle primordial dans la prise de décision des banques centrales, ce qui a donné lieu à plusieurs travaux théoriques qui cherchent à identifier les spécificités de chaque canal de transmission et pour voir comment il opère. Il existe plusieurs canaux de transmission de la politique monétaire, elles diffèrent entre elles selon l'importance accordée soit au taux d'intérêt, au taux de change, à la monnaie ou au crédit.

### a) *Canal du taux d'intérêt*

C'est le canal le traditionnel de la littérature économique, et le canal principal dans la théorie keynésienne dans le modèle IS-LM. Ce canal peut être décomposé en deux étapes : l'impact du changement du taux directeur sur l'ensemble des taux d'intérêt et l'impact des taux d'intérêt sur l'activité économique et sur les prix. Le mécanisme de transmission peut être schématisé comme suit:

Une politique monétaire expansionniste produit une baisse du taux d'intérêt réel « ir » en présence de prix rigides à court terme, cette baisse diminue le coût du capital et augmente les dépenses d'investissement, et l'accroissement de la demande mène à une augmentation du volume de la production.

En injectant de la liquidité, la banque centrale agit sur les taux à court terme, alors que le taux à long terme est une fonction des taux courts anticipés, selon la théorie des anticipations de la structure par terme des taux d'intérêt (Fisher<sup>5</sup> 1993).

Cependant les taux à moyen et long terme sont les variables clés de la transmission de la politique monétaire par ce canal, vu qu'ils encouragent l'investissement et par suite augmentent le revenu global. Ce canal du taux d'intérêt peut être aussi analysé à travers l'effet de substitution et l'effet revenu qui affectent les décisions de consommation et d'épargne des ménages. En effet, une baisse du taux d'intérêt réduit le coût du crédit et la rémunération de l'épargne, ce qui induit un effet de substitution, et par là, favorise la consommation immédiate et défavorise l'épargne.

Concernant l'effet revenu, une baisse du taux d'intérêt, augmente la valeur actualisée des actifs financiers, ce qui mène à une appréciation du patrimoine des ménages. Il en résulte, donc, une augmentation du revenu permanent des ménages et ensuite augmente leur demande de bien de consommation.

En résumé, la transmission à travers le canal du taux d'intérêt s'effectue sur deux étapes. D'une part, la transmission des politiques monétaires du taux directeur au taux d'intérêt, et d'autre part l'impact des taux à long terme sur les agrégats macroéconomiques.

### b) *Canal du crédit*

Le canal de crédit désigne l'ensemble des facteurs agissant sur l'offre et la demande du crédit et leur influence sur l'ensemble des agrégats macroéconomiques comme sur le comportement d'investissement ou de la consommation des agents économiques.

<sup>5</sup> Fisher, Irving, The Debt-Deflation Theory of Great Depressions, *Econometrica*, October 1933, n° 1, p. 337-357.



Le canal du crédit est étroitement lié au canal du taux d'intérêt, sauf que les travaux sur le canal du crédit cherchent à analyser les facteurs qui peuvent amplifier la transmission du canal du taux d'intérêt. Le canal du crédit revêt trois formes selon la littérature théorique (Mishkin<sup>6</sup>, 1996) :

- Canal des prêts bancaires : agit sur les conditions de l'offre de crédit au sein du système bancaire.
- Canal du bilan : s'intéresse à la structure et la santé financière des emprunteurs.
- Canal du patrimoine : analyse le comportement des consommateurs en matière d'acquisition de biens durables et de logements.

Les banques commerciales attribuent les crédits en fonction des actifs que l'emprunteur peut donner comme garantie, cependant le prix de ces actifs est sensible aux changements du taux d'intérêt, une hausse du taux d'intérêt par exemple peut entraîner une baisse des prix des actions. Par conséquence une diminution de la valeur des actifs en garantie, entraîne une augmentation du taux d'intérêt et donc une diminution de l'offre de crédit, et par suite une moindre croissance de l'activité économique.

L'efficacité du canal du crédit relève donc de deux conditions principales, la première est la capacité de la banque centrale à affecter le pouvoir des banques commerciales à attribuer les crédits. Ensuite la substituabilité imparfaite entre le crédit bancaire et les autres sources de financements (Cecchetti<sup>7</sup>, 1997).

#### c) *Canal du taux de change*

Une variation du taux directeur se répercute aussi sur l'activité économique par le canal du taux de change d'une manière généralement plus rapide.

Dans une économie ouverte, et en régime de change flexible, la transmission des fluctuations du taux d'intérêt vers le taux de change est assurée par la condition de la parité non couverte du taux d'intérêt. Cette dernière relie le taux d'intérêt domestique et le taux d'intérêt à l'étranger aux taux de change futur anticipé. Par la suite, une diminution du taux d'intérêt domestique par rapport au taux d'intérêt étranger, décourage les investisseurs étrangers, donc une dépréciation de la monnaie nationale, et par conséquent les produits nationaux deviennent plus compétitifs sur le marché étranger, augmentant ainsi les exportations et la demande globale.

La banque centrale peut utiliser encore ce canal de transmission pour réduire l'inflation importée. En effet une augmentation du taux d'intérêt domestique, encourage les investisseurs à la recherche de placements plus rentables, ce qui va entraîner une appréciation de la monnaie nationale, et donc le prix des importations diminue.

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<sup>6</sup> Mishkin, F.S. (1996) the Channels of Monetary Transmission: Lessons for Monetary Policy. NBER Working Paper No. 5464.

<sup>7</sup> Cecchetti, Stephan G., Distinguishing Theories of the Monetary Transmission Mechanism, Federal Reserve Bank of St. Louis Review, May-June 1995, p. 77, p. 83-97.

## CADRE EMPIRIQUE

### III. MÉTHODOLOGIE DE L'ÉTUDE

Afin d'estimer le pass-through des taux d'intérêt débiteurs et créditeurs, nous pouvons opter pour les Modèles à Correction d'Erreurs à équation unique. Le soubassement de la spécification adoptée repose sur l'approche de « Cost of funds » (De Bondt, 2002-2005), qui formalise la transmission du taux sur le marché monétaire vers les taux débiteurs et créditeurs. Cette relation se base ainsi sur l'existence d'un coût marginale pour les banques.

#### a) Cointégration asymétrique

Si les taux débiteurs, créditeurs et le taux interbancaire sont intégrés d'ordre un (les séries ne sont pas stationnaires en niveau, mais stationnaires en première différence), une relation de long terme existe entre eux, et s'écrit sous la forme :

$$r_t = \mu + \beta m_t + u_t \quad (1)$$

Avec  $r_t$  les différents taux bancaires,  $m_t$  le taux interbancaire,  $u_t$  représente le terme d'erreurs,  $\mu$  une constante (Taux de marge)<sup>8</sup>,  $\beta$  étant coefficient (positif) de pass-through de long terme. Lorsque ce coefficient est égal à 1, on parle de pass-through complet. Dans ces conditions, les variations du taux sur le marché monétaire sont totalement transmises vers les taux débiteurs et créditeurs. Cependant, il existe des éléments qui atténuent l'ampleur du pass-through, notamment, une faible élasticité de la demande de crédit et de l'offre de dépôts, en raison d'une faible concurrence entre les banques, et les problèmes d'asymétrie d'information, (DeBondt, 2005).

Pour tester l'existence de la relation de cointégration, Engle et Granger ont proposé une méthode qui consiste à estimer la relation (1), et tester la stationnarité des résidus estimés  $\widehat{u_t}$ . Si la stationnarité des résidus est vérifiée, la relation d'ajustement peut être formulée sous forme d'un modèle à correction d'erreurs.

$$\Delta r_t = \sum_{i=1}^k \varphi_i \Delta r_{t-i} + \sum_{j=0}^l \gamma_j \Delta m_{t-j} + \alpha \widehat{u}_{t-1} + \varepsilon_t \quad (2)$$

Dans cette équation (2), les paramètres  $\gamma$  et  $\varphi$  mesurent respectivement la réaction des taux bancaires suite aux changements courants et retardés du taux interbancaire et à leurs propres changements retardés ;  $\alpha$  représente la vitesse d'ajustement vers l'équilibre de long terme.

Enders et Granger (1998) ont développé la procédure Engel-Granger, en introduisant un modèle à correction d'erreurs asymétrique, lequel est une variante du modèle initial (2). Il permet de savoir si les taux d'intérêt bancaires s'ajustent différemment aux chocs monétaires selon qu'ils sont en dessous ou en dessus du niveau d'équilibre. Les auteurs utilisent deux types de modèles :

- Le modèle autorégressif à seuil (TAR : Threshold AutoRegressive Models) dans lequel l'ajustement est asymétrique selon la grandeur de la déviation par rapport à l'équilibre

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<sup>8</sup> Désigne le pourcentage de gain ou de perte réalisé par la banque, c'est la marge d'intermédiation qui représente la différence entre le prix de vente et le coût d'achat de la monnaie.



- Le modèle M-TAR (Momentum - Threshold AutoRegressive Models), dans lequel l'ajustement est asymétrique selon la dynamique de cette déviation.

Enders et Siklos (2001) généralisent le test de cointégration asymétrique pour le cas multivarié.

Le test de la cointégration asymétrique suit les étapes suivantes :

- Estimation de la relation de long terme :  $r_t = \mu + \beta m_t + u_t$
- Estimation du modèle des résidus :

$$\Delta \hat{u}_t = (1 - I_t)\rho_1 \hat{u}_{t-1} + I_t \rho_2 \hat{u}_{t-1} \sum_{i=1}^k \theta_i \Delta \hat{u}_{t-i} + \varepsilon_t \quad (3)$$

Avec  $\hat{u}_t$  les résidus estimés et  $I_t$  une fonction indicatrice qui montre la position de la déviation du taux d'intérêt par rapport au niveau d'équilibre pour un seuil donné  $\tau$  :

Pour le modèle TAR :

$$I_t = \begin{cases} 1 & \text{si } \hat{u}_{t-1} \geq \tau \\ 0 & \text{si } \hat{u}_{t-1} < \tau \end{cases}$$

Pour le modèle M-TAR :

La fonction indicatrice est définie par rapport à la variation du terme de correction d'erreur

$$I_t = \begin{cases} 1 & \text{si } \Delta \hat{u}_{t-1} \geq \tau \\ 0 & \text{si } \Delta \hat{u}_{t-1} < \tau \end{cases}$$

- Tester l'hypothèse :  $H_0: \rho_1 = \rho_2 = 0$  avec  $\Phi$ -statistic de Enders et Siklos (2001). Rejeter l'hypothèse nulle signifie que les variables sont cointégrées.

Il importe de souligner que l'absence de la cointégration constitue un moyen de mesure de la qualité de la transmission. Cela dit, lorsque la relation de cointégration est mauvaise ou inexiste, cela signifie que la transmission se fait très difficilement, par contre elle parfaite en situation inverse.

- Tester l'hypothèse  $H_0: \rho_1 = \rho_2$  avec F-statistic. Rejeter l'hypothèse nulle signifie que les variables sont cointégrées asymétriquement.

Dans les études économiques, les modèles avec  $\tau = 0$  sont particulièrement intéressant, car l'asymétrie est liée aux écarts positifs et négatifs de la valeur d'équilibre. Ceci dit, le cas où  $\tau$  est inconnu et doit être estimé avec  $\rho_1$  et  $\rho_2$ , est aussi important.

Pour estimer ce  $\tau$ , Enders et Siklos (2001) utilise la procédure développée par Chan (1993).

Pour notre cas, on utilise les modèles M-TAR avec seuil inconnu, puisque on n'a pas des arguments solides en faveur de la restriction ex-ante du seuil à zéro. Si la cointégration asymétrique est vérifiée, le modèle à estimer sera :

$$\begin{aligned} \Delta r_t = & \sum_{i=1}^k \varphi_i \Delta r_{t-i} + \sum_{j=0}^l \gamma_j \Delta m_{t-j} + \alpha_1 I_t (r_{t-1} - \mu - \beta m_{t-1}) \\ & + \alpha_2 (1 - I_t) (r_{t-1} - \mu - \beta m_{t-1}) + \varepsilon_t \end{aligned} \quad (4)$$

#### b) L'asymétrie à court terme

Avec l'asymétrie potentielle dans le mécanisme de correction des erreurs, il pourrait être pertinent d'étudier le comportement des taux bancaires pour tester l'existence d'une asymétrie

dans leurs ajustements à court terme, selon le sens de variation du taux interbancaire<sup>9</sup>. Le modèle (4) peut être étendu pour tenir compte de ces asymétries à court terme comme suit :

$$\begin{aligned}\Delta r_t = & \sum_{i=1}^k \varphi_i \Delta r_{t-i} + \sum_{j=0}^l d_t^- \gamma_j^- \Delta m_{t-j} + \sum_{j=0}^l d_t^+ \gamma_j^+ \Delta m_{t-j} \\ & + \alpha_1 I_t (r_{t-1} - \mu - \beta m_{t-1}) + \alpha_2 (1 - I_t) (r_{t-1} - \mu - \beta m_{t-1}) + \varepsilon_t\end{aligned}\quad (5)$$

Avec :

$$d_t^+ = \begin{cases} 1 & \text{si } \Delta m_t \geq 0 \\ 0 & \text{si } \Delta m_t < 0 \end{cases} \quad \text{et} \quad d_t^- = \begin{cases} 1 & \text{si } \Delta m_t < 0 \\ 0 & \text{si } \Delta m_t \geq 0 \end{cases}$$

Tel que les coefficients correspondants respectivement à une augmentation/baisse du taux interbancaire possèdent les exposants “+”/“-”.

En conservant cette notation le modèle de cointégration symétrique qui inclut une asymétrie dans l'ajustement à court terme s'écrit :

$$\begin{aligned}\Delta r_t = & \sum_{i=1}^k \varphi_i \Delta r_{t-i} + \sum_{j=0}^l d_t^- \gamma_j^- \Delta m_{t-j} + \sum_{j=0}^l d_t^+ \gamma_j^+ \Delta m_{t-j} \\ & + \alpha (r_{t-1} - \mu - \beta m_{t-1}) + \varepsilon_t\end{aligned}\quad (6)$$

Si la cointégration n'est pas vérifiée, le modèle à estimer :

$$\Delta r_t = \sum_{i=1}^k \varphi_i \Delta r_{t-i} + \sum_{j=0}^l d_t^- \gamma_j^- \Delta m_{t-j} + \sum_{j=0}^l d_t^+ \gamma_j^+ \Delta m_{t-j} + \varepsilon_t \quad (7)$$

Pour chacune des trois spécifications, l'asymétrie à court terme sera évaluée en testant :

- (i) L'égalité des paramètres qui mesurent la réaction immédiate des taux bancaires suite à une augmentation de taux interbancaire, avec ceux qui mesurent la réaction suite à une baisse ( $\gamma_0^+ = \gamma_0^-$ ).
- (ii) L'égalité des paramètres qui mesurent les réactions pendant deux différentes périodes ( $\gamma_i^+ = \gamma_j^- \forall i, j$ ). Si on rejette cette égalité, on a une asymétrie due à un effet de retard échelonné.
- (iii) L'égalité de la somme des paramètres qui mesurent la réaction suite à une augmentation du taux interbancaire, avec la somme de ceux qui mesurent la réaction suite à une baisse ( $\sum_{j=0}^l \gamma_j^- = \sum_{j=0}^l \gamma_j^+$ )

Pour résumer, la méthodologie consiste à tester dans un premier temps l'existence et la typologie de la relation de cointégration entre les taux bancaires et le taux interbancaire. Sur la base de ces tests on choisit le modèle approprié parmi les trois spécifications<sup>10</sup>. Ensuite on teste la présence d'une asymétrie potentielle à court terme, finalement analyser les principales caractéristiques du pass-through.

<sup>9</sup> Sznajderska (2012) étudie l'effet des facteurs qui peuvent augmenter l'asymétrie : l'activité économique, la liquidité bancaire, la crédibilité de la banque centrale et les anticipations des agents économiques.

<sup>10</sup> Les trois spécifications sont : Absence de cointégration, cointégration symétrique et cointégration asymétrique.

c) *Les données*

Dans le cadre de ce travail nous aurons à utiliser neuf variables : Le taux débiteur global (rl), taux des comptes débiteurs et crédits de trésorerie (rlcdct), taux des crédits à l'équipement (rlcEquip), taux des crédits immobiliers (rlcimm), taux des crédits à la consommation (rlCons), taux crééditeur pondéré (rd), taux des dépôts à 6 mois (rd6m), taux des dépôts à 12 mois (rd12m), et le taux interbancaire (rm).

Les données sont collectées sur une base trimestrielle et couvrent la période allant du premier trimestre de l'année 2008 au quatrième trimestre 2017. Elles proviennent du site de Bank Al-Maghrib. Les tests et estimations sont faites à l'aide des logiciels statistiques : STATA 13 et Eviews 8.

d) *Tests de cointégration*

i. *Test de stationnarité des séries*

Les tests<sup>11</sup> de stationnarité des processus temporels s'avèrent nécessaires pour notre modélisation vue que le traitement de stationnarité est une étape primordiale pour spécifier l'ordre d'intégration des séries et déterminer de quel type de non-stationnarité<sup>12</sup> s'agit-il. En effectuant le test de Dickey-Fuller Augmenté (Annexe 2.1), il en ressort les résultats suivants :

*Tableau 1:* Test de stationnarité pour les variables

Variable	Etiquette	Stationnarité en niveau	Type de processus
<b>rm</b>	Taux interbancaire	Non stationnaire	DS et I (1) <sup>13</sup>
<b>rl</b>	Taux débiteur global	Non stationnaire	DS et I (1)
<b>rlcdct</b>	Taux des comptes débiteurs et crédits de trésorerie	Non stationnaire	DS et I (1)
<b>rlcEquip</b>	Taux des crédits à l'équipement	Non stationnaire	DS et I (1)
<b>rlcimm</b>	Taux des crédits immobiliers	Non stationnaire	DS et I (1)
<b>rlCons</b>	Taux des crédits à la consommation	Non stationnaire	DS et I (1)
<b>rd</b>	Taux crééditeur pondéré	Non stationnaire	DS et I (1)
<b>rd6m</b>	Taux des dépôts à 6 mois	Non stationnaire	DS et I (1)
<b>rd12m</b>	Taux des dépôts à 12 mois	Non stationnaire	DS et I (1)

Source: Calculé de l'auteur

Les résultats des Tests ont révélé que toutes les séries sont stationnaires en différence première, ce qui laisse présager la présence de relations de cointégration entre elles.

<sup>11</sup> Nous parlons :

- Dickey Fuller augmenté et le test de Phillips-Perron, utilisés souvent en pratique, dont l'hypothèse nulle est la présence d'une racine unitaire et donc la non stationnarité.
- KPSS : le test de Kwiatkowski–Phillips–Schmidt–Shin qui pose la stationnarité comme hypothèse null.

<sup>12</sup> La non stationnarité soit de type TS « Trend Stationary », ou de type DS « Differency Stationary ».

<sup>13</sup> I (1) : série intégrée d'ordre 1.

### ii. Test de cointégration asymétrique

Pour tester l'asymétrie à long terme de la réponse des taux bancaires aux variations du taux interbancaire, on procède par l'approche de Enders and Siklos (2001) afin de distinguer les effets positifs et négatifs des résidus obtenus de la relation de long terme.

Le test de Enders et Siklos (2001) se base sur les modèles TAR et M-TAR pour tester l'existence et l'asymétrie de la cointégration pour les deux cas :  $\tau = 0$  et  $\tau$  inconnu.

Les résultats de ces tests sont présentés dans le tableau 2. Les valeurs critiques des tests ont été trouvées avec les simulations Monte Carlo. La décision se base sur la comparaison des valeurs calculées avec les valeurs critiques :

Si  $F\text{-joint}(\Phi) > F\text{-critique}$ , On rejette l'hypothèse nulle ( $H_0 : \rho_1 = \rho_2 = 0$ ), ce que signifie que les variables sont cointégrées. Dans ce cas, on passe au test de l'asymétrie de la cointégration des variables : Si  $F\text{-equal} > F\text{-critique}$ , on rejette l'hypothèse nulle ( $H_0 : \rho_1 = \rho_2$ ), ce que signifie que les variables sont cointégrées asymétriquement.

*Tableau 2:* Test de la cointégration asymétrique avec seuil inconnu

	<b>Seuil estimé (Threshold)</b>	<b>Test statistic</b>		<b>Valeur critique simulée 10%</b>	
		<b>F-joint (<math>\Phi</math>)</b>	<b>F-equal</b>	<b>F-joint (<math>\Phi</math>)</b>	<b>F-equal</b>
<b>Rl</b>	0,2243	8,2934	1,3982	6,1970	4,5384
<b>Rlcdct</b>	-0,3140	7,8958	1,6055	6,2445	4,6262
<b>rlcEquip</b>	0,1471	8,8988	2,6963	5,8218	4,5664
<b>Rlimm</b>	-0,1172	4,0592	3,0869	8,0493	8,2094
<b>rlCons</b>	0,0335	3,8579	1,4762	8,9009	8,2644
<b>Rd</b>	0,1764	5,55818	6,0134	5,7641	4,6713
<b>rd6m</b>	0,0745	3,3103	1,7459	5,8039	4,7156
<b>rd12m</b>	-0,0412	3,3698	3,3906	8,0819	8,0676

Source: Calcule de l'auteur

D'après les résultats du test de cointégration asymétrique, aucune variable ne présente une asymétrie dans l'ajustement à long terme à l'exception du taux créditeur pondéré. La relation d'ajustement pour le taux créditeur pondéré portera sur une formulation TAR asymétrique à long terme avec seuil inconnu.

### iii. Test de cointégration symétrique

Pour les taux qui n'ont pas vérifié la relation de cointégration asymétrique, on procède à tester l'hypothèse de la cointégration symétrique avec le test de Enders and Granger :

On estime d'abord la relation de long terme avec les variables en niveau, puis on effectue un test de stationnarité des résidus estimés. Si la série des résidus est stationnaire, alors les séries sont cointégrées. Les résultats de l'estimation de la relation de long terme pour les taux bancaires sont :

$$(1) rl_t = 3,270913 + 0,9397049 rm_t$$

$$(2) rlcldct_t = 2,935369 + 1,058582 rm_t$$

$$(3) rlequip_t = 2,38875 + 1,128036 rm_t$$

$$(4) rlimm_t = 4,774567 + 0,3757415 rm_t$$

$$(5) rlConst_t = 6,022514 + 0,3950081 rm_t$$

$$(6) rd_t = 2,958438 + 0,2295384 rm_t$$

$$(7) rd6m_t = 2,920821 + 0,1726211 rm_t$$

$$(8) rl_t = 3,07862 + 0,2344469 rm_t$$

Les résultats du test de stationnarité des résidus de chaque équation sont présentés dans le tableau ci-dessous, le test<sup>14</sup> est effectué sur la série des résidus et les décisions sont prises au niveau de 5% et de 10%.

*Tableau 3:* Test de stationnarité des résidus de chaque équation

Equation	Stationnarité des résidus	
	Au niveau de 5%	Au niveau de 10%
(1)	Stationnaires	Stationnaires
(2)	Stationnaires	Stationnaires
(3)	Stationnaires	Stationnaires
(4)	Non stationnaires	Stationnaires
(5)	Non stationnaires	Stationnaires
(6)	Non stationnaires	Stationnaires
(7)	Non stationnaires	Non stationnaires
(8)	Non stationnaires	Stationnaires

*Source: Calcule de l'auteur*

D'après ces résultats on trouve que tous les taux bancaires sont cointégrés avec le taux interbancaire, à l'exception des taux : crédit immobilier, crédit consommation, crédit à 6 mois et crédit à 12 mois.

Puisque l'hypothèse de cointégration n'est pas vérifiée pour les taux des crédits immobilier crédit consommation, crédit à 6 mois et crédit à 12 mois, l'estimation de la relation d'ajustement portera sur une formulation ARDL en première différence.

Concernant les autres taux qui présente une cointégration symétrique, la relation d'ajustement portera sur un modèle à correction d'erreur symétrique à long terme.

Les résultats des tests précédents nous permettent de choisir les spécifications des modèles pour chaque taux étudié :

$$\Delta rl_t = \sum_{i=1}^k \varphi_i \Delta rl_{t-i} + \sum_{j=0}^l d_t^- \gamma_j^- \Delta rm_{t-j} + \sum_{j=0}^l d_t^+ \gamma_j^+ \Delta rm_{t-j} + \alpha(rl_{t-1} - \mu - \beta rm_{t-1}) + \varepsilon_t$$

$$\Delta rlc dct_t = \sum_{i=1}^k \varphi_i \Delta rlc dct_{t-i} + \sum_{j=0}^l d_t^- \gamma_j^- \Delta rm_{t-j} + \sum_{j=0}^l d_t^+ \gamma_j^+ \Delta rm_{t-j} + \alpha(rlcdct_{t-1} - \mu - \beta rm_{t-1}) + \varepsilon_t$$

<sup>14</sup> Test de Dickey – Fuller Augmenté.

$$\Delta rlcEquip_t = \sum_{i=1}^k \varphi_i \Delta rlcEquip_{t-i} + \sum_{j=0}^l d_t^- \gamma_j^- \Delta rm_{t-j} + \sum_{j=0}^l d_t^+ \gamma_j^+ \Delta rm_{t-j} + \alpha(rlcEquip_{t-1} - \mu - \beta rm_{t-1}) + \varepsilon_t$$

$$\Delta rlimm_t = \sum_{i=1}^k \varphi_i \Delta rlimm_{t-i} + \sum_{j=0}^l d_t^- \gamma_j^- \Delta rm_{t-j} + \sum_{j=0}^l d_t^+ \gamma_j^+ \Delta rm_{t-j} + \varepsilon_t$$

$$\Delta rlConst_t = \sum_{i=1}^k \varphi_i \Delta rlConst_{t-i} + \sum_{j=0}^l d_t^- \gamma_j^- \Delta rm_{t-j} + \sum_{j=0}^l d_t^+ \gamma_j^+ \Delta rm_{t-j} + \varepsilon_t$$

$$\begin{aligned} \Delta rd_t = \sum_{i=1}^k \varphi_i \Delta rd_{t-i} + \sum_{j=0}^l d_t^- \gamma_j^- \Delta rm_{t-j} + \sum_{j=0}^l d_t^+ \gamma_j^+ \Delta rm_{t-j} + \alpha_1 I_t (rd_{t-1} - \mu - \beta rm_{t-1}) + \alpha_2 (1 - I_t) (rd_{t-1} - \mu \\ - \beta rm_{t-1}) + \varepsilon_t \end{aligned}$$

$$\Delta rd6m_t = \sum_{i=1}^k \varphi_i \Delta rd6m_{t-i} + \sum_{j=0}^l d_t^- \gamma_j^- \Delta rm_{t-j} + \sum_{j=0}^l d_t^+ \gamma_j^+ \Delta rm_{t-j} + \varepsilon_t$$

$$\Delta rd12m_t = \sum_{i=1}^k \varphi_i \Delta rd12m_{t-i} + \sum_{j=0}^l d_t^- \gamma_j^- \Delta rm_{t-j} + \sum_{j=0}^l d_t^+ \gamma_j^+ \Delta rm_{t-j} + \varepsilon_t$$

e) *Test d'asymétrie de la relation d'ajustement à court terme*

Pour spécifier la forme finale des modèles, il est primordial de tester l'asymétrie de la relation d'ajustement à court terme des taux bancaires, selon le sens de variation du taux interbancaire.

Pour ce faire, on commence par une estimation des modèles spécifiés dans le paragraphe précédent, puis on teste les hypothèses suivantes :

- (i) L'égalité des paramètres qui mesurent la réaction immédiate des taux bancaires suite à une augmentation de taux interbancaire, avec ceux qui mesurent la réaction suite à une baisse ( $\gamma_0^+ = \gamma_0^-$ ).
- (ii) L'égalité des paramètres qui mesurent les réactions pendant deux différentes périodes ( $\gamma_i^+ = \gamma_j^- \forall i, j$ ). Si on rejette cette égalité, on a une asymétrie due à un effet de retard échelonné.
- (iii) L'égalité de la somme des paramètres qui mesurent la réaction suite à une augmentation du taux interbancaire, avec la somme de ceux qui mesurent la réaction suite à une baisse ( $\sum_{j=0}^l \gamma_j^- = \sum_{j=0}^l \gamma_j^+$ )

Pour estimer ces modèles, quatre retards ont été introduits afin de prendre en compte la dynamique de court terme existante entre les taux bancaires et le taux interbancaire. Après estimation, on procède aux choix du nombre de retards en se basant sur le critère AIC (Akaike Information Criteria). Pour chaque taux bancaire le nombre de retards est:

*Tableau 4:* Nombre de retards retenus pour chaque modèle

Taux bancaire	Nombre de retards retenus
rl	3
Rlcdct	1
rlcEquip	2
Rlimm	4
rlCons	3
Rd	1
rd6m	1
rd12m	1

Source: *Calcule de l'auteur**Tableau 5:* Pass-through des taux bancaires  
(Modèle ECM ajustement asymétrique à court terme)

	rl	rlcdct	rlcEquip
Pass-through de long terme	0,9397	1,0585	1,1280
Pass-through immédiat pour une baisse du taux interbancaire	0,7724 (0,076)	0,8137 (0,072)	0,3959 (0,507)
Pass-through immédiat pour une hausse du taux interbancaire	-0,2503 (0,847)	-0,3936 (0,586)	-0,1667 (0,857)
Vitesse d'ajustement	-1,3084	-0,7602	-1,0455
$\bar{R}^2$	0,2552	0,3971	0,5132
$H_0: \beta = 1$ (p-value)	0,5204	0,6598	0,2799
$H_0: \gamma_0^+ = \gamma_0^-$ (p-value)	0,4894	0,2154	0,7851
$H_0: \gamma_0^+ = \gamma_0^- \& \gamma_j^+ = \gamma_j^-$ (p-value)	0,9215	0,2663	0,2999
$H_0: \sum_{j=0}^J \gamma_j^+ = \sum_{j=0}^J \gamma_j^-$	0,7863	0,8728	0,8397

Remarque: Les chiffres entre parenthèses représentent la probabilité associée à chaque coefficient estimé.

Source: *Calcule de l'auteur*

Le tableau 5 montre que les taux débiteur (rl), taux comptes débiteurs et crédits de trésorerie (rlcdct) et taux du crédit à l'équipement (rlEquip) sont symétriques à court terme, ce que nécessite une nouvelle estimation sans prendre en considération la dynamique asymétrique à court terme. La nouvelle forme des trois modèles sera comme ce que suit :

$$\Delta r_t = \sum_{i=1}^k \varphi_i \Delta r_{t-i} + \sum_{j=0}^l \gamma_j \Delta m_{t-j} + \varepsilon_t$$

*Tableau 6:* Pass-through des taux bancaires  
(Modèle TAR avec seuil inconnu et ajustement asymétrique à court terme)

	Rd
Seuil ( $\tau$ )	0,1764
Pass-through de long terme	0,2295
Pass-through immédiat pour une baisse du taux interbancaire	0,0703
Pass-through immédiat pour une hausse du taux interbancaire	1,2685

Vitesse d'ajustement pour une déviation au-dessous de l'équilibre	0,1791
Vitesse d'ajustement pour une déviation au-dessus	-0,0821
$\bar{R}^2$	0,4761
$H_0: \beta = 1$ (p-value)	0,0000
$H_0: \gamma_0^+ = \gamma_0^-$ (p-value)	<b>0,0053</b>
$H_0: \gamma_0^+ = \gamma_0^- \& \gamma_j^+ = \gamma_j^-$ (p-value)	<b>0,0022</b>
$H_0: \sum_{j=0}^J \gamma_j^+ = \sum_{j=0}^J \gamma_j^-$	0,1658

Remarque: Les chiffres entre parenthèses représentent la probabilité associée à chaque coefficient estimé.

Source: Calcule de l'auteur

Le tableau 6 montre que l'ajustement à court terme de taux créditeur pondéré (rd) est asymétrique.

*Tableau 7:* Pass-through des taux bancaires.  
(ARDL)

	<b>rlimm</b>	<b>rlCons</b>	<b>rd6m</b>	<b>rd12m</b>
Pass-through de long terme	0,9397	0,3950	0,1726	0,2344
Pass-through immédiat pour une baisse du taux interbancaire	0,7724 (0,076)	0,6485 (0,008)	0,1722 (0,383)	-0,0527 (0,768)
Pass-through immédiat pour une hausse du taux interbancaire	-0,2503 (0,847)	-0,2485 (0,763)	0,9162 (0,009)	1,1711 (0,000)
$\bar{R}^2$	0,2552	0,2828	0,3255	0,4465
$H_0: \beta = 1$ (p-value)	0,5204	0,0000	0,0000	0,0000
$H_0: \gamma_0^+ = \gamma_0^-$ (p-value)	0,4894	0,3380	<b>0,0955</b>	<b>0,0043</b>
$H_0: \gamma_0^+ = \gamma_0^- \& \gamma_j^+ = \gamma_j^-$ (p-value)	0,9215	0,3380	<b>0,0298</b>	<b>0,0010</b>
$H_0: \sum_{j=0}^J \gamma_j^+ = \sum_{j=0}^J \gamma_j^-$	0,7863	0,5392	0,3773	0,4781

Remarque: Les chiffres entre parenthèses représentent la probabilité associée à chaque coefficient estimé.

Source: Calcule de l'auteur

On peut conclure d'après le tableau 7 que le taux de crédit immobilier (rlimm) et le taux de crédit à la consommation (rlCons) sont symétriques à court terme. Cependant le taux de dépôts à 6 mois (rd6m) et le taux de dépôts à 12 mois (rd12m) présentent une asymétrie d'ajustement à court terme.

#### f) Résultats finals

La réestimation des modèles en éliminant l'ajustement asymétrique à court terme pour tous les taux débiteurs, donne les résultats suivants :



*Tableau 8:* Pass-through des taux bancaires.  
(Modèle ECM ajustement symétrique à court terme)

	<b>rl</b>	<b>rlcdct</b>	<b>rlcEquip</b>
Pass-through de long terme	0,9397	1,0585	1,1280
Pass-through immédiat	0,6559 (0,052)	0,4294 (0,178)	0,3019 (0,485)
Vitesse d'ajustement	-1,2312 (0,001)	-0,7681 (0,001)	-1,0329 (0,006)
$\bar{R}^2$	0,3556	0,3808	0,4968
$H_0: \beta = 1$ (p-value)	0,5204	0,6598	0,2799

Remarque: Les chiffres entre parenthèses représentent la probabilité associée à chaque coefficient estimé.

Source: Calcule de l'auteur

*Tableau 9:* Pass-through des taux bancaires.  
(ARDL à ajustement symétrique à court terme)

	<b>rlimm</b>	<b>rlCons</b>
Pass-through de long terme	0,9397	0,3950
Pass-through immédiat	0,2524 (0,431)	0,5159 (0,011)
$\bar{R}^2$	0,431	0,2424
$H_0: \beta = 1$ (p-value)	0,5204	0,0000

Remarque: Les chiffres entre parenthèses représentent la probabilité associée à chaque coefficient estimé.

Source: Calcule de l'auteur

Pour les taux créditeurs, qui présentent une asymétrie dans l'ajustement à court terme, les résultats sont présentés dans les tableaux suivants :

*Tableau 10:* Pass-through des taux bancaires.  
(Modèle TAR avec seuil inconnu et ajustement asymétrique à court terme)

	<b>Rd</b>
Seuil ( $\tau$ )	0,1764
Pass-through de long terme	0,2295
Pass-through immédiat pour une baisse du taux interbancaire	0,0703 (0,694)
Pass-through immédiat pour une hausse du taux interbancaire	1,2685 (0,000)
Vitesse d'ajustement pour une déviation au-dessous de l'équilibre	0,1791 (0,527)
Vitesse d'ajustement pour une déviation au-dessus de l'équilibre	-0,0821 (0,557)
$\bar{R}^2$	0,4761
$H_0: \beta = 1$ (p-value)	0,0000
$H_0: \gamma_0^+ = \gamma_0^-$ (p-value)	<b>0,0053</b>
$H_0: \gamma_0^+ = \gamma_0^- \& \gamma_j^+ = \gamma_j^-$ (p-value)	<b>0,0022</b>
$H_0: \sum_{j=0}^J \gamma_j^+ = \sum_{j=0}^J \gamma_j^-$	0,1658

Remarque: Les chiffres entre parenthèses représentent la probabilité associée à chaque coefficient estimé.

Source: Calcule de l'auteur

*Tableau 11:* Pass-through des taux bancaires.

(ARDL à ajustement asymétrique à court terme)

	<b>rd6m</b>	<b>rd12m</b>
Pass-through de long terme	0,1726	0,2344
Pass-through immédiat pour une baisse du taux interbancaire	0,1722 (0,383)	-0,0527 (0,768)
Pass-through immédiat pour une hausse du taux interbancaire	0,9162 (0,009)	1,1711 (0,000)
$\bar{R}^2$	0,3255	0,4465
$H_0: \beta = 1$ (p-value)	0,0000	0,0000
$H_0: \gamma_0^+ = \gamma_0^-$ (p-value)	<b>0,0955</b>	<b>0,0043</b>
$H_0: \gamma_0^+ = \gamma_0^- \& \gamma_j^+ = \gamma_j^-$ (p-value)	<b>0,0298</b>	<b>0,0010</b>
$H_0: \sum_{j=0}^J \gamma_j^+ = \sum_{j=0}^J \gamma_j^-$	0,3773	0,4781

*Remarque:* Les chiffres entre parenthèses représentent la probabilité associée à chaque coefficient estimé.

Source: Calcule de l'auteur

g) *Interprétation des résultats finales*i. *Le pass-through des taux débiteurs*

Les résultats des estimations des modèles retenus pour les taux bancaires débiteurs, en utilisant les données trimestrielles allant du premier trimestre 2008 au quatrième trimestre 2017, sont présentés dans le tableau 12.

Au Maroc, ces estimations ont révélé que le pass-through de long terme est complet pour la majorité des taux débiteurs, soit un ajustement de : 93,97% pour le taux débiteur global, 105,85% pour le taux des comptes débiteurs et crédits de trésorerie, 112,8% pour le taux des crédits à l'équipement et 93,97% pour le taux des crédits à l'immobilier. Cependant, le taux de crédit à la consommation présente un faible ajustement à long terme, qui est de 39,5% suite à un choc de 1% du taux interbancaire.

Pour le taux débiteur global, taux des comptes débiteurs et crédits de trésorerie et le taux crédit à l'équipement, le mécanisme de correction d'erreur est symétrique, ce que signifie qu'ils s'ajustent de manière uniforme.

Le pass-through à court terme est symétrique, et est indépendant du sens de variation du taux interbancaire. Il s'agit d'une transmission immédiate de 65,59% pour le taux débiteur global, 42,94% pour le taux des comptes débiteurs et crédits de trésorerie, 30,19% pour le taux des crédits à l'équipement, 25,24 % pour le taux des crédits à l'immobilier et 51,59% pour le taux du crédit à la consommation.



Tableau 12: Pass-through du taux interbancaire aux taux débiteurs

	<b>Pass-through de long terme</b>	<b>H<sub>0</sub>: Pass – through complet ?</b>	<b>Pass-through immédiat</b>	<b>Vitesse d'ajustement</b>	<b>R<sup>2</sup></b>
<b>rl</b>	0,9397	0,5204	0,6559 (0,052)	-1,2312 (0,001)	0,3556
<b>rlcdct</b>	1,0585	0,6598	0,4294 (0,178)	-0,7681 (0,001)	0,3808
<b>rlcEquip</b>	1,1280	0,2799	0,3019 (0,485)	-1,0329 (0,006)	0,4968
<b>rlimm</b>	0,9397	0,5204	0,2524 (0,431)	-	0,431
<b>rlCons</b>	0,3950	0,0000	0,5159 (0,011)	-	0,2424

Remarque: Les chiffres entre parenthèses représentent la probabilité associée à chaque coefficient estimé.

Source: Calcule de l'auteur

## ii. Le pass-through des taux créditeurs

Le pass-through de long terme du taux créditeur pondéré est incomplet (22,95%). Le mécanisme de correction d'erreur est asymétrique : quand le taux créditeur pondéré est en dessous de sa valeur d'équilibre de plus de  $\tau = 0,1764\%$ , il s'ajuste vers l'équilibre plus rapidement pour la baisse qu'à la hausse (17,91% de la déviation est corrigée dans le premier trimestre, contre seulement 8,21% dans le cas d'une déviation supérieure au seuil  $\tau$ ). Ce comportement peut être due à la forte compétitivité entre les banques pour attirer des fonds locaux, destinés à remplacer en partie leurs dettes extérieures. Cette viscosité peut être encore liée aux différents coûts d'ajustement auxquels les banques font face.

En ce qui concerne le pass-through à court terme, il s'ajuste d'une manière asymétrique. En effet, une hausse de taux interbancaire se transmet plus rapidement qu'à la baisse (126,85% contre 7,03%).

Pour les taux des dépôts à six mois et à douze mois, l'ajustement à long terme est symétrique. L'hypothèse de la transmission complète est rejetée. En effet, pour les taux des dépôts respectivement à six et à douze mois, la transmission à long terme est estimée à : 17,26% et 23,44%.

L'ajustement à court terme des taux des dépôts à six mois et à douze mois, est similaire à celui de taux créditeur pondéré : ils s'ajustent plus rapidement à la hausse qu'à la baisse (91,62% contre 17,22% pour le taux à six mois et 117,12% contre 5,27% pour le taux à douze mois).

Tableau 13: Pass-through du taux interbancaire aux taux créditeurs

	<b>Pass-through de long terme</b>	<b><math>H_0</math>: Pass – through complet ?</b>	<b>Pass-through immédiat</b>	<b>Vitesse d'ajustement</b>	<b>Seuil (<math>\tau</math>)</b>	<b><math>R^2</math></b>
<b><i>rd</i></b>	0,2295	0,000	↓rm : 0,0703 (0,694) ↑rm : 1,2685 (0,000)	< $\tau$ : 0,1791 (0,527) > $\tau$ : -0,0821 (0,557)	0,1764	0,4761
<b><i>rd6m</i></b>	0,1726	0,000	↓rm : 0,1722 (0,383) ↑rm : 0,9162 (0,009)	-	-	0,3255
<b><i>rd12m</i></b>	0,2344	0,000	↓rm : -0,0527 (0,768) ↑rm : 1,1711 (0,000)	-	-	0,4465

Remarque: Les chiffres entre parenthèses représentent la probabilité associée à chaque coefficient estimé.

Source: Calculé de l'auteur

Le pass-through est influencé par certains facteurs institutionnels et financiers de façon positive ou négative. Ces facteurs peuvent apporter des différences constatées d'un pays à un autre au niveau de la qualité de la transmission. Les principaux facteurs ayant une influence directe et significative sur le pass-through sont : la concurrence bancaire, la structure des dépôts, la volatilité des taux d'intérêt, l'inflation et la croissance.

La concurrence bancaire est un facteur déterminant pour la transmission de la politique monétaire aux banques de détails. En effet plus le marché bancaire est un marché concurrentiel, plus les banques vont se soucier de voir leurs marges bénéficiaires se rétrécir, ce que les poussera à répondre le plus rapidement possible aux variations de taux directeur, surtout en revue à la baisse, pour s'approprier plus de clients sur le marché bancaire. Ainsi l'écart entre le taux interbancaire et les taux bancaires sera d'autant plus petit et le pass-through tendra à être plus complet.

A l'inverse, si on est en présence d'une concurrence imparfaite, due à l'existence d'un monopole ou oligopole, le pass-through sera caractérisé par la présence d'inertie ou de viscosité. C'est le cas du système bancaire marocain, qui de nature oligopolistique.

La non parfaite substituabilité entre les crédits bancaires et la finance directe est un autre problème qui nuit à la concurrence du secteur bancaire marocain. Le sous-développement des marchés financiers au Maroc, fait de notre économie, une économie de crédit bancaire et non pas une économie de marchés financiers.

Ainsi, les entreprises n'ont pas d'autre choix que de se financer via le crédit bancaire, ce qui les pousse à se soumettre aux conditions d'octroi de crédits dictées par les banques, et ceci est surtout valable pour les très, petites et moyennes entreprises (TPME) qui n'ont pas un grand pouvoir négociateur contrairement aux grandes firmes.

En ce qui concerne la structure des dépôts bancaires pour le cas du Maroc, elle est marquée par la dominance des crédits à taux fixes, qui représentent 84% du volume total des crédits. Cette structure défavorise la transmission de la politique monétaire et affaiblit le pass-through.



Pour ce qui est de l'inflation au Maroc, elle reste maîtrisée par les autorités monétaires. En effet le taux d'inflation est autour de 2% le long de la période 2000-2017. Il est passé de 1,9% en 2001 à 0,7% en 2017, avec des pics remarquables à savoir celle de 2009 où il atteint 3,7 % et ceci s'explique par les effets de la crise financière de 2008.

En 2015 les prix de barils de pétrole ont connu une chute remarquable, de ce fait le Maroc a bénéficié de cette baisse et le taux d'inflation était de 0,4%.

Concernant la croissance au Maroc, elle est toujours dépendante de la pluviométrie, ce qui explique la forte volatilité de sa composante non-agricole. Durant les dernières années, la croissance s'est inscrite en une tendance baissière. Cet essoufflement de la croissance, impacte l'investissement et donc la demande anticipée. Et puisque les entreprises ont recours au crédit pour financer leurs investissements, la demande des crédits va baisser ce qui agit négativement sur le pass-through.<sup>36</sup>

#### IV. CONCLUSION

Le présent papier a comme objectif principal l'estimation de la vitesse d'ajustement des taux bancaires en réaction aux chocs sur le marché monétaire et aussi de tester une éventuelle présence d'asymétrie dans la transmission des décisions monétaires. Pour cela, les taux débiteurs et créditeurs ont été retenus. Les données ont été collectées sur une base trimestrielle de Bank Al-Maghrib et nous avons utilisé plusieurs modèles pour estimer les coefficients de pass-through des chocs monétaires.

Les résultats ont révélé que les taux bancaires sont très réactifs aux variations du taux interbancaire, à l'exception du taux du crédit à la consommation et des taux créditeurs qui sont peu réactifs et présentent une viscosité dans la transmission, laquelle constitue une entrave à l'efficacité de la politique monétaire.

D'autre part, le modèle à seuil utilisé pour le taux créditeur pondéré, a permis d'isoler les effets asymétriques dans la transmission des variations du taux interbancaire à long et à court terme. En effet, on a pu remarquer que ce taux est très visqueux à la hausse tandis qu'ils s'ajustent plus rapidement à la baisse (17,91%) suite à un choc négatif sur le marché monétaire. Parallèlement, les taux sur les dépôts à six et à douze mois s'ajustent symétriquement sur le long terme, tandis que l'ajustement sur le court terme est asymétrique et est plus visqueux à la baisse que à la hausse.

Tout compte fait, nous pouvons dire que le faible niveau de développement du marché financier marocain, sa structure oligopolistique, l'asymétrie de l'informationnelle sont des facteurs explicatifs potentiels du faible degré de pass-through des chocs monétaires au marché bancaire. Aussi, on peut ajouter le faible niveau de l'activité économique.

Finalement, on peut dire que le passage prévu d'un régime de change fixe, à un régime de change plus flexible voire totalement flottant, permettra à la politique monétaire d'avoir une certaine autonomie (Triangle de Mundell), comme il jouera un rôle essentiel dans le développement du marché financier marocain, avec l'ouverture totale du compte capital et la mobilité libre des capitaux.

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# Determinants of FDI Inflow in Asian Landlocked Countries: A Panel Data Study

By Jamshid Mamasalaev

**Abstract-** Purpose: The study aims to define FDI determinants in Asian LLCs to provide helpful insights on most significant explanatory factors of FDI and make policy recommendations.

**Design/Methodology:** This paper uses a panel data approach to investigate FDI determinants in Asian LLCs based on two models, namely RE and GLS, for the period of 1996-2016.

**Findings:** Whereas the impact of market size, trade openness, institutional variables and corporate profit tax on FDI inflow are found statistically significant in Asian LLCs, other variables, namely inflation, human capital, control of corruption and ease of doing business are found to have no significant impact on FDI inflow in Asian LLCs.

**Keywords:** *asian LLCs, FDI inflow, trade openness, ease of doing business.*

**GJMBR-B Classification:** *JEL Code: G00*



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# Determinants of FDI Inflow in Asian Landlocked Countries: A Panel Data Study

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**Abstract-Purpose:** The study aims to define FDI determinants in Asian LLCs to provide helpful insights on most significant explanatory factors of FDI and make policy recommendations.

**Design/Methodology:** This paper uses a panel data approach to investigate FDI determinants in Asian LLCs based on two models, namely RE and GLS, for the period of 1996-2016.

**Findings:** Whereas the impact of market size, trade openness, institutional variables and corporate profit tax on FDI inflow are found statistically significant in Asian LLCs, other variables, namely inflation, human capital, control of corruption and ease of doing business are found to have no significant impact on FDI inflow in Asian LLCs.

**Keywords:** asian LLCs, FDI inflow, trade openness, ease of doing business.

## I. INTRODUCTION

Due to raising awareness of economic benefits coming from inward FDI (Foreign Direct Investment) into the economy, the authorities of most countries in the world have been striving to find ways to attract more FDI mainly through liberalizing their trade and tax policies for the last decades. For instance,

Liargovas and Skandalis (2011) emphasize that 'FDI inflows can assist an economy by giving opportunities for ameliorating the level of service sector (i.e. telecommunications, banking, and finance, transport), wholesale and retail trade, business and legal services' (p.323). However, it is often stressed that being landlocked limits the country's economic integration with other countries. As a result, to attract a substantial amount of FDI into the economy, those countries that do not have direct access to the sea usually should challenge comparatively more than other countries that are not surrounded by land (World Bank-United Nations, A Ten-Year Review on Landlocked Countries, 2014). There are many empirical studies conducted on FDI determinants. However, most of those studies have come to different conclusions in terms of its determinants.

As we look at FDI-related numbers in Asian LLCs shown below, it can be seen that even selected countries own similar geographical characteristics, the shares of net FDI inflows vary across those countries.

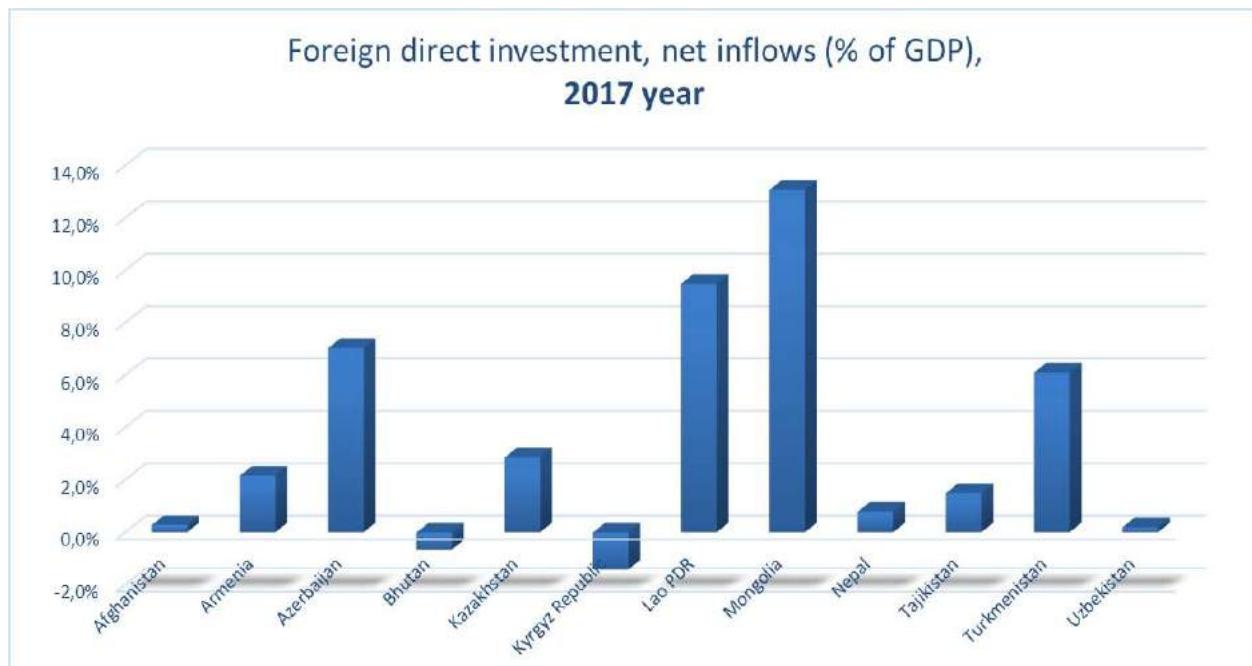


Figure 1

Also, although there are some existing empirical studies conducted on finding FDI determinants in a group of landlocked countries, none of them included Asian LLCs. Due to the facts above, the underlying research aims to comparatively define FDI determinants in Asian LLCs to provide helpful insights on most significant explanatory factors of FDI inflow to Asian LLCs and make precise policy recommendations.

The following part will provide the existing literature on previous studies and prior expectations on the findings of the current paper. The next section shows the empirical methodology of the paper, and it ends with the discussion of results and final remarks.

## II. LITERATURE REVIEW

Since inward FDI is not only essential for economic growth, but also it is considered as the essential tool for bringing technological advances into the economy, there has been taken enough emphasis on the study of its determinants. In general, while some studies focused on macroeconomic determinants of FDI inflow, other empirical analyses were conducted on political factors or both. For instance, Sharma (2017) set numerous macroeconomic factors as explanatory variables into the analysis. Namely, the study applied for Fixed Effect techniques due to the use of panel data. Mainly, the study found a statistically significant positive association between FDI inflow and Gross Domestic Product (GDP), which is a proxy for market size. This finding corresponds with the results of previous studies, including Galego et al., (2004), Janicki and Wunnava (2004) and Rjoub et al., (2017). As a proxy to market size, another indicator of market size would be the population of the country. Like most economists,

Adhikary (2017) also stresses the positive association between the number of people living in the country and FDI inflow. Another finding of Sharma (2017) was a statistically insignificant relationship between trade openness, which is measured by the ratio of the amount of total trade to GDP and FDI inflow. Even though this result was similar to what Liu et al., (2014) found in their studies, Kok and Ersoy (2009) and Rjoub et al., (2017) found a statistically significant positive relationship between aforementioned variables. In addition, Sharma (2017) found an inverse relationship between inward FDI and inflation. This finding corresponds with previous studies done by Cewis and Camurdan (2007), Kok and Ersoy (2009) and Kalirajan and Singh (2010). Although several studies, including Addison and Heshmati (2003), Khadaroo and Seetanah (2009), Kok and Ersoy (2009) and Adhikary (2017) found a positive relationship between infrastructure and inward FDI, Sharma (2017) reported a negative impact of infrastructure on FDI inflow. Regardless of substantial empirical analyses done on defining the effect of human capital to FDI inflow, there is still uncertainty concerning

its decisive influence. For example, Noorbaksh et., (2001) and Sharma (2017) used different proxies such as secondary school enrollment ratio or years of secondary schooling for human capital to conduct their analyses, but both found a significant positive association between the variables. However, Morisset (2000) argues that multinational corporations do not pay more attention to the availability of highly qualified labor while they are choosing their business destinations.

As an imperative in both the source and host countries, there have been extensive studies focused on the impact of tax rates on FDI inflow. However, the results are still inconclusive. Higher corporate tax rates should discourage foreign investment as argued by Damijan (2009) and Bellak et al., (2009). At the same time, the recent specific study, Rjoub (2017), which empirically investigated the determinants of FDI inflow to landlocked countries in Sub-Saharan Africa between the period of 1995 and 2013, found a statistically significant inverse relationship between corporate tax rates and FDI inflow. However, it is also argued by other economists that each country has its strategy on addressing double-taxation. Therefore, as Hartman (1985) highlights that there is no negative relationship between some forums of FDI tax rates. Hartman's noticeable insight is that since there is no way to avoid corporate taxes on doing business, FDI inflow does not necessarily rely on tax rates. Later, particularly in 2012, Hartman's finding was supported by Lehmann et al., saying that '*while taxes are an important aspect of FDI decisions among managers, they are probably not the main driver of the decision*' (p.90). Turning to the theoretical background of market potential and its impact on FDI inflow, numerous studies, including Cewis and Camurdan (2007) and Adhikary (2017) found that countries with high GDP growth attract more FDI than countries experience a relatively lower rate of GDP growth. However, many economists have found a strong positive relationship between the trends of FDI and economic growth, Ericsson and Irandoust (2001) discovered no significant association between two variables. Additionally, Li and Liu (2005) find that human capital functions as a mediator in the relationship between FDI and economic growth.

Moreover, there are some studies that focused on the analysis of ease of doing business in a host country and its influence on FDI inflow. For example, Bayraktar (2013) investigated the impact of changing the ease of doing business on the changing direction of FDI towards developing countries for the time period of 2004 and 2010. The results indicated that those countries which have better records of "doing business" tend to attract more FDI. However, Zhang (2007) argues that the lower cost of doing business should be the first-order priority not only to ease of documentation or timing to start a business.

Furthermore, there are a growing number of empirical studies implemented on the role of institutional factors on FDI inflow. In the same line with Daude and Stein (2007) and Busse and Hefekr (2007), Kurul and Yalta (2017) followed the dynamic panel data analysis, namely GMM method to evaluate the institutional determinants of FDI inflow for 113 developing countries over the period 2002-2012. The study found the statistically significant evidence that government effectiveness, control of corruption, and the voice and accountability influence positively on FDI inflow to developing countries. Similar initial findings were found by Gangi and Abdurrazak (2012), which evaluated the impact of governance on FDI inflow to African countries through the Random effect techniques. However, control of corruption was not significant by what Kurul and Yalta (2017) found. Another similar empirical study done on Asian countries by Ullah and Khan (2017) came with different results. In particular, it concluded that the governance index is negatively associated with FDI inflow in SAARC (South Asian Association for Regional Cooperation) countries. Likewise, Cazurra (2006) stresses that a high level of corruption creates uncertainty about the cost of operating business in the host country. At the same instant, the existence of corruption refers to an unrecognized imposed tax on business that distorts incentives to invest (Wei, 2000a). Despite the facts above, Wheeler and Mody (1992) and Henisz (2000) in their studies, found a positive association between corruption and FDI. Mainly, they see corruption as a tool, '*facilitating transactions and speeding up procedures that would otherwise occur with more difficulty*' (cited in Cazurra, 2006, p.808). They referred to China and Nigeria as examples, where corruption level has been quite high but still attracting an enormous amount of FDI into their countries. Also, Mody (1992) declared no relationship between corruption in the host country and FDI inflow. Like many economists, Schneider and Frey (1985) draw attention to the negative influence of political instability on the inflow of FDI (cited in Sharma, 2017). Similarly, there has been an extensive study of the impact of the exchange rate on FDI inflow for several years. Theoretically, the lower exchange rate implies more FDI attractiveness due to low cost of production. However, the firm generates the revenue in local currency, and then profit also is expected to be marginal. Therefore, it is mainly dependent on the orientation of FDI (Laincz and Zhu, 2008).

Turning to specific studies conducted on FDI inflow to Asian landlocked countries, namely Central Asia, Paswan (2013) points out that even though the Central Asian countries are landlocked, '*they are becoming one of the most significant FDI destinations since they present an abundance of natural resources and large population that enhances the market size*' (cited in Metaxas and Kechagia, 2016, p.68). At the

same time, Brock (1998) finds that the effects of the education level of workforce and infrastructure on FDI inflow in landlocked countries are not statistically significant. According to Metaxas and Kechagia (2016), political stability in those landlocked countries is a contributing factor to FDI inflow. Moren and Serra (2009) state that a lack of social health insurance in Central Asia is an essential factor reducing the attractiveness of FDI inflow.

More differently, Alam and Shah (2013) refer to several various contributing factors, including macroeconomic and institutional of FDI inflow such as labor cost, corruption practices, corporate tax rates, exchange rate, infrastructure, inflation, political stability and the openness of the economy. Nevertheless, they found that '*determinants have shown varied evidence when checked for significance over different regions of the globe*' (p.516). Therefore, they stress that even though one factor is statistically significant for one country, it might be insignificant in another country, which is located in a different region. This is also confirmed by the study of Kok and Ersoy (2009) that argues '*there is no widely accepted set of explanatory variables that can be regarded as the "true" determinants of FDI*' (p.106). Thus, they also highlight that a certain determinant of FDI might affect positively and negatively at the same time.

Overall, the sign and significance of FDI inflow determinants is likely to vary across regions. It strengthens the reasonableness of this study.

### III. DATA AND METHODOLOGY

The purpose of this paper is to fill a gap in the present-day debate on the contributing factors of inward FDI in landlocked Asian countries through an empirical analysis. Following the research objective, the data is gathered on the following 12 Asian LLCs as illustrated by Table 2 (see Appendix) for 21 years, namely between 1996 and 2016.

#### a) Dependent Variable

Since this paper aims to determine the factors of FDI inflow, Foreign direct investment, net inflows (BoP, current US\$) is constructed as a dependent variable. The data is available at International Monetary Fund database supplemented by data from the United Nations Conference on Trade and Development and official national sources.

#### b) Independent variables

The construction and explanation of independent variables in this study are as follows:

Table 1

Variable Name	Definition/Proxy	Data Source	Expected Sign
GDP per capita	GDP per capita (current US\$)	The World Development Indicators	+
Population	Population, total	United Nations Population Division	+
Trade openness	the sum of exports and imports of goods and services measured as a share of gross domestic product	World Bank national accounts data, and OECD National Accounts data files	+
GDP growth	GDP growth (annual %)	The World Development Indicators	+
Corporate Profit Tax	Taxes on income, profits and capital gains (% of revenue)	International Monetary Fund, Government Finance Statistics Yearbook and data files	-
Human capital	School enrollment, secondary (% gross)	The World Development Indicators	+
Days	Time required to start a business (days)	World Bank's Doing Business Database.	-
Government effectiveness	Percentile Rank	Worldwide Governance Indicators (WGI)	+
Control of Corruption	Percentile Rank	Worldwide Governance Indicators (WGI)	+
Inflation	Inflation, GDP deflator (annual %)	The World Development Indicators	-
Infrastructure	Logistics performance index: Quality of trade and transport-related infrastructure (1=low to 5=high)	World Bank and Turku School of Economics, Logistic Performance Index Surveys	+

#### IV. EMPIRICAL METHODOLOGY

To evaluate the determinants of FDI inflow to landlocked Asian countries the current research aims to conduct its analysis by using panel data. By Kurul and Talta (2017) and Rjoub et al. (2017), the panel data approach is a powerful technique because that it provides priority over time-series and cross-sectional data in terms of time-varying and multicollinearity between regress and and regressors. Therefore, the following study refers to two selected models; the one is Random effect model as found by Hausman test, the other is GLS (*Generalized Least Squares*) as suggested many studies, including William H. Greene (2011) in favor of more accurate estimates by allowing regression in the presence of heteroskedasticity and serial correlation.

Specifically, GLS allows us to minimize a weighted sum of residual squares

$$\sum w_i u_i^2 = \sum w_i (Y_i - \beta_1 X_{0i} - \beta_2 X_{1i})^2$$

with  $w_i = 1/\sigma^2$  acting as the weights.

This study is not the only one that applies GLS to analyze the determinants of FDI. For instance, Culem (1988) comparatively used OLS and GLS to investigate determinants of FDI in 6 European countries between 1969-1982. The variables taken into account were the FDI, the annual rate of GDP growth, tariff barriers, labor costs and the nominal interest rate differential. Further, Fung et al (2003) and Mina (2007) also used GLS to study FDI determinants in panel data approach.

By following the methodology of previous studies, our standard empirical model is constructed as follows:

$$Y_{it} = \beta_0 + \beta_1 * X_{1it} + \beta_2 * X_{2it} + \dots + \beta_{11} * X_{11it} + \mu_{it}$$

Where  $i=1,2, \dots n$  refers landlocked countries

$t=1996, 1997, \dots 2015, 2016$  years

- Y: the natural logarithm of FDI inflow
- X1: the natural logarithm of GDP per capita in constant 2010 USD;
- X2: the natural logarithm of population of each country;
- X3: inflation rate
- X4: trade openness as Trade (% of GDP)
- X5: annual GDP growth
- X6: human capital
- X7: control of corruption perception index
- X8: government effectiveness rank
- X9: the time required to start a business in days
- X10: profit tax rates
- X11: infrastructure index
- $\mu$ : error term (disturbance)

#### V. EMPIRICAL FINDINGS AND CONCLUSION

Before turning to the discussion of results, it is essential to note that some variables have been deliberately dropped to avoid deriving bias results due to high multicollinearity among variables as discussed

above. It is also important to highlight some general features of the constructed models. The model seems to be reasonable, since it explains around 95% variation in FDI inflow to Asian LLCs.

The results show that, the market size is positively associated with FDI inflows to Asian LLCs in both RE and GLS models. Namely, GDP per capita has a significant positive influence on FDI inflows to Asian LLCs, indicating the 1% significance level. While assuming all factors constant 1% increase in GDP per capita leads to roughly 0.3% rise in average FDI inflow to Asian LLCs. Another proxy for market size, the population and FDI theoretically flow should have a positive correlation as discussed in the literature part. For example, if there is a 1% rise in population, it is expected to lead to around 0.4% increase in FDI inflow. In general, our derived results correspond with hypothesized correlations and the findings of other studies, including Galego et al., (2004), Janicki and Wunnava (2004), Rjoub et al., (2017), Sharma (2017) and Adhikary (2017), who found the quantity of country population as a significant explanatory variable of FDI inflow.

Moving on the discussion of human capital, as confirmed insignificant corresponding p-values in the table above, there is no statistically sufficient evidence to conclude that the impact of human capital on FDI inflow is significant. It should be noted that, our results do not correspond with findings of Noorbaksh et al., (2001) and Sharma (2017) who found a significant positive relationship between variables in their studies. However, the model with the absence of government effectiveness indicates the significance of human capital for FDI inflow but with an inverse relationship. It might be explained by Morisset (2000)'s argument, which emphasizes the fact that multinational corporations do not pay attention to the availability of highly qualified labor, while they are choosing their business destinations, seems to be noteworthy.

Another determinant of FDI inflow to the economy is the extent of taxation; theoretically, the higher the tax, the lower the FDI inflow. The study finds that FDI inflows to Asian LLCs are sensitive to corporate tax rates. For example, a 1% increase in tax rates results in around 0.006% decrease in FDI inflow to Asian LLCs. Our findings highly confirm the negative relationship between corporate tax rates and FDI inflows in the same line with other studies (Damijan (2009), Bellak et al., (2009) and Rjoub et al., (2017)).

Hypothetically, as a proxy for ease of doing business in the host country, required days to start a business should be negatively associated with FDI inflow to the host country. However, in our analysis, it was statistically found that time required to start a commencing does not have a significant impact on the level of FDI inflow. Here one might be concluded that in Asian LLCs the time required to start a business in host

country does not necessarily reduce the level of FDI inflow to those countries.

Turning to institutional factors involved in our analysis, government effectiveness theoretically should enhance FDI inflow to the host countries. As the table above indicates, the underlying hypothesis holds in our analyses. Specifically, a percentile rank rise in government effectiveness would attract roughly 0.01% more FDI. The other institutional variable set in the model is the control of corruption. The results depict that a percentile rank rise in corruption index only would facilitate inward FDI by 0.002, but the estimation is not significant at a 5% significance level. However, as previously discussed, there is the presence of a high correlation between government effectiveness and control of corruption indexes. Therefore, while checking its impact, it was found that the impact of control of corruption on FDI inflow is significant at 0.1% significance level though the RE model. Simultaneously, the GLS model confirms the same effect at the probability of 0.05. Here one should be taken into account that the GLS allows to estimate results in the presence of heteroskedasticity and a serial correlation. Thus, the estimates of the GLS model are more reliable. In short, the results regarding the sings and significance of institutional variables highly confirm what other studies such as Daude and Stein (2007), Busse and Hefekr (2007) and Kurul and Yalta (2017) detected. Insignificant finding on control of corruption in this study is the same line with Kurul and Yalta (2017) that found no significant relationship between control of corruption and the level of FDI inflow to the host country. Therefore, the study still concludes that the institutional variables keep their importance for Asian LLCs.

When an economy becomes more and more open to international trade, it facilitates to attract more inward FDI into the host country. Therefore, theoretically, trade openness should be positively associated with FDI inflow. The results indicate a positive significant coefficient of trade openness. It statistically means that one percent increase in trade openness is expected to facilitate the attraction of FDI inflow by roughly 0.005%, while keeping all other factors constant.

Another explanatory variable in the model, infrastructure is hypothesized to have a positive coefficient. The aforementioned hypothesis does not hold for Asian LLCs, meaning that there is no evidence to conclude that the effect of infrastructure is significant at a 5% significance level.

Moving on to the next theoretical determinant of FDI inflow, a proxy for market potential, GDP growth has a hypothetically inconclusive association with FDI inflow as discussed in the literature part. Turning to the results, it is clear from the tables that selected RE, and GLS models report the same insignificant results. This is not a result only this current study found. There are other studies, namely Ericsson and Irandoust (2001) and



Serin and Caliskan (2010) discovered an insignificant association between GDP growth and inward FDI.

The last but not least determinant of FDI inflow, inflation is theoretically inversely correlated with FDI inflow as brought in the literature part. Inflation-related findings of this study refer that 1% increase inflation rate should facilitate the attraction of FDI inflow by roughly 0.009% at 5% significance level. Although the derived findings do not correspond with some studies, Ceviz and Camurdan (2007), Kok and Ersoy (2009) and Kalirajan and Singh (2010) who found a significant inverse relationship between inflation and inward FDI, Kolstad, and Villanger (2008) found insignificant relationship between inflation rate and FDI inflow. In general, a positive association between FDI inflow and inflation rate might be explained by the fact that all of Asian LLCs are, in fact, developing countries, which usually have higher inflation with economic growth.

In summary, whereas the impact of market size, trade openness, institutional factors, inflation and corporate profit tax on FDI inflow are found statistically significant, infrastructure, GDP growth and the time required to start a business have no impact on the inward FDI in Asian LLCs.

## VI. POLICY RECOMMENDATIONS

After having empirical findings, it is plausible to remark some FDI-related implications to help policymakers take efficient proposed actions to facilitate FDI inflow.

As the findings report GDP per capita and the number of the population seem to the most influential factors to inward FDI. Therefore, the government authorities of those countries should mainly focus on implementing efficient macroeconomic instruments to ensure a high level of GDP per capita and keep reasonable demographic segmentation. According to the results obtained, another helpful tool to increase FDI attractiveness of economy in Asian LLCs is to concentrate on expansionary Fiscal Policy. The government can implement it by cutting tax rates by plausible amount. As the results report, institutional variables play an important role in attracting foreign investors. Thus, it is recommended for authorities of Asian LLCs to implement some policy actions to increase government effectiveness so that the economy can reap numerous benefits from FDI inflow to the country. Mainly, the authorities should pay attention to increasing the quality of public and civil services and ensure its independence from political pressure, which creates market inefficiency. These actions all together are likely to affect the investment-related decisions of foreign investors. Also, trade openness seems to be another solution for Asian LLCs to facilitate inward FDI. To expand the level of trade openness of an economy, authorities of Asian LLCs should mainly focus on free-

trade policy implementations with neighboring countries. The government authorities implement it by following more deep trade liberalization, removing restrictions on the exchange of goods and services or reducing tariffs and other difficulties related to the excessive time spent on documentation while crossing the boarders. The steps above are likely to attract more FDI into a host country. Even though some other factors that found insignificant in our analysis are at least consistent with their theoretical impacts on FDI inflow. Therefore, it is plausible to focus on removing the presence of corruption and reaching a high level of GDP growth.

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## APPENDICES

*Table 1:* Regression Results

	I		II	
	RE	GLS	RE	GLS
GDP per capita	0.34*** (0.0546)	0.34*** (0.0553)	0.32*** (0.0563)	0.32*** (0.0519)
Population	0.38*** (0.0990)	0.38*** (0.0636)	0.36*** (0.0919)	0.36*** (0.0569)
Human capital	0.0006 (0.0007)	0.0006 (0.0001)	0.0007 (0.0007)	0.0007 (0.001)
Trade openness	0.0052** (0.0024)	0.0052*** (0.0014)	0.0047** (0.0029)	0.0047*** (0.0013)
Profit tax	-0.0059*** (0.0009)	-0.0059*** (0.0013)	-0.0061*** (0.0009)	-0.0061*** (0.0013)
Government effectiveness	0.0092** (0.0046)	0.0092** (0.0042)	0.0110*** (0.0010)	0.0110*** (0.0035)
Control of Corruption	0.0020 (0.0017)	0.0020 (0.0025)	-	-
Time required to start business	0.00001 (0.0010)	0.00001 (0.0012)	-0.0002 (0.0011)	-0.0002 (0.0012)
Infrastructure	-0.0576 (0.1990)	-0.0576 (0.0990)	-0.0575 (0.2020)	-0.0575 (0.1007)
GDP growth	0.0103 (0.0072)	0.0103 (0.0066)	0.0095 (0.0064)	0.0094 (0.0066)
Inflation	0.0040 (0.0071)	0.0040 (0.0047)	0.0045 (0.0071)	0.0045 (0.0047)
Constant	13.26*** (1.697)	13.26*** (1.222)	13.78*** (1.522)	13.78*** (0.919)
Observations	30	30	30	30
R-squared	0.95	-	0.94	-

Table 1: (Continued)

	III	
	RE	GLS
GDP per capita	0.396*** (0.0274)	0.396*** (0.0377)
Population	0.344*** (0.0363)	0.344*** (0.0710)
Human capital	-0.00076** (0.00035)	-0.00076 (0.00133)
Trade openness	0.00449***	0.00449***
Profit tax	-0.00502*** (0.00112)	-0.00502*** (0.00163)
Government effectiveness	-	-
Control of Corruption	0.00647*** (0.00135)	0.00647** (0.00256)
Time required to start business	-0.00003 (0.00066)	-0.00003 (0.00114)
Infrastructure	0.0469 (0.1190)	0.0469 (0.1200)
GDP growth	0.00914 (0.00811)	0.00914 (0.00772)
Inflation	0.00991** (0.00464)	0.00991* (0.00591)
Constant	13.47*** (0.722)	13.47*** (1.325)
Observations	44	44
R-squared	0.88	-



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## The Crisis of Capitalism and Unequal Development in the Doctrine of Samir Amin: The Case of Venezuela

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**Abstract-** The objective conditions of a systemic crisis existed everywhere. Crises are inherent in capitalism, which produces them recurrently, each time deeply. It is not necessary to apprehend each crisis separately, but globally (Samir Amin, 2012). At the beginning of the year 2019, Venezuela is in the "global chaos": the crisis is the worse than the one known by the United States during the Great Depression of 1929-1933. My reflection in this article revolves around the following questions: Can we say that the crisis in Venezuela is the logical consequence of the crises in the global economic system? Can we conclude that this crisis is the "systemic crisis" which shows that the capitalist system is in its phase of the 'old age'? Can we analyze as the result of the domination of a periphery by a center? Can we consider that this crisis is a permanent war of the North against the South? To give some answers, this article tries to analyze these questions by adopting the critical approach of Samir Amin as an anti-capitalist or anti-imperialist theorist and philosopher.

**Keywords:** crisis of capitalism; cold war; imperialist rent; samir amin; Venezuela.

**GJMBR-B Classification:** JEL Code: B24 ; D63 ; E11 ; P30



THE CRISIS OF CAPITALISM AND UNEQUAL DEVELOPMENT IN THE DOCTRINE OF SAMIR AMIN IN THE CASE OF VENEZUELA

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# The Crisis of Capitalism and Unequal Development in the Doctrine of Samir Amin: The Case of Venezuela

La Crise Du Capitalisme Et Le Developpement Inegal Dans La Pensee De Samir Amin: Le Cas Du Venezuela

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**Résumé-** "les conditions objectives d'une crise de système existaient partout. Les crises sont inhérentes au capitalisme, qui les produit de manière récurrente, à chaque fois plus profonde. Il ne faut pas apprêhender chaque crise séparément, mais de manière globale," (Samir Amin, 2012). Dès le début de l'année 2019, Venezuela est dans le "Chaos total": la crise est plus pire que celle connue par les États-Unis pendant la Grande Dépression de 1929-1933. Ma réflexion dans ce travail s'articule autour des questions suivantes: *Peut-on dire que la crise en Venezuela est une suite logique des crises que connaît le système économique mondial ? Peut-on conclure que la dite-crise est une "crise systémique" qui montre que le système capitaliste est dans une phase de 'vieillesse' ? Peut-on analyser cette crise comme une domination du centre au périphérique ? Ou, peut-on considérer que cette crise est une guerre permanente du Nord contre le Sud ?* Pour donner des éléments de réponse, ce travail essaye d'analyser ces questions en adoptant la démarche critique de Samir Amin comme un penseur anticapitaliste ou anti-impérialiste. La conclusion primordiale globale tirée de cette analyse est que la crise vénézuélienne ne peut pas être considérée comme une crise séparée du système économique mondial et de la situation politique mondiale chaude. Les données politiques montrent que le monde actuel est au déclin de la démocratie qui est aujourd'hui plus menacée suite notamment à la concentration du pouvoir au bénéfice exclusif de la triade impérialiste et des pays émergents. On aura sans doute plus de crises/guerres qui seront déclenchées par différents motifs, mais la cause profonde réside dans la nature du système mondial et sa façon de répartir et exploiter les richesses naturelles de la planète. La crise vénézuélienne signifie, ainsi, que le système dans son ensemble est en difficulté surtout que "la stratégie de la Chine se contente d'oeuvrer pour la promotion d'une nouvelle mondialisation, sans hégémonie. Ce qui ni les Etats-Unis, ni l'Europe ne pensent l'accepter," (Samir Amin, 2009).

**Mots clés:** crise du capitalisme; guerre froide; rente impérialiste; pensée de samir amin; venezuela.

**Abstract-** The objective conditions of a systemic crisis existed everywhere. Crises are inherent in capitalism, which produces them recurrently, each time deeply. It is not necessary to

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apprehend each crisis separately, but globally (Samir Amin, 2012). At the beginning of the year 2019, Venezuela is in the "global chaos": the crisis is the worse than the one known by the United States during the Great Depression of 1929-1933. My reflection in this article revolves around the following questions: Can we say that the crisis in Venezuela is the logical consequence of the crises in the global economic system? Can we conclude that this crisis is the "systemic crisis" which shows that the capitalist system is in its phase of the 'old age'? Can we analyze as the result of the domination of a periphery by a center? Can we consider that this crisis is a permanent war of the North against the South? To give some answers, this article tries to analyze these questions by adopting the critical approach of Samir Amin as an anti-capitalist or anti-imperialist theorist and philosopher. The overarching conclusion drawn from this analysis is that the Venezuelan crisis cannot be considered as a separate crisis of the global economic system and the political conflict. Political data show that the world is in the decline of democracy, which is more threatened because of the concentration of power for the exclusive benefit of the imperialist triad and the emerging countries. Certainly, there will be a lot of crises/wars which will be triggered by different motives, but the core cause lies in the global economic system and how it distributes and exploits the planet's natural wealth. Venezuelan crisis means that the actual system as a whole is in difficulty, especially since China's strategy is content to work for the promotion of new globalization without hegemony. Which neither the United States nor Europe think to accept, (Samir Amin, 2009).

**Keywords:** crisis of capitalism; cold war; imperialist rent; samir amin; Venezuela.

## I. INTRODUCTION

L'Amérique latine était présentée comme la région du "nouveau boom". Des responsables américains affirmaient qu'elle serait, à bref délai, le "premier hémisphère entièrement démocratique de l'histoire de l'humanité", (Lowenthal, 1994, p.1075). Toutefois, Lowenthal a mis en question cet optimisme du début des années 90, constatant que "les progrès politiques et économiques de l'Amérique Latine sont réels mais fragiles, étendus mais irréguliers, notables mais encore limités, prometteurs mais en aucune manière assurés," (Lowenthal, 1994, p.1075).

Dès le début des années 80, des mutations profondes ont spécialement commencées en Amérique Latine et Caraïbes. Au niveau économique, cette région a admis que l'approche de la croissance économique, via la substitution des importations, était considérée sans avenir, et que son redressement dépendait essentiellement des exportations. Cela implique, l'instauration d'une nouvelle stratégie axée sur l'ouverture de nouveaux marchés à des taux d'intérêt compétitifs, la suppression de diverses subventions et formes de protection. En outre, la région devait limiter rigoureusement les activités industrielles et de réglementation de l'Etat, privatiser la plupart des entreprises publiques, favoriser la concurrence sur les marchés, stimuler le secteur privé, et attirer les investissements étrangers, (Lowenthal, 1994, p.1076).

Au niveau diplomatique et politique, l'Amérique Latine et les Caraïbes ont essayé d'avancer leur démocratie constitutionnelle et établir une relation harmonieuse avec les Etats-Unis. En effet, la politique extérieure de nombreux Latino-Américains a été marquée avant la fin des années 70 soit par une indépendance vis-à-vis de Washington, soit par une opposition ouverte. Cette politique est caractérisée par des "politiques restrictives en matière d'investissements étrangers, les marchés réservés, les barrières tarifaires élevées, les mouvements vers l'intégration économique régionale et la concertation diplomatique constituaient autant de réactions hostiles au pouvoir des Etats-Unis," (Lowenthal, 1994, p.1077). En 1990, les premières négociations ont été menées surtout par le Mexique en vue de la signature d'un Accord de Libre-Echange Nord-Américain (ALENA) avec les Etats-Unis et le Canada. Et par la suite, la plupart des autres pays Latino-américains s'efforcent d'améliorer leurs relations avec Washington, à l'exception du Cuba que sa relation politique a pris un autre chemin de négociation.

Cette transformation du système économique et politique des pays de l'Amérique Latine et les Caraïbes vers l'économie de marché peut-elle expliquer que l'économie Étatiste et dirigiste a échoué, et qu'elle est dans l'impasse ? Cette transformation vers la coopération interaméricaine peut-elle montrer que la confrontation avec Washington est un mauvais pari ? Et/ou elle peut-nous confirmer que le débat tiers-mondiste sur un "nouvel ordre économique international" n'est qu'un débat factice ? Ou bien, les changements que, notamment, l'Amérique Latine a connu résultent d'une transformation radicale du contexte mondial et d'un ordre politique mondial, ou comme le nomme Samir Amin le "total désordre" ou le "chaos ingérable" surtout avec la crise chaotique en Venezuela ? Ou bien peut-on dire que la crise vénézuélienne n'est qu'une autre façade de ce "total désordre" ?

Dès le début de l'année 2019, Venezuela est en crise qui est une crise politique et sociale, mais elle est d'abord et avant tout économique. Plusieurs

manifestations violentes et meurtrières se déroulent dans les rues des grandes villes à travers le pays. Comment peut-on expliquer cette crise? Y-a-t-il une relation structurelle avec la crise vénézuélienne et la transformation structurelle profonde des différents pays de l'Amérique Latine et les Caraïbes ? Pourquoi il y a plusieurs intervenants/pays extérieurs/étranges dans cette crise ?

Pour répondre à ces questions, il est souhaitable de comprendre le mécanisme de fonctionnement du système économique actuel en se basant, dans ce travail, sur une analyse anticapitaliste et anti-impérialiste particulièrement sur celle de Samir Amin comme le plus célèbre penseur de ce dogme de l'époque contemporaine.

Samir Amin a déclaré que l'idéologie dominante est la mondialisation capitaliste et la régulation par le marché. Et, les situations des différents pays doivent être classées "en fonction d'un seul critère, le degré de compétitivité industrielle sur le marché mondial," (Samir A., 1994, p.18). Toutefois, il confirme que ce projet de mondialisation par le marché n'est qu'une utopie du fait que "le capitalisme implique un marché intégré dans trois dimensions : marché des produits, marché du capital et marché du travail," (Samir A., 1994, p.20), ce qui implique qu'à l'échelle mondiale, le capitalisme est fondé sur un "marché tronqué, bidimensionnel si les capitaux et les marchandises circulent librement. Il n'y a pas de marché mondial du travail, et il n'y en aura pas, car tel marché impliquerait un Etat mondial, la suppression des frontières politiques." Le mécanisme de fonctionnement du capitalisme, d'après Samir Amin, doit "engendrer normalement, naturellement, spontanément et inexorablement, la polarisation mondiale". Ainsi donc, Le capitalisme va employer différents moyens de mettre son ordre et faire des multiples tentatives pour dominer le monde qui devient de plus en plus barbare, recourant aux interventions militaires.

Dans cette vision, aucune région du monde n'est à l'abri de la cupidité du capitalisme. Chacune d'elle constitue une opportunité pour soulager ses crises et éviter le chaos. L'Amérique Latine et les Caraïbes ne peuvent y échapper. Paul Cammack (ND) a signalé que les différences socio-économiques entre les régimes de cette région, la transition vers la démocratie appelle "une explication conjoncturelle plutôt qu'une explication traitant tous les pays comme des cas séparés, en faisant abstraction du contexte géographique et historique".

Cet article essaye d'analyser la situation économique mondiale actuelle ou la crise du capitalisme via la crise vénézuélienne qui a été déclenchée depuis 2015 en passant par l'analyse de la crise financière de 2008. Ma réflexion dans ce travail s'articule autour des questions suivantes: Peut-on dire que la crise en Venezuela est une suite logique des

crises que connaît le système économique mondial ? Peut-on conclure que la dite-crise est une "crise systémique" qui montre que le système capitaliste est dans une phase de 'vieillesse' ? Peut-on analyser cette crise comme une domination du centre au périphérique ? Peut-on considérer que cette crise est une guerre permanente du Nord contre le Sud ?

Le plan de ce travail est articulé autour des sections suivantes. *La deuxième section* présente la crise du capitalisme selon les défendeurs du système capitaliste et, d'un autre côté, selon les perceptions de Samir Amin. *La troisième section* analyse la crise vénézuélienne comme un rapport de force interne relevant des structures socio-économique, culturelle et politique du pays, et entre le(s) pays dominé(s) et/ou dominant(s) ou d'une guerre du Nord contre le Sud. Et, *la dernière section* présente la conclusion.

## II. CRISE DU SYSTÈME CAPITALISTE OU CAPITALISME EN CRISE

La croissance économique a une tendance "haussière" dans le temps qui dépend généralement des facteurs de production et de l'environnement socio-économique, culturel et politique du pays. L'humanité a atteint son système de production "idéal" et "éternel". A l'opposé de cette vision théorique, ce système n'est qu'une phase de progression émanant du processus de développement humain. Autrement-dit, il y aura forcément une destruction de ce système actuel pour se transformer ou se convertir vers un autre système "opposé" qui sera forcément un "bon" système capable de surmonter les limites de l'ancien système (le système économique mondial actuel).

En général, il y a deux grandes visions dans l'analyse du système économique actuel, indiquant des analyses discordantes, parfois contradictoires, de la crise du capitalisme et de son mode de fonctionnement. On a une pensée qui défend l'éternité du système capitaliste, ce qui implique que la crise n'est que transitoire. Il suffit donc d'appliquer des politiques économiques adéquates pour résoudre ces problèmes de déséquilibres périodiques. C'est à ce niveau où il y a la divergence entre les penseurs de cette vision d'analyse, à savoir : les keynésiens, les classiques, les monétaristes, les marginalistes et les postkeynésiens. Et, une autre pensée dite anticapitaliste ou anti-impérialiste qui défendent la thèse que la crise du système est un processus "naturel" symbolisant son rythme de destruction pour faire émerger un autre mode de production dite socialiste ou communiste. Parmi ces penseurs, il y a Samir Amin qu'on va essayer d'expliquer la crise actuelle en Venezuela selon sa doctrine.

- a) *Crise économique comme un dysfonctionnement d'ajustement des marchés et/ou d'une mauvaise intervention dans ces marchés*

Les penseurs, qui défendent le système économique actuel, montrent que la crise est expliquée, généralement, par le cycle de la productivité. Quand le taux de croissance du PIB diminue, les entreprises n'ajustent pas immédiatement les effectifs des employés, elles font varier, au départ, la durée et l'intensité du travail, la productivité par travailleur diminue, et par la suite, elles recourent au licenciement de leurs employés (par exemple dans le cas d'une absence des politiques conjoncturelles<sup>1</sup>). Inversement en situation de reprise, les entreprises n'augmentent pas immédiatement l'emploi elles vont augmenter, au départ, les heures du travail et, par la suite, elles vont employer d'autres demandeurs d'emploi.

Autrement-dit, la croissance économique ne se fait pas à un rythme régulier ; elle est marquée par une succession de phases d'expansion et de ralentissement, voire de récession. Cette évolution irrégulière du PIB s'accompagne de déséquilibres qui influence, par exemple, l'évolution du taux de chômage ou/et du taux d'inflation. Pour y résoudre, il y a toujours un décalage temporel d'ajustement entre les différentes composantes du PIB<sup>2</sup> qui prennent trois mouvements cycliques avec le taux de croissance économique (mesuré généralement par le PIB): procyclique, acyclique ou contracyclique.

A cet effet, la croissance économique passe par deux phases aux alentours de sa tendance vers le point d'équilibre général ou l'état stationnaire: une phase de récession et une phase d'expansion. Les fluctuations économiques passent d'un Pic/Peak (en anglais) au Creux/Trough (en anglais) pour revenir au Pic, ou inversement. Ces mouvements forment ce qu'on appelle le cycle économique ou le cycle de croissance qui représente la période séparant deux pics ou deux creux. Il a la forme de U ou de V, comprenant ainsi deux phases : la phase de récession et la phase d'expansion.

<sup>1</sup> Les politiques économiques conjoncturelles sont fondées sur l'idée qu'il est possible d'agir sur le niveau d'activité en modifiant les composantes de la demande globale. Elles sont d'inspiration keynésienne liées à deux politiques : politique monétaire et politique budgétaire. Ces politiques relèvent des pouvoirs publics cherchant à stimuler ou ralentir l'activité économique pour corriger les déséquilibres du marché du travail et/ou l'évolution du niveau général des prix. Il faut signaler que les politiques conjoncturelles ont été critiquées voire complètement rejetées par certains économistes puisqu'elles sont inutiles ou incapables de corriger les déséquilibres en agissant sur la demande. Ces économistes défendent l'idée que les marchés, si on les laisse fonctionner normalement, rétablissent automatiquement les équilibres, ramenant l'économie, ainsi, à ses niveaux naturels sans inflation ; ce qui implique que l'intervention de l'Etat, d'après eux, ne peut qu'aggraver ou ralentir le processus d'ajustement.

<sup>2</sup> Les composantes du PIB sont déterminées dans le cycle réel selon ses trois approches du calcul : Approche de production, Approche de revenu et Approche de demande ou dépense.

En conséquence, la crise économique n'est rien d'autre que la période dans laquelle l'économie est dans son phase de récession.

D'une autre manière, une fluctuation économique montre l'existence d'un décalage d'ajustement entre la croissance tendancielle (ou potentielle) et la croissance effectivement réalisée. De ce fait, la crise économique n'est qu'une phase d'une croissance réalisée au-dessous de la croissance tendancielle. Il suffit pour la résoudre de mettre en place une "bonne" politique économique capable de rétablir l'équilibre selon la loi du marché, et "avec" ou "sans" intervention de l'Etat, c'est-à-dire "avec" ou "sans" les politiques publiques de relance ou d'encouragement de demande.

Dans le cas d'un marché du travail qui est considéré comme un marché particulier, le chômage est expliqué généralement par le mauvais fonctionnement de l'économie qui sera augmenté au cours de la phase de récession, et par le salaire –considéré comme un prix d'ajustement de ce marché- puisqu'il est incapable de varier selon les variations de l'activité et de l'emploi. A cet effet, quand les ajustements ne se font pas, il y a un déséquilibre entre l'offre et la demande, et on a une situation de sous-emploi ou de chômage. Autrement-dit, pour beaucoup d'économistes la référence à un mécanisme de marché est inadaptée, parce que le travail n'est pas un "produit ordinaire" et, d'autre part, parce que l'offre de travail est peu sensible aux "variations du salaire" surtout à sa rigidité à la baisse qui est dû essentiellement à l'intervention des syndicats et des organismes des travailleurs empêchant le tâtonnement d'ajustement du marché.

En général, Le fonctionnement de l'économie conduit en permanence à des créations et des disparitions d'entreprises donc d'emplois; entraînant ainsi un "chômage frictionnel" qui correspond à un "chômage de plein-emploi". Le chômage constitue la différence entre ceux qui ont un emploi et ceux qui en cherchent activement un. Il n'est pas lié à la nature du système de production. Il traduit juste un déséquilibre dans le fonctionnement du système capitaliste. D'une autre manière, il reflète le décalage d'ajustement entre la croissance tendancielle et la croissance réalisée. Il n'y a pas une exploitation des travailleurs puisque le salaire représente la rémunération juste de leurs forces du travail. En parallèle, les propriétés du capital sont aussi rémunérées puisque les capitalistes confrontent les risques de production, les risques de commercialisation, les risques de la concurrence, et toutes autres formes de risques. Le décalage social entre eux est considéré comme normal ce qui implique les inégalités sociales sont logiques, et elles peuvent être corrigées selon le principe de méritocratie.

D'autre part, le niveau de développement entre les pays; surtout entre les pays du Nord et ceux du Sud;

est expliqué notamment par le décalage temporel de développement. Il suffit, par exemple, de transférer la technologie et le savoir-faire de pays de Nord aux pays du Sud, et/ou que le Sud se spécialise dans la production des produits à des valeurs ajoutées élevées pour qu'ils puissent générer de richesses et réaliser l'accumulation du capital comme facteur primordial du développement. Avec ces stratégies, les pays dits sous-développés (PSD) ou en voie de développement (PED) peuvent attraper les pays dits développés (PD) ou avancés. En plus, les économistes de cette approche défendent l'idée que les PSD ou les PED peuvent réussir leurs décollages économiques s'ils arrivent surtout à modifier les règles institutionnelles<sup>3</sup> et réagissent sur les "bonnes" sources de la croissance.

La situation d'une crise économique d'un pays dépend de dysfonctionnement de ses marchés et de ses capacités d'ajustement. Elle n'est pas liée au système capitaliste qui reste un système "idéal" et "éternel" de la production des richesses, de la croissance économique et du bien-être de la société.

#### b) *Perceptions de Samir Amin sur la crise du capitalisme*

Samir Amin a constaté que "les conditions objectives d'une crise de système existaient partout. Les crises sont inhérentes au capitalisme, qui les produit de manière récurrente, à chaque fois plus profonde. Il ne faut pas apprécier chaque crise séparément, mais de manière globale,"(Samir Amin, 2012). Dans cette vision, les crises peuvent être déclenchées par tout dans le monde puisque c'est la nature du système capitaliste qui les produit de manière permanente avec différents aspects et degrés d'aggravation. Ce système produit ses conditions objectives de destruction malgré sa domination mondiale surtout après la chute du mur de Berlin et l'effondrement de l'Union Soviétique (URSS).

Depuis 1970, le capitalisme domine le système mondial, d'après Samir Amin, par cinq avantages: (1) le contrôle de l'accès aux ressources naturelles; (2) le contrôle de la technologie et de la propriété intellectuelle; (3) l'accès privilégié aux médias; (4) le contrôle du système financier et monétaire, et (5) le monopole des armes de destruction massive. Le système capitaliste appelé par cet auteur "apartheid on a global scale" mène des guerres une fois c'est nécessaire, c'est-à-dire une fois l'un de ses cinq avantages est menacé, ou bien s'il veut faire un contrôle direct pour garantir sa dominance et son existence. En négligeant les enjeux politiques dans cet article, les

<sup>3</sup> Par exemple, il est possible d'augmenter le taux d'emploi en appliquant des réformes du marché du travail, de la durée du travail et de l'âge de la retraite ; ou de soutenir l'investissement par l'application de réforme des systèmes de financement.

Etats-Unis restent le symbole de ce système affamé au gain sans limite, assoiffé au sang des pauvres, et destructeur de toute forme de vie sur la terre.

Actuellement, le système capitaliste est dominé par une poignée d'oligopoles qui contrôlent la prise des décisions fondamentales dans l'économie mondiale, (Samir Amin, 2008). Ces oligopoles ne sont pas seulement financiers (banques ou assurances), mais de groupes intervenant dans la production industrielle, les services, les transports, etc. Leur caractéristique principale est leur financiarisation selon le même auteur. La recherche des gains rapides et l'accumulation des richesses ont changé "le centre de gravité de la décision économique" qui a été "transféré de la production de plus-value dans les secteurs productifs, vers la redistribution des profits occasionnée par les produits dérivés des placements financiers," (Samir Amin, 2008).

Dans cette stratégie révélée par Samir Amin, les oligopoles ne produisent d'ailleurs pas de profits, ils raflent tout simplement une rente de monopoles par le biais de placements financiers. C'est la domination de "oligopoles ou monopoles généralisés" qui a donc mis l'économie dans une crise d'accumulation, qui est à la fois une crise de sous-consommation et une crise de la profitabilité. Seuls les secteurs des monopoles dominants ont pu rétablir leur taux de profit élevé, mais en détruisant la profitabilité et la rentabilité des investissements productifs, des investissements dans l'économie réelle. Il existe partout des conditions objectives liées à la nature du capitalisme qui déclenchent la crise dans le système, par exemple, si la crise financière de 2008 n'avait pas été commencée aux Etats-Unis, elle aurait débutée ailleurs, (Samir Amin, 2012).

Le penseur des relations de domination (néo) coloniales (Samir, A..) ne néglige pas la capacité du capitalisme de se transformer, s'évoluer et s'adapter en permanence aux défis que représentent pour lui les différentes sources de déclenchement des crises. Le système capitaliste trouve ses moyens de renouvellement et de continuation jusqu'au où les conditions seront mûrs pour une transformation vers un autre système. Toutefois, il ne s'agit pas des crises normales du capitalisme. Ce penseur égyptien déclare que la dernière crise du capitalisme (la crise financière de 2008) est une crise du système. Elle n'a plus la forme de 'U', mais elle a la forme de 'L' depuis les années 1970 car "la logique qui a conduit à la crise ne permet pas la reprise".

D'une autre manière, la crise en 'L' signale l'épuisement historique du système qui a démarré à partir du milieu des années 1970, ce qui signifie que "le régime va mourir lentement et paisiblement de sa belle mort". Samir, A. accorde, ainsi, une grande importance à cette époque dans ses analyses de la crise, expliquant que l'économie mondiale a connu des

chutes de moitié dans les taux de profit, comme les taux de croissance et d'investissement. C'est vrai que le capital a réagi par une stratégie de centralisation supplémentaire durant les années 1980-1990; mais, il a, aussi réagi par la mondialisation et la financiarisation. Au niveau mondial, les activités financières deviennent les plus rentables pour les grandes entreprises non financières. Il confirme que l'aspect financier à la prééminence sur tous les autres aspects de la décision économique pour tous les oligopoles. Cette stratégie a rétabli "les taux de profit, mais s'est faite au détriment de l'investissement dans les systèmes productifs. En conséquence, elle s'est traduite par une inégalité grandissante dans la répartition des revenus et donc par une crise de débouchés, de surcapacité par rapport à un rétrécissement de la demande solvable".

Dans son livre "Sur la crise. Sortir de la crise du capitalisme ou sortir du capitalisme en crise?", Samir, A. (2009) ne considère pas la crise comme une somme de crises qui peuvent être abordée d'une manière segmentaire: crise de l'énergie, crise de la production, crise du climat, crise financière, etc. Pour lui, la crise financière 2008, par exemple, n'est qu'un moment d'aggravation d'une crise ancienne et va continuer à se détériorer: la crise du capitalisme tardif. L'auteur confirme qu'il y a des ressemblances dans les crises. Il a fait, dans ce livre, "le parallèle avec la longue crise de 1873 à 1945. Celle-ci se manifeste au début et jusqu'en 1896 par une chute des taux de croissance, des taux de profit, une chute de l'investissement dans le système productif. Exactement comme entre 1971 et 1990. Dans les deux cas, la réponse a été la même: davantage de centralisation, de mondialisation et de financiarisation. A la fin du 19e siècle, ce processus s'est opéré par la colonisation, forme directe et brutale de mondialisation, la création des premiers grands oligopoles, la première grande vague de financiarisation et une vague d'innovation. A l'époque, c'était l'électricité, l'automobile et l'avion qui ne sont pas moins importants que le téléphone portable d'aujourd'hui. Cette phase a débouché sur la Belle Epoque jusqu'en 1914, comparable à 1995-2008. Ce sont deux périodes où les inégalités grandissent et où on tient exactement le même discours de fin de l'histoire, de triomphe apparent du libéralisme," (Samir Amin, 2009).

Le chercheur égyptien confirme, dans cette thèse, que les oligopoles sont les responsables de la crise. Le monde connaît un "degré de centralisation inégalé dans l'histoire". En effet, les grandes transnationales contrôlent à peu près toute la vie économique du monde. Mais, la dernière crise (2008) est considérée par Samir comme une crise systémique du capitalisme vieillissant en affirmant que derrière la crise financière, elle s'est dessinée une crise de l'économie réelle qui va entraîner une régression des revenus des travailleurs, accroissement du chômage, précarité grandissante et aggravation de la pauvreté



dans les pays du sud. Il s'agit de dépression et non plus de récession. Cette prédiction a été réalisée par le nombre important des manifestations sociales; et qui sont parfois transformées à des révoltes politiques dans plusieurs pays du Sud. Et même dans les anciens pays démocratiques du Nord et qui connaissent des offres sociales importantes, ils ont connu des mouvements sociaux chauds comme le mouvement des "gilets jaunes" apparaît en France en octobre 2018<sup>4</sup>. Bien sûr, la région du Nord d'Afrique n'est pas à l'abri des conséquences de cette crise, surtout avec des politiques antisociales qui ont aggravé les inégalités sociales et territoriales, augmenté le taux de la pauvreté et accéléré le processus de la privatisation des secteurs sociaux. En effet, le système capitaliste actuel est devenu, pour la première fois dans l'histoire, une véritable menace pour l'avenir de l'humanité et de la planète, (Samir Amin, 2008).

D'autre part, le système actuel a massacré la vie naturelle. Les conflits sont accentués pour monopoliser et contrôler les ressources naturelles. Samir, A. (2008) a déclaré que (*i*) les conflits concerneront l'accès aux ressources naturelles de la planète seront accentués puisque ces ressources deviennent de plus en plus rares, et (*ii*) les pays du Sud continueront de souffrir puisque les pays du Nord tiennent le pouvoir économique et politique du contrôle planétaire. Il a ajouté que la dimension majeure de la crise systémique concerne l'accès aux ressources naturelles de la planète et le conflit Nord/Sud va constituer de ce fait l'axe central des luttes et des conflits à venir. La population des pays riches (représentée presque 15% de la population de la planète) accapare pour sa seule consommation et son gaspillage 85 % des ressources du globe, et elle ne peut pas tolérer que des nouveaux venus; c'est-à-dire la population des pays émergents; puissent accéder à ces ressources, car ils provoqueraient des pénuries graves qui menaceraient les niveaux de vie des riches, (Samir Amin, 2008).

Pour sortir de la crise, Samir Amin ne néglige pas le rôle de l'Etat. Les interventions des Etats peuvent modifier les règles du jeu, et atténuer les dérives. Cet auteur confirme que théoriquement revenir à des formules d'association des secteurs publics et privés, d'économie mixte comme pendant les trente glorieuses en Europe et de l'ère de Bandung en Asie et en Afrique lorsque le capitalisme d'Etat était largement dominant, accompagné de politiques sociales fortes. Mais ce type d'interventions de l'Etat n'est pas à l'ordre du jour d'après lui. Ce chercheur croit "en revanche que de nouvelles configurations des rapports de force sociaux

<sup>4</sup> Le mouvement social des "gilets jaunes" trouve son origine dans la diffusion, principalement sur les réseaux sociaux, d'appels à manifester contre l'augmentation de la taxe intérieure de consommation sur les produits énergétiques (TICPE).

imposant au capital à s'ajuster, lui, aux revendications des classes populaires et des peuples, est possible," (Samir Amin, 2008). Il conditionne la réalisation de la "longue transition du capitalisme au socialisme" par la mise d'une "alternative politique cohérente" qui sera évidemment "toujours inégales d'un pays à l'autre et d'une phase de leur déploiement à l'autre".

Selon ces deux tendances d'analyse de la crise, je pense qu'aucun système économique ne peut être "idéal" et "éternel". Il me paraît impossible qu'un système reste éternellement le même/inchangé, mais sûrement il subit des changements structurels profondes, radicales, douces ou violentes suivant le rythme instable de la réalité et des évolutions de la vie humaine. En effet, l'histoire de l'humanité nous a montré que forcément les conditions socioéconomiques, culturelles, environnementales et politiques des pays/régions du monde conduisent à une transformation continue de leurs structures. Dans aucun cas, un système peut rester stable et incapable de "renouveler" sa structure. L'évolution et le changement des structures se fassent d'une manière permanente puisque les évènements et l'histoire ne peuvent pas se reproduire de la même manière au fil du temps et à travers l'espace.

### III. CRISE VÉNÉZUÉLIENNE OU LA GUERRE FROIDE EN VENEZUELA

Au début de l'année 2019, le Venezuela est dans une crise politique et sociale, mais aussi économique. Plusieurs manifestations violentes et meurtrières se déroulent dans les rues des grandes villes à travers le pays. Comment peut-on analyser cette crise ?

#### a) Analyse des indicateurs économiques et sociaux

Le Venezuela abrite d'importantes réserves gazières et pétrolières. Le pétrole reste le principal produit exporté, destiné surtout (par ordre) aux Etats-Unis, la Chine et l'Inde. D'après les données de la banque mondiale de 2017, la proportion de l'exportation du pétrole dans les exportations globales du Venezuela est d'environ 96%.

Venezuela est loin d'être une grande puissance mondiale. Entre le début des années 1980 et les années 2010, il se classait généralement, selon le PIB, au 3ème ou au 4ème rang parmi les pays d'Amérique du Sud, derrière le Brésil et l'Argentine. Cependant, son économie reste dépendante des fluctuations du prix mondial de pétrole, ce qui explique qu'après la forte baisse de ce prix survenue en 2014, Venezuela a fait dégringoler au 7ème rang, derrière des pays comme le Chili et l'Équateur. En effet, les recettes de l'Etat vénézuélien ont dramatiquement chuté notamment après la crise financière de 2008 et, aussi, la chute des cours du pétrole qui a marqué le début de l'année 2014.

Cette situation s'est répercutee sur les donnees intérieures du pays surtout l'arrêt des programmes sociaux et la diminution des aides sociales, l'augmentation de la migration, les pénuries alimentaires, l'hyperinflation et la baisse du pouvoir d'achat des citoyens-nes, (Tableau 1).

Selon les prévisions du Fonds Monétaire International, FMI, (2018), l'inflation est censée atteindre

des seuils très critiques. Cette tendance, associée à la chute de la valeur de la monnaie nationale vénézuélienne (le bolivar), n'a fait qu'aggraver sa situation économique et sociale. La dette est montée depuis 2016 de 31,299% du PIB, et devrait se creuser à presque 162% du PIB vers la fin de l'année 2019 et atteindre un taux presque de 165% du PIB en 2023.

*Tableau N°1:* Indicateurs de croissance du Venezuela

	2016	2017	2018	2019e*	2020e	2021e	2022e	2023e
PIB courant (En Milliards, USD)	236.12	210.08	96.33	87.01	81.354	77.889	75.037	68.216
PIB (croissance annuelle en %, prix constant)	-16.5	-14.0	-18.0	-5.0	-2.0	-1.5	-1.5	-1.5
PIB par habitant (USD)	7687,7	6890,1	3300,4	3100,1	2998,5	2870,8	2765,7	2514,3
Endettement de l'Etat (en % du PIB)	31,3	38,9	159,1	162,4	161,7	162,2	163,9	165,
Taux d'inflation (en 100000, %)	0,00025	0,00109	1,37	10	10	10	10	10
Balance des transactions courantes (BTC, en USD), Balance des transactions courantes (BTC, en % du PIB)	-3,87	4,277	5,903	3,472	1,672	-0,97	-0,27	0,03
Volume des importations de biens et services (en %)	-1,639	2,036	6,128	3,99	2,055	-1,245	-0,36	0,044
Volume des exportations de biens et services (en %)	-8,882	-17,785	-33,094	-32,909	-8,425	-1	-1	-1
Taux de chômage (en %)	20,638	27,096	34,315	38,02	39,782	41,361	42,899	45,239

Source: FMI, 2018, *World Economic Outlook Database*

Note: 'e' indique que les données sont estimées.

Le FMI (2018) a déclaré que l'économie du Venezuela continue de reculer pour la cinquième année consécutive, après une chute de 14% en 2017. Son PIB réel vase contracter de 18% et 5% en 2018 et 2019, respectivement, sous l'effet de la chute de la production pétrolière et de l'instabilité politique et sociale.<sup>5</sup>

Le PIB par habitant en Venezuela a connu une détérioration durant la période 2013-2017 de presque 35%, et le FMI (2018) prévoit qu'il continuera sa tendance baissière à l'horizon 2023, soit d'un taux moyen d'environ 60% durant la période 2013-2023, p.43.<sup>6</sup>Cet indicateur économique est passé de 7688 USD en 2016 à 3300 USD en 2018, et la situation économique et politique du pays indique que son évolution poursuivra une tendance baissière pour atteindre presque 2514 USD, soit une diminution d'un tiers (1/3) par rapport à celui de l'année 2016.

<sup>5</sup> "Venezuela's economy continues to decline for the fifth consecutive year, following a 14 percent drop in 2017. Real GDP is projected to shrink by 18 percent in 2018 and a further 5 percent in 2019, driven by plummeting oil production, and political and social instability," FMI, 2018, *World Economic Outlook Database*, Box 1.3. Growth Outlook: Emerging Market and Developing Economies; p.40.

<sup>6</sup> "In Venezuela, GDP per capita is estimated to have declined by more than 35 percent over 2013–17 and is projected to decline by close to 60 percent between 2013 and 2023," (FMI, 2018, Box 1.5. Sharp GDP Declines: Some Stylized Facts, p.43).

La répartition de l'activité économique par secteur d'activités montre que la structure économique reste dominée par le secteur des services (sa valeur ajoutée est de presque 53 en % du PIB) et le secteur d'industrie (sa valeur ajoutée est de presque 37 en % du PIB). Cependant, l'activité industrielle en Venezuela souffre de plusieurs problèmes dont notamment l'insuffisante dans la diversification des produits locaux et importés, et la difficulté pour importer des produits intermédiaires. Et il est handicapé, aussi, par le déséquilibre chronique de sa balance commerciale. Malgré la baisse des importations, le pays n'attire pas d'avantages suite, notamment, au manque de compétitivité du secteur industriel, au mauvais environnement des affaires, au défaut de la transparence et la bonne gouvernance étatique (expropriations arbitraires, contrôles et inspections intrusives de l'État). En plus, le classement mondial et régional du pays s'est reculé suite à la crise politique et économique actuelle, tels que: l'indicateur de la liberté économique (il se classe le 179ème au niveau mondial et le 32e au niveau régional), l'indicateur de l'environnement des affaires (il se classe en dernier), et l'indicateur de la liberté de la presse (il se classe le 137ème/180).

La crise du Venezuela est plus pire que celle connue par les États-Unis pendant la Grande Dépression de 1929-1933. Les augmentations de salaires n'ont pas suivi la hausse de l'inflation, le taux de chômage s'est augmenté, le taux d'insécurité et de criminalité s'est accentué, et le taux d'homicide le plus élevé du continent latino-américain. Ainsi, les citoyennes en Venezuela sont dans une situation du Chaos : la détérioration du pouvoir d'achat, l'accentuation de la pauvreté et la marginalisation, l'aggravation du système de santé, et l'insécurité sociale et politique. Un taux d'inflation variant entre 800000% et 1000000% ne signifie qu'une seule conclusion sur la crise actuelle c'est l'inexistence d'une vraie économie en Venezuela.

#### b) Analyse de la crise vénézuélienne

La crise vénézuélienne a déclenché quand le combat politique a commencé entre Nicolas Maduro, et Juan Guaido pour la présidentielle du pays. Certes, la dite crise est politique, mais les pays qui soutiennent ces deux personnes politiques montrent qu'elle s'agisse d'une autre crise au-delà d'une 'simple' crise économique, politique, sociale ou humanitaire.

Le président vénézuélien en fonction, Nicolas Maduro, compte sur la Russie et la Chine pour le soutenir dans sa bataille politique face au Juan Guaido, chef de l'Assemblée nationale auto-déclaré/autoproclamé président qu'il peut compter sur le soutien des Etats-Unis, le Canada, de certains pays de l'Union européenne (comme l'Espagne, le Royaume-Uni, la France et l'Allemagne), et de la majorité des pays sud-américains (comme l'Argentine, le Brésil, le Chili, la Colombie et le Pérou). Le soutien des deux groupes du pays est d'ordre politique et financier surtout que les indicateurs économiques, susmentionnés, montrent que Venezuela est dans une faillite globale ou "chaos global". D'une impasse politique à une crise économique et humanitaire.<sup>7</sup>

Les Etats-Unis contrôlent le pétrole du Vénézuela. Ils viennent intervenir dans cette crise par ses sanctions financières contre la compagnie pétrolière publique PDVSA (Venezuela's State-Owned Oil Company, Petróleos de Venezuela, S.A.) pour tirer des avantages politiques, mais surtout économiques. *Les Etats-Unis comme le premier acheteur du pétrole vénézuélien ne veulent-ils pas intervenir dans la crise pour contrôler directement les ressources et le fonctionnement de l'économie vénézuélienne ?*

Il n'y a pas seulement Washington dans cette scène de conflit, il existe aussi le Canada qui joue un rôle important dans cette crise. Des grandes sommes d'argent canadien ont été versées comme aides aux peuples vénézuéliens. Cependant, le Canada est peut-être dans la même vision diplomatique que Washington,

tandis que la Chine et la Russie sont en opposition. Dans son rapport de 2018, le département de la "Stratégie de Défense Nationale des États-Unis" a déclaré que Washington a une réapparition d'une concurrence stratégique à long terme avec la Chine et la Russie, les qualifiant de «puissances révisionnistes» ("revisionist powers") qui menacent ou «sapent l'ordre international» ("undermine the international order"). Ce département ajoute que la situation devient de plus en plus clair à savoir que la Chine et la Russie veulent façonner un monde conforme à leur modèle autoritaire en obtenant le droit de veto sur les décisions économiques, diplomatiques et de sécurité d'autres nations, (U.S. Department of Defense, 2018, p.2). Il confirme que la Chine et La Russie constituent une menace pour les Etats-Unis. *Comment peut-Washington anéantir ou réduire cette menace ?* Cette question constitue le souci majeur de Washington qui peut expliquer indirectement la crise vénézuélienne.

D'autre part, la Chine est une grande puissante économique mondiale, c'est pourquoi que son besoin en ressources naturelles est de plus en plus croissant. Le site japonais "The Diplomat"; spécialisé dans les questions de géopolitique asiatique ; a déclaré que "la Chine est le plus gros consommateur de pétrole au monde, et ses investissements au Venezuela étaient destinées à lui garantir une source d'approvisionnement sûre", (cité par le site france24).<sup>8</sup> Ainsi, elle a opté une stratégie de l'endettement pour les pays du Sud dont notamment Venezuela. Elle l'a octroyé des prêts importants de presque 50 milliards de dollars d'investissements et prêts. Ces prêts remontent à plusieurs années avant la dite-crise, et qui sont remboursés par des livraisons de pétrole pour sécuriser ses approvisionnements en la matière en assurant sa relation avec Venezuela comme un pays sud-américain qui est à la tête des plus grosses réserves mondiales. *Les intérêts chinois sont-ils menacés par cette crise ? Les prêts accordés par "China Development Bank" ne sont-ils pas des pièges stratégiques contre Venezuela pour servir juste l'économie chinoise ?*

Kaplan et Penfold (2019) ont déclaré que la Chine et la Russie sont les deux principaux créanciers bilatéraux de Venezuela, représentant le quart de la dette extérieure du pays, (Stephen B. Kaplan and Michael Penfold, 2019, p.2). En dépit que la Russie soit riche en ressources naturelles, elle s'intéresse au Venezuela. Les entreprises d'État russes (Rosneft et Gazprom) sont également devenues des investisseurs clés dans les secteurs du gaz et du pétrole au Venezuela, fournissant un financement à court terme d'une valeur inestimable au géant pétrolier vénézuélien en ruine, PDVSA, (Stephen B. Kaplan and Michael Penfold, 2019, p.16). *La crise vénézuélienne n'est-elle*

<sup>7</sup> Dans ce travail, l'analyse de la crise est limitée seulement sur son aspect économique sachant qu'il est difficile de faire vraiment une séparation entre les différents aspects d'une crise.

<sup>8</sup> [https://www.france24.com/fr/20190208-russie-chine-venezuela alliance-limite-maduro-guaido](https://www.france24.com/fr/20190208-russie-chine-venezuela-alliance-limite-maduro-guaido). Consulté le 13 Avril 2019.

pas juste une autre guerre froide pour contrôler l'or noir/les ressources naturelles mondiales ? Cette crise n'est-elle pas une guerre entre d'un côté "l'impérialisme collectif de la triade" (Etats-Unis, Europe, Japon), et de l'autre côté les "oligarchies russes" et la "stratocratie chinoise", selon les concepts et la classification de Samir, A. ?

Selon ce schéma synthétisé de la crise, je vais essayer, dans ce qui suit, d'analyser la situation en Venezuela via principalement la critique de Samir Amin du capitalisme.

Venezuela est un pays riche en pétrole dirigé par un système démocratique, mais actuellement il est dans une crise chaotique. L'analyse économique de plus des 30 dernières années montre que son économie devrait entamer une politique de diversification. Autrement-dit, l'Etat vénézuélien devrait normalement promouvoir d'autres secteurs économiques pour restructurer son économie. Cependant, ce pays n'a pas orienté sa politique économique pour qu'elle soit au moins indépendante des recettes pétrolières.

D'une part, la plupart des crises et des conflits dans la planète concernent l'accès et le contrôle aux ressources naturelles. "Si les Etats-Unis se sont donnés l'objectif du contrôle militaire de la planète, c'est parce qu'ils savent que sans ce contrôle ils ne peuvent pas s'assurer l'accès exclusif à ces ressources," (Samir Amin, 2008). Cependant, la Chine, l'Inde et le Sud dans son ensemble ont également besoin de ces ressources pour leur développement ce qui implique que les Etats-Unis n'a pas un autre moyen que la guerre empêchant de limiter son accès aux ressources naturelles et réduisent, donc, sa "rente impérialiste". En conséquence, Washington interdit toute future concurrence qui réduise leur domination: c'est "l'égoïsme des oligopoles dans le Nord". Cet égoïsme a été exprimé par Bush en déclarant que «The American way of life is not negotiable»<sup>9</sup>, cité par Samir Amin dans son interview en 2012.

Quand l'égoïsme se sent menacer, selon l'explication de Samir, A., le Nord va utiliser les différents moyens pour protéger ses intérêts et ses avantages. Il devient barbare tentant de survivre. Il va entraîner plus des inégalités dans la répartition des revenus et des richesses à l'intérieur des sociétés et entre les nations, qui s'accompagne d'une stagnation profonde d'une part, et l'approfondissement de la polarisation mondiale d'autre part. Ce régime mène une guerre permanente contre le Sud, une guerre entamée en 1990 par les Etats-Unis et ses alliés de l'OTAN<sup>10</sup> lors de la première Guerre du Golfe.

<sup>9</sup> Traduction : "le mode de vie américain n'est pas négociable", traduit par Samir Amin (2012).

<sup>10</sup> L'Organisation du Traité de l'Atlantique Nord ou en anglais : North Atlantic Treaty Organization (NATO). Il compte actuellement 29 pays membres depuis sa date de création en 1949. Douze membres fondateurs: Belgique, Canada, Danemark, États-Unis, France, Islande,

Cependant, les pays émergents ou les nations émergentes,<sup>11</sup> surtout la Chine, sont en train de déconstruire ses avantages et limités les avantages des anciens pays du Nord. Ce constat peut expliquer en grande partie la crise en Venezuela. Samir Amin (2012) a confirmé que la Chine a passé, dans le domaine de la technologie, de « Made in China » à « Made by China ». Elle n'est plus l'atelier du monde pour des succursales ou les associés du grand capital des monopoles, mais elle est devenue l'inventeur et le pionnier dans la technologie en la développant par elle-même. Dans certains domaines notamment les domaines d'avenir (l'automobile électrique et le solaire), la Chine possède des technologies de pointe en avance sur l'Occident. Elle a joué un rôle important dans la crise de 2008 qui a nudité la réalité de l'économie américaine.

Dans ce cadre, Samir Amin (2012) révèle que la Chine a poussé le système financier mondialisé à se détruire. Et elle a même collaboré à son autodestruction en finançant le déficit américain et en construisant en parallèle des marchés régionaux indépendants ou autonomes à travers le "groupe de Shanghai".<sup>12</sup> La Chine essaye, d'après le même auteur, de contribuer à la mort lente des Etats-Unis car sa mort brutale sera trop dangereuse. A mon avis, ce qui se passe à Venezuela entre dans cette nouvelle guerre froide mondiale. Ce qui explique en grande partie la déclaration précédente de l'U.S. Department of Defense (2018).

En effet, le groupe de Shanghai essaye de se déconnecter de l'économie mondiale dominée par les monopoles occidentaux. Par exemple, rien n'y est payé en dollars ou en euros. L'Amérique du Sud peut aussi se « découpler » du capitalisme des monopoles. Ils ont des possibilités techniques et les ressources naturelles pour faire du commerce Sud-Sud. Ce qui était impensable il y a plusieurs décennies, (Samir Amin, 2012). Sans oublier la coopération ALBA (Alternative Bolivienne pour l'Amérique Latine et les Caraïbes) et la Banque du Sud (Bancosur), mais leurs rôles ont resté

Italie, Luxembourg, Norvège, Pays-Bas, Portugal et Royaume-Uni, et le reste: Grèce et Turquie (1952), Allemagne (1955), Espagne (1982), République tchèque, Hongrie et Pologne (1999), Bulgarie, Estonie, Lettonie, Lituanie, Roumanie, Slovaquie, Slovénie (2004), Albanie et Croatie (2009) et Monténégro (2017), source: [https://www.nato.int/cps/fr/natohq/topics\\_52044.htm](https://www.nato.int/cps/fr/natohq/topics_52044.htm).

<sup>11</sup> Samir Amin parle des nations émergentes et non de marchés émergents comme fait croire les libéraux. Il n'y a pas seulement d'un éveil économique de ces nations, mais aussi il faut prendre une longue histoire qui a occupé une bonne partie du 20<sup>e</sup> siècle : il s'agit donc d'une dimension sociale, politique, culturelle et idéologique. Je pense que c'est à ce niveau que les libéraux ont peur de ces nations puisqu'elles feront une destruction des fondements de leurs existences.

<sup>12</sup> Le Groupe de Shanghai, dont on parle peu, réunit la Chine, la Russie, les pays de l'ex-Asie centrale, et les pays observateurs (l'Inde, l'Iran, la Malaisie et la Thaïlande). Ce groupe a amorcé "la création d'un système monétaire et financier régional, indépendant du dollar et de l'euro et fondé sur un système de change stable, mais révisable".



très modeste par rapport au groupe de Shanghai qui représente une coopération militaire, économique et diplomatique. En plus, les avantages des Etats-Unis sont menacés par les démocraties populaires en Amérique Latine qui ont sûrement affaibli la rente impérialiste, même s'ils auront des difficultés pour aller plus loin dans leur développement tant qu'ils berceront l'illusion d'un développement national capitaliste autonome. Ce sont les cas enregistrés en Bolivie, en Équateur ou au Venezuela, (Samir Amin, 2012).

Dans ce climat d'hostilité dans cette région du monde, la guerre est sûrement déclarée par les Etats-Unis, telle que mentionnée dans le rapport de la sécurité américaine sous l'administration de Clinton envisageant la nécessité d'une guerre préventive contre la Chine, (déclaré par Samir, A. dans son interview en 2012). Cette guerre attend, donc, juste le mauvais endroit où la fragilité économique, sociale et politique aide à la déclencher.

La crise en Venezuela n'est pas une crise à la présidence, mais c'est une guerre, à mon avis, pour la domination et le contrôle des richesses naturelles de la planète et de la protection et l'augmentation de la rente des monopoles. Cependant, la Chine est probablement l'adversaire potentiel majeur de monopoles de la triade (des impérialistes traditionnels). Mais il n'y a pas seulement la Chine dans la crise vénézuélienne. La Russie constitue la force hostile aux Etats-Unis en dépit que le Président Américain Donald John Trumpa tracé une stratégie d'une confrontation avec la Chine et de rapprochement avec l'ancien ennemis la Russie.

#### IV. CONCLUSION

Aux États-Unis, au cours des dernières années, de nombreux praticiens ont jugé la Chine plus coupable, suggérant que la politique économique étrangère de la Chine reflétait le modèle pernicieux de diplomatie du piège de la dette, (Stephen B. Kaplan et Michael Penfold, 2019, p.36). Selon cette perspective, les prêts et dons de la Chine ont contribué à la destruction de l'économie vénézuélienne. En d'autres termes, Stephen B. Kaplan et Michael Penfold (2019) concluent que la Chine, qui est devenue un important bailleur de fonds d'Amérique Latine dans les projets d'énergie, d'exploitation minière et d'infrastructures, a utilisé sa puissance financière pour inciter le Venezuela à accumuler des prêts importants et coûteux. En échange de ces offres financières, la Chine a accru son levier économique et politique en piégeant le pays riche en pétrole dans une spirale de dette insoutenable.<sup>13</sup>

<sup>13</sup> "China, who emerged as a major Latin American financier for energy, mining, and infrastructure projects, used its financial might to entice Venezuela to accumulate large and costly loans. In exchange for these financial offerings, China increased its economic and political leverage by trapping the oil-rich nation in an unsustainable debt spiral," (Stephen B. Kaplan and Michael Penfold, 2019, p.36).

Cependant, les auteurs déclarent que la Chine sera empêtrée dans un piège à créanciers plus que le Venezuela sera pris dans un piège à dettes car elle sera obligée de supporter une série de coûts pour faciliter le remboursement de la dette, notamment l'allégement temporaire de la dette, la restructuration des conditions de l'encours du pays, la réduction des expéditions de pétrole et l'allongement des délais de remboursement. Mais dans la situation actuelle, la Chine continue à renforcer ses relations diplomatiques avec les acteurs vénézuéliens de tous les horizons politiques, dans le but de promouvoir ses intérêts commerciaux à long terme au-delà de la crise actuelle. La même stratégie est appliquée par les Etats-Unis et ses alliés.

Les États-Unis essayent de renforcer leur position régionale en visant à améliorer le développement de l'Amérique Latine par la création d'une nouvelle agence de développement américaine en 2018 (l'acte BUILD, The Better Utilization of Investment Leading to Development). Ainsi, cette agence vise à aider les pays en développement à faire la transition vers les économies de marché, en utilisant des prêts, des garanties de prêts, des fonds propres, des assurances et une assistance technique. L'objectif principal de cette stratégie est de rétablir la position des États-Unis pour redevenir le leadership économique et politique dans la région d'Amérique Latine/le monde.

A mon avis, la crise vénézuélienne n'est pas seulement limitée au niveau de l'Amérique Latine, mais elle concerne le système économique mondial. Le monde actuel est au déclin de la démocratie qui est aujourd'hui plus menacée suite notamment à la concentration du pouvoir au bénéfice exclusif de la triade et des pays émergents. On aura sans doute plus de crises/guerres qui seront déclenchées par différents motifs, mais la cause profonde réside dans la nature du système mondial, sa façon d'exploiter les richesses naturelles de la planète et son mode de répartition des richesses créées. La crise vénézuélienne signifie que le système dans son ensemble est en difficulté surtout que "la stratégie de la Chine se contente d'œuvrer pour la promotion d'une nouvelle mondialisation, sans hégémonie. Ce qui ni les Etats-Unis, ni l'Europe ne pensent l'accepter," (Samir Amin, 2009).

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## The Impact of Quality of Destination Attributes on Tourist Satisfaction - The Case of Bhutan

By Sonam Yeshi  
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**Abstract-** Tourism is one of the world's largest industries. In Bhutan, tourism is the second largest source of foreign exchange after hydroelectricity and the numbers of visitors are increasing. When destinations around the world are getting increasingly competitive calling for improved tourism destination attributes to attract international inbound tourists. This study sought to find out relationship between attributes and overall visitor satisfaction. The main questions that seek to find answers are whether the six attributes play role in determining the visitor satisfaction; to determine the influencing nature of socio-demographic features of international visitors to their satisfaction; and to determine if there exist relationship between tourist's expectation and satisfaction. The analysis was carried out using secondary data collected by tourism council of Bhutan in 2016. A total of 34 variables with 6 attributes were chosen to test hypotheses. The findings show that all the attributes have significant relationship with overall satisfaction while the socio-demographic characteristics do not differ to affect the satisfaction.

**Keywords:** destination attributes, overall satisfaction, expectations, multiple regressions, bhutan.

**GJMBR-B Classification:** JEL Code: M29



THE IMPACT OF QUALITY OF DESTINATION ATTRIBUTES ON TOURIST SATISFACTION IN THE CASE OF BHUTAN

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# The Impact of Quality of Destination Attributes on Tourist Satisfaction – The Case of Bhutan

Sonam Yeshi

**Abstract-** Tourism is one of the world's largest industries. In Bhutan, tourism is the second largest source of foreign exchange after hydroelectricity and the numbers of visitors are increasing. When destinations around the world are getting increasingly competitive calling for improved tourism destination attributes to attract international inbound tourists. This study sought to find out relationship between attributes and overall visitor satisfaction. The main questions that seek to find answers are whether the six attributes play role in determining the visitor satisfaction; to determine the influencing nature of socio-demographic features of international visitors to their satisfaction; and to determine if there exist relationship between tourist's expectation and satisfaction. The analysis was carried out using secondary data collected by tourism council of Bhutan in 2016. A total of 34 variables with 6 attributes were chosen to test hypotheses. The findings show that all the attributes have significant relationship with overall satisfaction while the socio-demographic characteristics do not differ to affect the satisfaction.

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## I. INTRODUCTION

Bhutan as tourism destination over last few years has seen increasing number of inbound tourists. Starting with only few hundred in 1970's, the number of tourists has risen to over hundred thousand in 2016 according to report of tourism council of Bhutan (2016). According to some studies, the major selling points for tourists are the culture and traditions and also the pristine natural environment offering aesthetic values.

There are many push and pull factors that can affect the growth of number of visitors and one of such significant determinants is the quality of products and services offered that can uphold or enlarge consumer satisfaction and also the retention. Within the tourism industry, there are number of services which are made of many components and each with varying levels of quality. However, there is information gap that ascertain the relationship between the quality of tourism products and services and intention to revisit Bhutan since the former affects later in a significant way.

### a) Bhutan as a Tourist Destination

Bhutan is located in the eastern Himalayan sharing borders with China in the north and India in all other directions. Possessing a rich culture and traditions

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and unparalleled natural landscape and beauty, Bhutan is now increasingly known as a land of gross national happiness. Tourism is one of the mainstays of Bhutanese economy. It is also major source of foreign exchange and revenue. According to tourism council a total of more than 200,000 tourists visited Bhutan out of which around one-third are international leisure arrivals. Visitors mainly come to Bhutan to witness the Buddhist influenced culture, festivals and architecture manifested in the all aspects of lives of the Bhutanese. Bhutan is also gaining popularity for its pristine natural environment and activities such as bird watching, trekking and rafting are offered by most tour operators. One distinguishing nature of tourism industry is that the visitors pay a flat tariff rate which includes guided tours, boarding, transportation and a royalty to the government.

## II. RESEARCH PROBLEM

Service Quality has been defined differently by different authors. Parasuraman et al. (1985) defined service quality as "the degree and direction of discrepancy between customers' perceptions and expectations", and "Perceived service quality" as "the gap between customers' expectations and perceptions, as a measurement of service quality". So, the smaller the gap, the better the service quality provided, and the greatest the customer satisfaction.

These services quality play a vital role in marketing Bhutan as a tourism destination. Literature including service quality in the hospitality industry can be categorized into three major groups: human resource related, strategy and management related, and service quality measurement issues. Some examples of the service quality articles related to the measurement of service quality using instrument to identify the perception of service quality in the hospitality industry (Douglas, Connor, 2003; Juwaheer & Ross, 2003).

The subject of service quality and customer satisfaction is of utmost importance to a country like Bhutan which considers tourism as top revenue generator for the government. However till now, no research for this particular topic has been conducted specifically in the context of any tourist services provider in Bhutan. But there are lots of research done on other developing nations, for instance on Jordan (Al-Rousan, et al., 2010; Hersh, 2010), on India by Rao &



Sahu(2013), Sri Lanka (W.H.D.P, 2014), Pakistan (Shafiq, et al., 2012).

### III. LITERATURE REVIEW

#### a) Service quality

The main purpose of this project is to investigate relationship between quality of service and customer satisfaction amongst the inbound international tourists. Service quality is believed to influence the satisfaction and attitudes of the customers towards the business. Likewise, many studies can be found that analyses the impact of service quality on customer satisfaction and retention (Minh et al., 2015; Rao & Sahu, 201). Among them, many studies have found positive relationship between service quality and customer satisfaction and retention (Tawinunt et al., 2015; Khan & Fasih, 2014; Bhat & Qadir, 2013).The tourism sector is no different in this regard, but as it's becoming more service oriented and customer conscious, it is more geared towards improving service quality and satisfying their customers. Tourism industry in Bhutan is growing at a rapid pace, and also the second biggest contributor to revenue (GNHC & RMA, 2016).That so why assessment of quality of various eight attributes.

#### b) Measurement of satisfaction

Customer satisfaction plays an important role as a marketing tool to attract the most variable segments of the market. According to Bitner and Hubbert (1994), customer satisfaction is the term used for the measure of the extent to which the product or service provided by the organization meets customer expectations, or, in other words, customer satisfaction is the fulfillment of the wants, needs and expectations of customers, thereby create customer loyalty to the product or service offered. Pascoe (1983) also stated that customer satisfaction is the response concerning the state, the process and the result of the experience of services received. Therefore, satisfaction is important to successful destination marketing (Kozak & Rimmington, 2000).In terms of tourism, tourists are customers who generate income for the country. Thus, in respect of continuing to develop the tourism sector emphasis should be given to the assessment of tourist satisfaction pertaining to the service quality provided.

Eraqi (2006) identified that the quality of the consumed products and services greatly affect tourists' satisfaction and vice versa. There are two types of qualities such as product features which enhance the customer satisfaction and the freedom from deficiencies which increase customer satisfaction (Kotler et al., 2010). Tourists like to pay for the added costs of the additional product features that make the tourists more loyal to the business. Measurement of the service quality depends on the personal judgments about the quality and product features related to the tourists

'expectations. Quality can be viewed in another way and a distinction can be made between technical and functional quality."Technical quality refers to what the customer is left with after the customer employee interactions have been completed. For example technical quality relates to the guest room in the hotel, the meals in the restaurant. Functional quality is the process of delivering the service or product. While the service is being delivered, customers go through many interactions with the firm's employees. A guest makes a reservation, is greeted by the door attendant, is escorted to the room. The experience of checking into a hotel is an example of functional quality. Excellent functional quality may make up for a room that is not quite up to expectations. If functional quality is unpleasant, a high quality room might not overcome the guests' previous dissatisfaction" (Kotler et al., 2010, p. 407).In addition to the technical and functional quality, Kotler et al. (2010) introduced a third quality element as societal quality. Societal quality is a credence quality which cannot be evaluated by the tourists before buying the products and is often impossible to evaluate after purchase. Business organizations should consider their ethical responsibilities when developing and delivering products and services, avoiding product features that can cause harm and potential safety hazards for the consumers. These features may not affect customer dissatisfaction immediately, but in the long run, it can bring more undesirable situations. Hotel and restaurant managers need to be more concerned about these issues since negative publicity destroys their goodwill hastily.

There are many studies which have been carried out by different researchers in different countries to identify the factors that affect the tourists' satisfaction and associated consequences. According to Alegre & Garau (2010), the negative attributes of the destination considerably cause the dissatisfaction among the tourists. Such attributes include too much construction, street prostitution, polluted resorts, queues and delay services, unavailability of favorite foods and drinks, overcrowding, lack of sanitary facilities, foreign currency exchange problems, slow customer clearance, etc.

#### c) Relationship between destination attributes and tourist satisfaction

A study by Mukhles (2013) concerning tourist satisfaction examined the impact of the quality of the tourism product on overall tourist satisfaction, and measured tourists' perceptions concerning the quality of tourism services provided at the Petra historical site. The findings noted that service quality, including destination facilities, destination accessibility and destination attraction, directly impacted tourist satisfaction. Another study conducted by Hossain and Leo (2008) revealed that service quality is a strong antecedent and is significantly related to customer satisfaction in the

banking industry in Qatar. Similarly, Jihad and Majeda (2012) confirmed that service quality has a significant impact on tourist satisfaction. Iyyano and Nila (2013) examined the influence of service quality and tourist satisfaction on the future behavioral intentions of domestic local tourists to the Borobudur temple using the SERVQUAL model and multiple regression analysis. The study found that service quality has a positive influence on tourist satisfaction. In other words, maintaining service quality is important to maximize tourist satisfaction. Norazah (2013) found that five elements of service quality, assurance, reliability, responsiveness, tangibles and empathy are significantly correlated with tourist satisfaction in the hotel industry in Malaysia.

While in the tourism industry, Perunjodi (2011) examined visitor satisfaction with respect to nature-based tourism attractions in Mauritius, and found that nature-based tourism attractions have significant impact on and positive relationship with the overall visitor satisfaction. Bassey and Vivian (2009) conducted a study to investigate the relationship between tourists overall satisfaction and cultural festival attributes. Nine festivals attributes, organization, promotion, facilities, shopping, facilitates, refreshment, food, infrastructure, environmental ambience and safety and security, were investigated. Four of these nine attributes showed a significant relationship with overall satisfaction.

Munir et al. (2013) investigated whether travelers were satisfied with their visit to Malaysia and also highlighted factors that contribute to tourist satisfaction. The results showed that the overall tourist satisfaction gave a mean score of 3.74. Among the factors that attracted tourists to visit the country were beautiful scenery, customs and culture, hospitality of the service providers, the quality of food and the friendliness of the local population. Ghazal (2012) also pointed out that tourists were satisfied with the tourism products and market in Nepal.

#### IV. RESEARCH HYPOTHESIS

The main objective of this study is to design and observe quality of tourism services in Bhutan objectively and evaluate the success of their service performance. Therefore, in order to gauge the perceptions of visitors, the research questions are framed appropriately as follows.

1. What is the satisfaction level for various tourist destination attributes ?
2. What factors determine the level of quality of tourism services and destination attributes ?
3. Are there differences in satisfaction level among different attributes ?
4. Do demographic characteristics matter to the satisfaction level ?

#### V. METHODOLOGY AND INSTRUMENTS

The study used the secondary data collected by Tourism council of Bhutan (TCB) in 2016 where survey questionnaires were used to compile responses from about 7500 tourists of different nationalities and backgrounds. Primary data were collected by TCB using exit survey questionnaires for international tourists comprising of both open-ended and closed-ended questions. Administered exit surveys were used as the primary survey tool as they provide richer data than un-administered or online surveys. Further it also yields higher response rates, with departing visitors generally more willing to participate in one-to-one interviews over other survey methodologies.

##### a) Target Population

The first step of sampling is to identify the target population; the complete group of specific population elements that is relevant to the research project (Zikmund & Babin 2007). Specifying the target population is a crucial part of the sampling plan. International visitors of all other countries (other than those from India, Bangladesh and Maldives) arrivals to Bhutan for leisure, official, business and visiting friends and relatives in the year 2016 is the population of this survey and study.

##### b) Sample size and selection

Sample size is referred to the number of elements included in a research. The data for the study was collected by means of a questionnaire survey using self-administrated questionnaires (Song et.al. 20011; Yu & Goulden, 2006. A total of 7500 international tourists were approached, with at least 7487 agreeing to participate and to complete in providing data on the questionnaire. The respondents were selected randomly at Paro international Airport

##### c) Variables Measurements

Using SPSS 20, the acquired data will be used to carry out descriptive analysis to get the mean satisfaction level for each of the service attributes. The descriptive output is derived from a 5-point Likert scale encoded as 1 for "strongly disagree" and 5 for "strongly agree" with quality of a particular service as experienced by tourists. The scale used for expectations or importance range from 1 (not important) to 5 (very important). By adopting this method, it will enable to test theories pertaining to the research and the hypotheses proposed by researcher regarding service quality dimensions and its impact on customer satisfaction (Hong Kong tourist satisfaction Index, 2015).

The questionnaire comprise of three parts: tourists demographic characteristics, perception towards attributes and the overall satisfaction. For the purpose of testing hypothesis and to run the multivariable regression there are 37 independent



variables. They are destination image (7), attractions (6), safety and security (5), accommodation & food (5), guide services (6), transportation (5) and demography

of tourists (3). This is the model adopted by Krishna and Sangeeta (2011) to evaluate the significance of attributes at Mumbai and Pune cities.

### i. Mean Score of Variables

*Table 1:* Mean score of variables

Variables	Items	Mean*	St.Dev	Skewness	
				Statistic	SE
Image	Bhutan is a safe tourist destination	4.40	.916	-1.802	.028
	Bhutan has a unique brand destination image in the region	4.26	.895	-1.237	.028
	Bhutan is known for its eco-tourism destination	4.09	.953	-.925	.028
	Bhutan is an adventure destination	4.00	.986	-.873	.028
	Bhutan's people and culture is a tourist attraction	4.25	.909	-1.228	.028
	Bhutan offers wide range of visitors products/services	4.04	.990	-.933	.028
	Bhutan offers affordable travel destination	3.91	1.128	-.904	.028
Accommodation	Quality of accommodation	3.84	1.088	-.775	.028
	Quality of Food & Beverages	3.85	1.003	-.603	.028
	Offer and availability of local cuisine	3.73	1.007	-.524	.028
	Quality of hotel services by the staff	3.88	.973	-.625	.028
	Quality of other services (Entertainment)	3.81	1.034	-.674	.028
Transportation	Organization of tourist transport services	3.88	1.144	-.887	.028
	Safety & Comfort of the tourist transport services	3.82	1.012	-.613	.028
	Road & trail safety	3.60	1.105	-.515	.028
	Driver's professionalism	4.04	.984	-.844	.028
	Road worthiness of the vehicle	3.83	1.074	-.816	.028
Safety & Security	Emergency service response	3.76	1.167	-.686	.028
	Medical safety & preventions	3.76	1.058	-.566	.028
	Security procedures	3.75	1.118	-.666	.028
	Availability of Safety information	3.76	1.012	-.653	.028
	A sense of security during the visit	3.95	1.108	-.999	.028
Guide Services	Guide services quality (Professionalism)	4.31	.992	-1.587	.028
	Knowledge content of the guide on Bhutan	4.33	.926	-1.507	.028
	Trust worthiness of the guide	4.40	.864	-1.504	.028
	Guide behavior and presentation	4.38	.903	-1.608	.028
	Guide Communications skills	4.36	.879	-1.457	.028
Attractions	Client care knowledge & skills	4.39	.894	-1.630	.028
	Culture & tradition	4.14	1.088	-1.186	
	Adventures	4.05	.973	-.860	.028
	Nature & Ecology	4.02	1.020	-.884	.028
	Spiritual	4.08	.986	-.923	.028
	GNH philosophy	4.02	1.032	-1.011	.028
	Hobbies	4.06	1.020	-1.044	.028

\*1=strongly disagree...5=strongly agree, p-value<.01

- It is evident from the table that a majority of the respondents are distributed towards higher side regarding the image of Bhutan as a tourist destination for international tourists in 2016. The mean value of the responses is on the higher side than the average standard score at five-point scale. The standard deviation and Skewness noted are on higher side. The negative Skewness for all the items within this attributes shows that most tourists agree on higher point i.e) from agree to strongly agree. Thus perception is not equally distributed. The chi-square value is significant at 1% level. It is concluded that majority of the respondents have similar opinion but the higher scores are noted for "Bhutan is a safe destination" (4.41) while the mean score for "Bhutan offers affordable travel destination" is lowest (3.91).
- It can be observed that visitors are high on satisfaction scale of Accommodation & Food with mean of 3.8 for 5 items within it with variability of 0.76. Since the standard deviation is quite same for all the items, the perception about accommodation and food by most respondents must also be same. The negative Skewness ranging from -.60 to -.90 validates the agreement about the satisfaction score on higher scale which is confirmed by chi-square value at 1% with p=0.00.

*Table 2A:* Regression analysis of attributes with overall Satisfaction

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.561 <sup>a</sup>	.314	.314	.63639

a. Predictors: (Constant), Guide Services, Accommodation & Food, Attractions, Image, Safety & Security, Transportation

Table 2A shows that 31.4% ( $R^2=.314$  and p-value<0.05) of the variation in overall tourist satisfaction is explained by the six attributes and the 34 variables

and the predictors strength is reasonable for a 5 point Likert scale. The details of the regression results for each of the hypotheses are explained below.

*Table 2B:* Results of overall satisfaction of tourist's visit to Bhutan

	Unstandardized Coefficients		Standardized Coefficients Beta	T	Sig.
	B	Std. Error			
(Constant)	.630	.066		9.501	.000
Attractions	.088	.010	.091	8.831	.000
Safety & Security	.067	.010	.070	6.525	.000
Image	.136	.013	.111	10.793	.000
Accommodation & Food	.343	.011	.341	31.211	.000
Transportation	.151	.010	.173	15.886	.000
Guide Services	.026	.010	.025	2.499	.012

a. Dependent Variable: Overall Satisfaction

Table 2A and 2B have demonstrated the results of the regression analysis. According to the coefficient of determination ( $R^2 = 0.203$ ), the six destination related

factors gave an acceptable results in predicting the tourists are satisfied about quality of tourist's product and services offered in Bhutan. Furthermore, the

analysis has indicated that tourists have experienced and satisfied with the six factors related to the destination, as shown in the multiple correlation coefficients (R) of 0.561. The result has indicated that the t-test shows the multiple regression models that have been tested here is acceptable. The result of the regression analysis gives us the following equation using the unstandardized coefficients.

$$\text{SATISFACTION} = 0.63 + .088X_1 + .067X_2 + .136X_3 + .343X_4 + .151X_5 + .026X_6$$

Based on the result of linear regression, it can be shown that all of the six independent variables of this

study contributed to overall satisfaction. Each independent variable has effect on the SATISFACTION as shown by the B of unstandardized coefficients. According to the result, accommodation and food provided the strongest effect to SATISFACTION ( $B = .343$ ), followed by Transportation ( $B = .151$ ), Image ( $B = .136$ ), Attractions ( $B = .088$ ), Safety & Security ( $B = .067$ ) and Guide Services ( $B = .026$ ). All had significance value less than .05. We can conclude from these statistics that the entire hypothesis, H1 to H6 is accepted since B is not equal to zero and t-test is significant at 0.01 except for guide services.

*Table 2C: ANOVA*

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	1388.159	6	231.360	571.278	.000 <sup>b</sup>
Residual	3029.302	7480	.405		
Total	4417.461	7486			

a. *Dependent Variable: Overall Satisfaction*

b. *Predictors: (Constant), Guide Services, Accommodation & Food, Attractions, Image, Safety & Security, Transportation*

The F-ratio of 571.278 shown in Table 2C, which is very high, signals that the regression model that is adopted is reliable and significant.

a) *Relationship between expectations and tourists satisfaction*

The regression analyses have been carried out for determining relation between expectation level of destination attributes and overall satisfaction. The output for the multivariable regression with expectations as independent variables and overall satisfaction shows that there is significant relationship at 1% level of significance ( $p=.000$ ) and  $F= 571.27$ .

Table 6 shows regression coefficients for the independent variables and B values for all variables are positive. However, the relationship between expectation level of accommodation & food and overall satisfaction is not significant since  $p>0.05$ . The relationship is positive and significant between all other destination attributes and overall satisfaction. Attributes such as attractions, safety & security, image, transportation and guide services are significant predictors of overall satisfaction.

*Table 3: Regression analysis of expectations of attributes and satisfaction*

Model	Unstandardized Coefficients		Beta	t	Sig.
	B	Std. Error			
1	(Constant)	.167	.292	.573	.567
	Expected Attractions	.292	.011	.290	26.012
	Expected Safety	.242	.085	.038	2.862
	Expected Image	.110	.045	.028	2.437
	Expected Accommodation	.024	.078	.004	.763
	Expected Transportation	.312	.057	.068	5.423
	Expected Guide services	.123	.051	.029	2.386

a. *Dependent Variable: Overall Satisfaction*

$$R^2=.092, *p<.05, **p<.01, F = 571.27$$

In order to test the hypothesis, the tourist satisfaction is measured using paired t-test. The mean difference signifies the deviation of satisfaction level from the expectations. Satisfaction is measured using 5

point Likert scale which ranges from 1(strong disagree) to 5 (strongly agree) while the expectations ranges from 1(not important) to 5 (highly important).

**Table 3.1:** Paired t-test of tourist's expectations and satisfaction

Variables	Mean Difference	t	Sig. (2-tailed)	Satisfaction Level
Attractions	-.00043	-.238	.812	Low
Safety & Security	.7974	85.506	.000	High
Image	1.105	145.906	.000	High
Accommodation & Food	.8250	93.736	.000	High
Transportation	.748	72.38	.000	High
Guide Services	1.327	149.145	.000	High

The results of the paired t-test are shown in table 6.1. In this hypothesis testing, high satisfaction level are defined as those attributes with positive mean difference and with t-value significant at 5% ( $p < 0.05$ ). In this study, five variables are found to be with high satisfaction level where the mean differences are positive and high with  $p < .05$ . The attributes are safety & security, destination image, accommodation & food, transportation and guide services. For one attribute-attractions, the mean difference is negative, therefore its expectations and satisfaction for the tourists is not significantly related.

b) *Influence of socio-demographic characteristics on overall satisfaction of international tourists*

One Way ANOVA and t test are used to perform means comparisons in order to determine if the socio-demographic factors are likely to influence the perception of tourist about the various destination attributes. The factors considered in this paper are age, gender and employment status.

$H_0$ : Socio-demographic factors do not influence the overall satisfaction level.

$H_a$ : Socio-demographic factors influences the overall satisfaction level.

**Table 4:** Analysis of influence of employment status on satisfaction level

Status Employment	Full Time	Part Time	Unemployed	Student	Retired	F	Sig.
Satisfaction Score	3.56	2.75	3.59	3.12	3.69	1.174	.317

The result of ANOVA (Table 4) shows that employment status has no significant relationship with the satisfaction level of the destination attributes. With

$F=1.174$  and  $p>0.05$ , the null hypothesis is accepted which indicates that employment status of tourists doesn't affect the mean satisfaction score.

**Table 5:** Analysis of influence of Gender on Satisfaction level

Factor Gender	Male	Female	F	Sig.
Satisfaction Score	3.71	3.79	1.322	.265

There is no significant differences in the mean scores between the gender (Satisfaction score:  $F=1.322$ ,  $p>0.05$ ). Similarly, age of the tourists doesn't

matter much for the mean satisfaction score ( $F=1.727$ ,  $p>0.05$ )

**Table 6:** Analysis of influence of Age on Satisfaction level

Factor Age	Less than 18	18-25	26-35	36-45	56-60	>60	F	Sig.
Satisfaction Score	3.65	3.13	3.74	3.21	2.86	3.70	1.727	.055

## VII. CONCLUSION

The main goal of the study was to find whether the level of tourist satisfaction was determined by quality and features of what Bhutan has to offer as a growing destination to visitors of many nationalities. Most of them were satisfied with all attributes showing highly and negatively skewed distribution in their perception about various items within major attributes. The correlation and multiple regression analysis has

revealed that all of the attributes can significantly impact the overall satisfaction level. Such findings from the research can be used as evidence by all stakeholders involved in providing better tourism services and products. Road and travel conditions were perceived by visitors to be in bad shape that required urgent attention of the government to give a facelift to national highways. While tour guides were doing well in all areas of duties, the accommodation facilities scored badly. The hotel and restaurants managers must take note of this

revelation and make improvements in all departments. Much of the improvement is needed in the areas of offering better quality food and also give choice of local cuisine in their menus.

The study has also revealed the fact that demographic factors such as age, gender and employment status doesn't significantly affect the agreement with quality of attributes. This fact is likely to be a newest revelation for tourism literature in Bhutan. Another noteworthy finding was the conformation between what tourists expected and what they experienced about Bhutan as destination. The only exception to this rule was the attractions attribute where the expectations exceeded the satisfaction which only means that more and varied tourism products and services has to be offered besides culture and the beauty of the natural environment. This study used the secondary collected by Tourism council where the sample size was quite large covering Bhutan as a destination which might have altered the results favourably. Thus, future researches can focus on tourists visiting a specific destination, experiencing a product or a festival.

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# Analysis of Profitability Performance of Dangote Sugar Refineries PLC: During and after Recent Economic Recession in Nigeria (2013-2018)

By Aliyu Ahmed Alhaji

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**GJMBR-B Classification:** JEL Code: M20



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**Abstract-** Private sectors have contributed immensely to the development of Nigerian economy without a doubt. However, the Nigerian economy is volatile over the period years till date, which causes it to plug into recession in 2016. Many questions have been raised on the performances of business in the economy especially during economic recession and when economy is sound. Moreover, the investors needs more decision making tools to assist them on decisions to invest in Nigeria. Against this bankrupt, this research aimed to analysis the profitability performance of Dangote Sugar Refineries plc during and after recent economic recession in Nigeria (2013-2018). This research make use of simple profitability ratios: Net Profit Margin, Return on Assets (ROA), Returns on Equity (ROE) ratios, and trend analysis was also used to analyze and established trends in the profitability performance of Dangote Sugar Refineries plc during and after recent economic recession in Nigeria for the periods under review. The research revealed that, the Dangote Sugar Refineries plc performs better after economic recession than when the economy is recessed, as the Net Profit Margin, Return on Assets (ROA), Returns on Equity (ROE) ratios improved after 2016, during recession. It was recommended that, the investors should invest in businesses when economy is sound. We also recommended to the management to ensures that the operating expenses of the business should not increases with same proportion to increases in sales, and increases in equity should be invested on assets that will increases production and productivity, thus, increases revenue and improves profitability performances.

## I. INTRODUCTION

The Nigeria economy, by and large, is volatile and recently, it recovered from recession. Thus, economic recession is a business cycle contraction, a generally slowdown in economic activity (Meriam-Webster, 2008). The National Bureau of Economic Research (2008) defines an economic recession as a significant decline in economic activity spread across the economy, lasting more than a few months, normally visible in real G D P, real income, employment, industrial production and whole sale- retail sale. From 2000 till 2015, Nigeria Gross Domestic Product grows over the periods. According to Nigeria Bureau of Statistics (2019), in 2013 the GDP was 5.4% and grow in 2014 to 6.3%. However, there was decline in GDP in 2015, which was 2.7%, and the Nigerian economy plugged into recession in 2016 with negative

GDP which was -1.6%. The economy recovered in 2017 and 2018 with GDP of 0.8% and 1.9% respectively. This upward and downward trend in Nigerian economy shows how volatile the economy is over the years.

The growth of Nigerian economy cannot be discussed without highlighting the contributions of private sectors to the economy. The private sector has contributed immensely to the development of Nigerian economy. In 2013, the agricultural contributed 20.76% and industries contributed 25.74% to the GDP in Nigeria. In 2016, during the period of economic recession, agriculture contributed 20.98 % and industries contributed 18.17% to the GDP. One year after recession, 2017, agriculture contributed to the economy 20.85% to GDP, while, industries accounted for 22.32% of GDP. Private sectors play major roles in the development of economy, they provides employment opportunities, provision of foods and services to the country and for exportation, investment opportunities to both local and foreign players which significantly contribute to the development of the economy.

However, the impact of private sectors to economy depends on its ability to continue to exist in succession, and ensures overall performances in all aspect of business, importantly, the profitability performance. (K.D Mihajlov 2014) said, profitability is the unique measure of corporate success and essential indicator of economic performance. Profits are generators of retained earnings within a firm. Moreover, they are often used as components of the national overall income and competitiveness. Companies' profitability affects the progress of the whole economy, its ability to invest and provide sustainable growth rates as well as its capability to raise employment. Even though profitability is a sufficient indicator of the current competitiveness of a company, it is better if it is measured over an extended period of time. Therefore, profitability performance of private sectors is important to uphold the going concern of the businesses. However, the questions remains unanswered are: did economic recession have negative or positive impact on private sectors in the economy? What constitute going concern prospect of private sectors in periods of economic recession? Can profitability performance of a company better during economic recession than

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economic growth? All these constitute part of the objectives of this research.

Specifically, this research is undertaken to analysis the profitability performance of a private sector in Nigeria (Dangote Sugar Refineries Plc) using simple profitability ratios: Net profit margin, Return on Assets and Returns on equity during and after recent economic recession in Nigeria from 2013 to 2018. It focuses on profitability performances of the company, establishing the development trends analysis over the periods, and to analyze the profitability performance of the company during and after economic recession: if the company does better in recession or economic growth.

The contribution of this research is basically, to provide information on profitability performance of (Dangote Sugar Refineries Plc) during and after economic recession, which help the investors in decisions making exercise in relation to investment in the business. Also, this research tempts to unravel the profitability performance comparison during economic growth and economic recession in private sectors in Nigeria using profitability ratios. Finally, to extends the existing empirical literature on the relationship between companies' profitability performance during and after economic recession.

The approach adopted in this study is yet to be seen in any similar study in Nigeria especially on the period under reviewed and methodology approach. The remainder of the paper is structures as follows: section two reviews relevant literatures on the study; section three discusses the methodology of the study; section four explains the data presentation, analysis and findings: section five presents conclusions and recommendations of this study.

## II. REVIEW OF LITERATURE

### a) Theoretical Frameworks

Economic literature has recognized several important competitive theoretical models that aim to explain a firm's profitability factors (see Slade, 2004). Each theory favors different factors as the key determinants of a firm's profitability. The structure-conduct-performance (SCP) model, which is incorporated in neoclassical theory, dominated industrial economics until the early 1980s (Chamberlin, 1933; Robinson, 1933, 1953; Bain, 1951, 1956). According to this model, market structure determines the way in which companies in one industry interact, which in turn determines their profitability. The proponents of this model argued that market structure was basically affected by technological factors (e.g. economies of scale and scope), and that the existence of high profit levels in one industry was evidence of the monopoly that a company in a given industry possessed. During the 1970s, a number of "Chicago-school" economists criticized the SCP paradigm emphasizing that its

proponents had the causality backwards (see Demsetz, 1973; Peltzman, 1977). The hypothesis of efficiency (Demsetz, 1973) assumes that concentration of the market is the result of a greater efficiency of some companies which, therefore, increase their market share and are more profitable. The industries in which efficiency differences are the most prominent have the most asymmetric market structures and the most intensive horizontal concentration. Since large firms in these industries are usually more profitable and dominate the market, the correlation between concentration and profitability is positive. According to Porter (1980), who laid down the cornerstones of the market-based concept, firms can realize profitability above average if they manage to position themselves in an attractive industry. However, even though the attractiveness of industry is regarded as an important determinant of a firm's performance, the market based view also identifies the value of strategic positioning within the market as the cause of persistent firm-specific deviations from the average industry profitability. The fundamental assumption of the firm effect models (or resource-based models) is that heterogeneity in profitability results from the persistent differences in characteristics across companies (Rumelt, 1991; Hawawini et al., 2003; Grossmann, 2007). On the basis of heterogeneity in resource endowment, as the main assumption of the model, above-average profits are considered to be the result of the usage of tangible and intangible resources that are rare and costly to copy or imitate (Barney 1991). The firm effect models generally anticipate persistent firm-specific variations speaking from the view of general level of industry economic return. Within this school, Demsetz (1973) assumes that firms differ in their level of productivity and that these inter firm differences are the major causes of profit heterogeneity. Another theoretical model was developed by financial economists. In their model, the return on investments in firm assets fluctuates significantly depending on the firms' characteristics, such as systematic risk. An asset with higher systematic risk should demand a higher return. According to the capital asset pricing model (see Sharpe (1964) and Lintner (1965)), it is a firm's risk class that determines profitability level, not the structure of the market within which it operates. A firm's profitability is, therefore, affected by numerous factors which can be firm-specific, industry-specific (business cycle, entry and exit barriers, intensity of competition, the threat of substitute products and services, concentration level, etc.), and country-specific (law system, accounting practice and disclosure, investor protection, development of capital market etc.).

### b) Empirical literature

Cowling and Liu (2011) examined growth performance, access to finance and performance

outcomes in the recession. Notta and Vlachvei (2014) have studied 128 Greek large dairy firms and came to the conclusion that during the crisis, market share, liquidity and leverage have significant effects on profits. Tan (2012) has studied 277 firms from eight East Asian economies and found a negative relationship between firm performance and financial leverage. Dolenc, Grum and Laporsek (2012) found that firms' financial performances were negatively affected by the financial/economic crisis.

The empirical study by Salman and Yazdanfar (2012) indicates a significantly positive relationship between assets turnover and profitability, implying that a higher level of asset turnover is connected with more profitable firms. Okwo et al. (2012) also document positive relationship of total assets turnover ratio with net profit margin as a profitability measure. From the forgoing, it is essential to analysis the profitability performance of Dangote Sugar Refineries Plc during and after recent economic recession in Nigeria to establish facts that necessitate the need for this research.

### III. METHODOLOGY

#### a) Data Description and Sources

Ratio analysis was adopted in this research. Ratio analysis is an analytical tool use to establish relationship between variables in the financial statement of a firm; it can identify significant fundamental and structural relationships and trends, and can disclose relationships which reveal conditions and trends that often cannot be noted by individual inspection of components of the ratio. The research makes use of secondary data, the financial reports, obtained from the Statistical Bulletin of Dangote Sugar Refineries Plc from 2013 to 2018.

#### b) Ratio Analysis

The ratio analysis to be used for this research is profitability ratio. Profitability ratio is used to examine how successful a firm is in using its operating processes

#### a) Computation of Ratios

##### i. Net Profit Margin

$$\text{Year 2013: } \frac{\text{Net Profit}}{\text{Net sales}} = \frac{\text{N13, 548, 353}}{\text{N102, 467, 361}} = 0.13\%$$

$$\text{Year 2014: } \frac{\text{Net Profit}}{\text{Net sales}} = \frac{\text{N11, 908, 690}}{\text{N94, 103, 677}} = 0.13\%$$

$$\text{Year 2015: } \frac{\text{Net Profit}}{\text{Net sales}} = \frac{\text{N12, 659, 855}}{\text{N100, 092, 221}} = 0.13\%$$

and resources to generate income. Although, ratios are not sole factors for decision making, but is additional and provide concrete evidences to decision regarding financial statement of a firm. Therefore, the profitability ratios to be adopted to examine the profitability performance of Dangote Sugar Refineries Plc are:

##### i. Net Profit Margin

This indicates the naira amount of net profit the firm accrued from each naira of net sales. Net Profit Margin = Net profit/ Net sales.

##### ii. Return on Assets (ROA)

This indicates management performance in using the firm's total assets to generate or produces net profit. ROA = Net Profit before interest and taxes/ total assets or Net profit before interest and taxes/ average total assets.

##### iii. Returns on Equity (ROE)

It indicates management success or failure to maximize the return to shareholders base on their investment in the business. It emphasis on net income yield, and relationship with amount invested. ROE = Net Profit before interest and taxes/equity or Net profit before interest and taxes/ average equity.

From the forgoing, according to DELTACPE LLC (2014), Ratios are generally not significant of themselves but assume significance when they are compared with: (1) previous ratios of the same firm, (2) some predetermined standards (3) ratios of other enterprises in the same industry, or (4) ratios of the industries within which the company operates. Therefore, for this research, ratios of 2013, will be used to evaluates and compare with for the following years throughout the study.

### IV. DATA PRESENTATION, ANALYSIS AND DISCUSSIONS

This section presents the profitability ratios analysis carried out on the financial statements of Dangote Sugar Refineries Plc from 2013 to 2018.

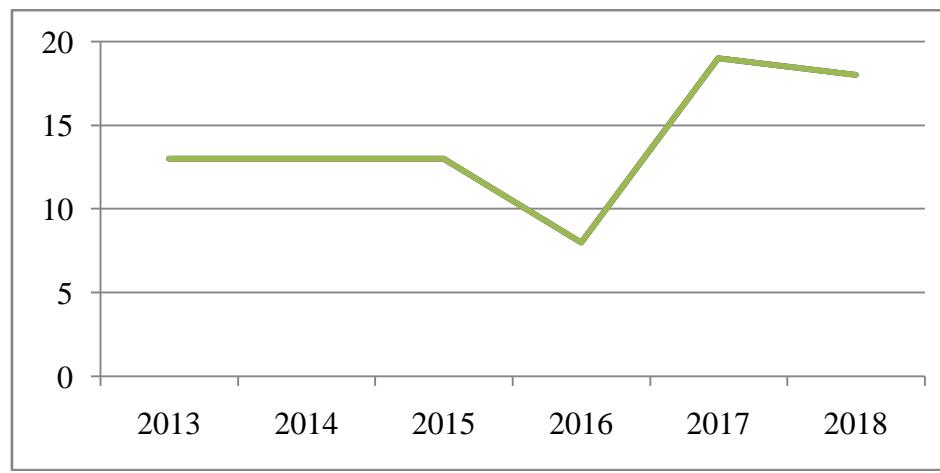


$$\text{Year 2016: } \frac{\text{Net Profit}}{\text{Net sales}} = \frac{\text{N}14,198,693}{\text{N}167,409,161} = 0.08\%$$

$$\text{Year 2017: } \frac{\text{Net Profit}}{\text{Net sales}} = \frac{\text{N}37,822,608}{\text{N}198,120,639} = 0.19\%$$

$$\text{Year 2018: } \frac{\text{Net Profit}}{\text{Net sales}} = \frac{\text{N}25,830,941}{\text{N}146,549,198} = 0.18\%$$

*Table 1.1:* Trend Analysis of Net Profit Margin



Source: Microsoft Excel, 2019.

From the trend analysis of Net Profit margin ratio from 2013 to 2018, the net profit margin of 2013 as bases of comparison is 13%. In 2014, the net profit margin ratio is 13% as well, suggesting that, despite the decreases recorded in the net sales and net profit after tax in 2014, the company was able to keeps its operating expenses in same proportion of sales, and therefore, there was no improvement in the profitability performance in 2014 over 2013 business period. In 2015, the Net profit margin ratio is 13%, despite increase in the net profit after tax and net sales compared to 2014. This suggests that, there is no improvement in the profitability performance since 2013 as the ratios remain the same. In 2016, the Net profit margin ratio was 8%, there is decline in the profitability performance in this year, despite increases recorded in

both net profits after tax and net sales, it means, the company could not cut its operating expenses at the increasing value of sales, and lack of cutting operating expenses in detriment to the ability of firm to maximize net profit, even though there is increase in the net sales, as such, this has accounted for deteriorating profitability performance in 2016. In 2017, the Net profit margin ratio was 19% which suggests that, there is improvement of profitability performance recorded in 2017. Therefore, the company increases its net sales in greater rate compared to its operating expenses which accounted for increases in the net profit after tax in 2017. The trend in 2018 shows Net profit margin of 18%, suggesting that, the management could not consolidate on its performance in 2017, but, it also suggest that, the result is better than the records in 2016 as shown on the trend.

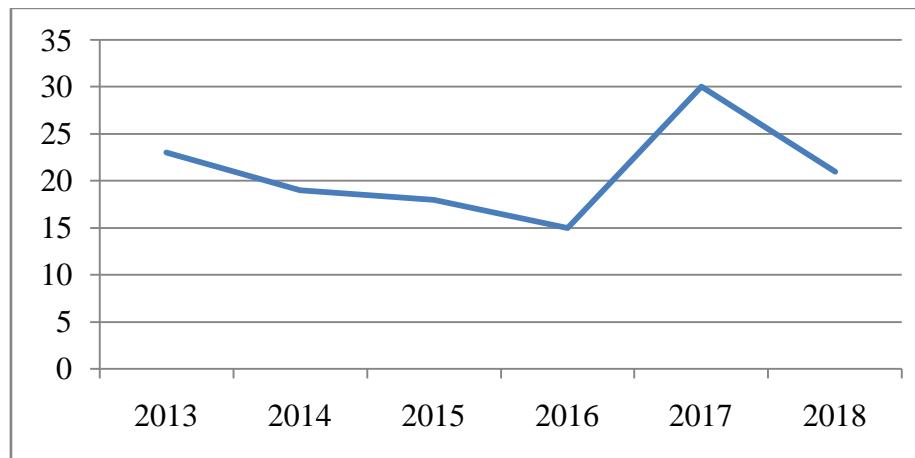
## ii. Return on Assets (RoA)

$$\text{Year 2013: } \frac{\text{Net Profit Before interest and taxes}}{\text{Average total assets}} = \frac{\text{N}20,099,517}{\text{N}87,112,182} = 23\%$$

$$\text{Year 2014: } \frac{\text{Net Profit Before interest and taxes}}{\text{Average total assets}} = \frac{\text{N}17,412,841}{(\text{N}87,112,182 + \text{N}97,287,804)/2} = 19\%$$

Year 2015:	Net Profit Before interest and taxes	N18, 144, 955	=	$\frac{N18, 144, 955}{(N97, 287, 804 + N106, 671,333)/2}$	= 18%
Year 2016:	Net Profit Before interest and taxes	N20, 759,524	=	$\frac{N20, 759,524}{(N106, 671,333+ N175, 593, 979)/2}$	= 15%
Year 2017:	Net Profit Before interest and taxes	N54, 882, 983	=	$\frac{N54, 882, 983}{(N175, 593, 979+ N196, 064, 664)/2}$	= 30%
Year 2018:	Net Profit Before interest and taxes	N38, 455, 530	=	$\frac{N38, 455, 530}{(N196, 064, 664+ N178, 523, 711)/2}$	= 0.21%

Table 1.2: Trend Analysis of Returns on assets from (2013-2018)



Source: Microsoft Excel, 2019.

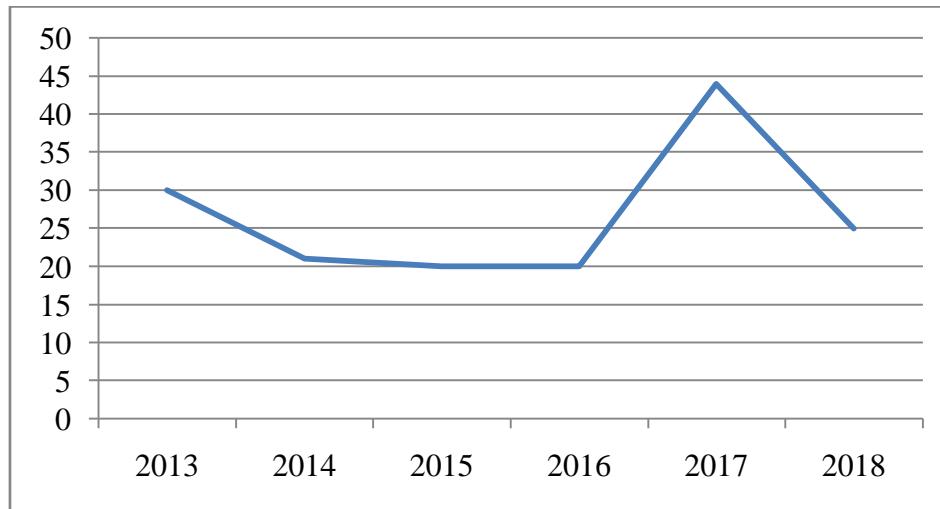
The trend analysis revealed that, Return on assets (ROA) of 2013 as a base year was 23%. However, in 2014, the trend shows, there was decline in the Return on assets (ROA) which was 19%, this suggest that, the company could not use its assets to generate income despite increases recorded in total assets. In 2015, Return on assets (ROA) was 18%, this mean, the company has not integrated increases in total assets to generate a same or more than proportional increase in income accrued, this suggested that, the company incurred more on assets that do not positively effected on the income generated which has accounted for decline on Return on assets (ROA) in 2015. In 2016, Return on assets (ROA) was 15%, suggest that, from 2014, there was a continual decline on Return on assets (ROA) despite additional cost of total assets, meaning that, the company could not generate additional profits with total assets of the business. In 2017, the trend revealed that, Return on assets (ROA) improved significantly to 30%, this mean, the company was able to generate more than proportional increase in net profit compare to increase in the value of total assets,

suggesting that, management performance to generate income using its total assets has improved significantly in 2017. In 2018, the trend revealed that, the Return on assets (ROA) was 0.21%, which means there was decline in management performance to complement on their performance in 2017. Although, the deteriorating performance is still okay compare to 2016 performance.

iii. *Returns on Equity (Roe)*

Year 2013:	Income available for common stockholders	<hr/>	N13, 548, 353
	Average equity	=	N55, 150, 109
Year 2014:	Income available for common stockholders	<hr/>	N11, 908, 690
	Average equity	=	(N55, 150,109 + N58, 526,202)/2
Year 2015:	Income available for common stockholders	<hr/>	N12, 659, 855
	Average equity	=	(N58, 526,202 + N66, 386, 057)/2
Year 2016:	Income available for common stockholders	<hr/>	N14, 198, 693
	Average equity	=	(N66, 386, 057 + N74, 584, 750)/2
Year 2017:	Income available for common stockholders	<hr/>	N37, 822, 608
	Average equity	=	(N74, 584, 750 + N99, 207, 358)/2
Year 2018:	Income available for common stockholders	<hr/>	N25, 830, 941
	Average equity	=	(N99, 207, 358 + N107, 180, 126)/2

Table 1.3: Trend Analysis of Returns on equity from (2013-2018)



Source: Microsoft Excel, 2019.

From the forgoing, the trend shows that, Return on equity (ROE) in 2013, the base year was 25%. In 2014, the trend revealed that, return on equity was 21%, which mean, there was decline, suggesting that, the company fail to maximize returns on stockholder's investments. In 2015, Return on equity (ROE) was 20%, this suggest that, despite increases in stockholder's investment, it does not impact positively on income accrued. In 2016, Return on equity (ROE) was 20%, suggesting that, the management failed to integrate the proportional increases in stockholder's investment to generate same or more proportional increase in income accrued in 2016. In 2017, there was management success to generate returns on stockholder's

investment. The Return on equity (ROE) was 44%. Therefore, this suggests that, the proportional increase in the stockholder's investment is well integrated and accounted for more than proportional increase in income generated. In 2018, the Return on equity (ROE) is 25%. This was significantly lower than that of 2017. Therefore, the management performances suggest that, the company could not consolidate on the performance of 2017.

## V. CONCLUSIONS AND RECOMMENDATIONS

### a) Conclusion

From the research shows that, the profitability performance using Net profit margin ratio, Returns on

assets (ROA) and Returns on equity (ROE) ratio plays important role in decision making regarding the profitability performance of a company.

Therefore, giving the Net profit margin ratio in the study, we conclude that, Dangote Sugar Refineries Plc perform better in term of profitability potentials after economic recession, and its performance is greatly affected with economic recession which accounted for decline in Net profit margin during the period of economic recession (2016) in Nigeria.

Secondly, from the computation of Returns on Asset ratio of Dangote Sugar Refineries Plc, it shows that, the company performs very well in term of profitability after economic recession (2017 and 2018), therefore, economic recession affects the profitability performance of the company because of decline in Returns on assets ratio during economic recession (2016) in the country.

Finally, we concluded that, the profitability performance of Dangote Sugar Refineries Plc using Returns on equity ratio as a parameter shows that the company performs better after economic recession than during the economic recession in Nigeria. Therefore, Dangote Sugar Refineries Plc achieved profitability performance when economy is sound and health. Thus, we also concluded that, the profitability performance of companies is affected by the position of economy, and the succession of business entities is also affected by position of the economy: thus suggest that, the companies will perform better when economy is growing as revealed in the research.

#### b) Recommendations

From the findings of this research, the following recommendations are from this research to two (2) categories of people:

##### *Investors*

Improvement recorded in the ratios used to assess the profitability performance of Dangote Sugar Refineries Plc in 2017 and 2018 shows that, the business entity uphold its succession in those period, thus, the investors should examine the conditions of Nigeria's economy (Gross Domestic Product GDP), because the companies will perform better in profitability when economy is sound and not when in recession.

##### *Management of Dangote Sugar Refineries PLC*

We recommend that, the management should improve on its revenue generation and ensures that, the operating expenses do not increases in same proportion to revenue in order to ensure strong and improving Net profit margin ratio which translate to greater profitability performance.

We also recommend for the management to incur on assets that will provide more than proportion increase in the value of revenue accrued, that is, which will increases productivity and production.

The management should also ensure that, more equity accrued should be integrated into the business to burst production which brings about increases in sales and translate to higher profits.

Finally, We know that, the private sectors contribute greatly to the Nigerian economy, as such, the management should ensure that, the company perform better any time during economic recession, and to not allow the recessed economic to have much negative impact on their profitability performance in order to continue to exists in succession, as such will lure more investors into the business.

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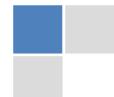
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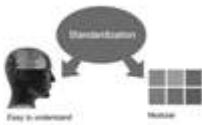
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## TIPS FOR WRITING A GOOD QUALITY MANAGEMENT RESEARCH PAPER

Techniques for writing a good quality management and business research paper:

**1. Choosing the topic:** In most cases, the topic is selected by the interests of the author, but it can also be suggested by the guides. You can have several topics, and then judge which you are most comfortable with. This may be done by asking several questions of yourself, like "Will I be able to carry out a search in this area? Will I find all necessary resources to accomplish the search? Will I be able to find all information in this field area?" If the answer to this type of question is "yes," then you ought to choose that topic. In most cases, you may have to conduct surveys and visit several places. Also, you might have to do a lot of work to find all the rises and falls of the various data on that subject. Sometimes, detailed information plays a vital role, instead of short information. Evaluators are human: The first thing to remember is that evaluators are also human beings. They are not only meant for rejecting a paper. They are here to evaluate your paper. So present your best aspect.

**2. Think like evaluators:** If you are in confusion or getting demotivated because your paper may not be accepted by the evaluators, then think, and try to evaluate your paper like an evaluator. Try to understand what an evaluator wants in your research paper, and you will automatically have your answer. Make blueprints of paper: The outline is the plan or framework that will help you to arrange your thoughts. It will make your paper logical. But remember that all points of your outline must be related to the topic you have chosen.

**3. Ask your guides:** If you are having any difficulty with your research, then do not hesitate to share your difficulty with your guide (if you have one). They will surely help you out and resolve your doubts. If you can't clarify what exactly you require for your work, then ask your supervisor to help you with an alternative. He or she might also provide you with a list of essential readings.

**4. Use of computer is recommended:** As you are doing research in the field of management and business then this point is quite obvious. Use right software: Always use good quality software packages. If you are not capable of judging good software, then you can lose the quality of your paper unknowingly. There are various programs available to help you which you can get through the internet.

**5. Use the internet for help:** An excellent start for your paper is using Google. It is a wondrous search engine, where you can have your doubts resolved. You may also read some answers for the frequent question of how to write your research paper or find a model research paper. You can download books from the internet. If you have all the required books, place importance on reading, selecting, and analyzing the specified information. Then sketch out your research paper. Use big pictures: You may use encyclopedias like Wikipedia to get pictures with the best resolution. At Global Journals, you should strictly follow here.



**6. Bookmarks are useful:** When you read any book or magazine, you generally use bookmarks, right? It is a good habit which helps to not lose your continuity. You should always use bookmarks while searching on the internet also, which will make your search easier.

**7. Revise what you wrote:** When you write anything, always read it, summarize it, and then finalize it.

**8. Make every effort:** Make every effort to mention what you are going to write in your paper. That means always have a good start. Try to mention everything in the introduction—what is the need for a particular research paper. Polish your work with good writing skills and always give an evaluator what he wants. Make backups: When you are going to do any important thing like making a research paper, you should always have backup copies of it either on your computer or on paper. This protects you from losing any portion of your important data.

**9. Produce good diagrams of your own:** Always try to include good charts or diagrams in your paper to improve quality. Using several unnecessary diagrams will degrade the quality of your paper by creating a hodgepodge. So always try to include diagrams which were made by you to improve the readability of your paper. Use of direct quotes: When you do research relevant to literature, history, or current affairs, then use of quotes becomes essential, but if the study is relevant to science, use of quotes is not preferable.

**10. Use proper verb tense:** Use proper verb tenses in your paper. Use past tense to present those events that have happened. Use present tense to indicate events that are going on. Use future tense to indicate events that will happen in the future. Use of wrong tenses will confuse the evaluator. Avoid sentences that are incomplete.

**11. Pick a good study spot:** Always try to pick a spot for your research which is quiet. Not every spot is good for studying.

**12. Know what you know:** Always try to know what you know by making objectives, otherwise you will be confused and unable to achieve your target.

**13. Use good grammar:** Always use good grammar and words that will have a positive impact on the evaluator; use of good vocabulary does not mean using tough words which the evaluator has to find in a dictionary. Do not fragment sentences. Eliminate one-word sentences. Do not ever use a big word when a smaller one would suffice.

Verbs have to be in agreement with their subjects. In a research paper, do not start sentences with conjunctions or finish them with prepositions. When writing formally, it is advisable to never split an infinitive because someone will (wrongly) complain. Avoid clichés like a disease. Always shun irritating alliteration. Use language which is simple and straightforward. Put together a neat summary.

**14. Arrangement of information:** Each section of the main body should start with an opening sentence, and there should be a changeover at the end of the section. Give only valid and powerful arguments for your topic. You may also maintain your arguments with records.

**15. Never start at the last minute:** Always allow enough time for research work. Leaving everything to the last minute will degrade your paper and spoil your work.

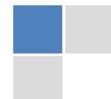
**16. Multitasking in research is not good:** Doing several things at the same time is a bad habit in the case of research activity. Research is an area where everything has a particular time slot. Divide your research work into parts, and do a particular part in a particular time slot.

**17. Never copy others' work:** Never copy others' work and give it your name because if the evaluator has seen it anywhere, you will be in trouble. Take proper rest and food: No matter how many hours you spend on your research activity, if you are not taking care of your health, then all your efforts will have been in vain. For quality research, take proper rest and food.

**18. Go to seminars:** Attend seminars if the topic is relevant to your research area. Utilize all your resources.

**19. Refresh your mind after intervals:** Try to give your mind a rest by listening to soft music or sleeping in intervals. This will also improve your memory. Acquire colleagues: Always try to acquire colleagues. No matter how sharp you are, if you acquire colleagues, they can give you ideas which will be helpful to your research.

**20. Think technically:** Always think technically. If anything happens, search for its reasons, benefits, and demerits. Think and then print: When you go to print your paper, check that tables are not split, headings are not detached from their descriptions, and page sequence is maintained.



**21. Adding unnecessary information:** Do not add unnecessary information like "I have used MS Excel to draw graphs." Irrelevant and inappropriate material is superfluous. Foreign terminology and phrases are not apropos. One should never take a broad view. Analogy is like feathers on a snake. Use words properly, regardless of how others use them. Remove quotations. Puns are for kids, not grown readers. Never oversimplify: When adding material to your research paper, never go for oversimplification; this will definitely irritate the evaluator. Be specific. Never use rhythmic redundancies. Contractions shouldn't be used in a research paper. Comparisons are as terrible as clichés. Give up ampersands, abbreviations, and so on. Remove commas that are not necessary. Parenthetical words should be between brackets or commas. Understatement is always the best way to put forward earth-shaking thoughts. Give a detailed literary review.

**22. Report concluded results:** Use concluded results. From raw data, filter the results, and then conclude your studies based on measurements and observations taken. An appropriate number of decimal places should be used. Parenthetical remarks are prohibited here. Proofread carefully at the final stage. At the end, give an outline to your arguments. Spot perspectives of further study of the subject. Justify your conclusion at the bottom sufficiently, which will probably include examples.

**23. Upon conclusion:** Once you have concluded your research, the next most important step is to present your findings. Presentation is extremely important as it is the definite medium through which your research is going to be in print for the rest of the crowd. Care should be taken to categorize your thoughts well and present them in a logical and neat manner. A good quality research paper format is essential because it serves to highlight your research paper and bring to light all necessary aspects of your research.

## INFORMAL GUIDELINES OF RESEARCH PAPER WRITING

### **Key points to remember:**

- Submit all work in its final form.
- Write your paper in the form which is presented in the guidelines using the template.
- Please note the criteria peer reviewers will use for grading the final paper.

### **Final points:**

One purpose of organizing a research paper is to let people interpret your efforts selectively. The journal requires the following sections, submitted in the order listed, with each section starting on a new page:

*The introduction:* This will be compiled from reference material and reflect the design processes or outline of basis that directed you to make a study. As you carry out the process of study, the method and process section will be constructed like that. The results segment will show related statistics in nearly sequential order and direct reviewers to similar intellectual paths throughout the data that you gathered to carry out your study.

### **The discussion section:**

This will provide understanding of the data and projections as to the implications of the results. The use of good quality references throughout the paper will give the effort trustworthiness by representing an alertness to prior workings.

Writing a research paper is not an easy job, no matter how trouble-free the actual research or concept. Practice, excellent preparation, and controlled record-keeping are the only means to make straightforward progression.

### **General style:**

Specific editorial column necessities for compliance of a manuscript will always take over from directions in these general guidelines.

**To make a paper clear:** Adhere to recommended page limits.

### **Mistakes to avoid:**

- Insertion of a title at the foot of a page with subsequent text on the next page.
- Separating a table, chart, or figure—confine each to a single page.
- Submitting a manuscript with pages out of sequence.
- In every section of your document, use standard writing style, including articles ("a" and "the").
- Keep paying attention to the topic of the paper.



- Use paragraphs to split each significant point (excluding the abstract).
- Align the primary line of each section.
- Present your points in sound order.
- Use present tense to report well-accepted matters.
- Use past tense to describe specific results.
- Do not use familiar wording; don't address the reviewer directly. Don't use slang or superlatives.
- Avoid use of extra pictures—include only those figures essential to presenting results.

#### **Title page:**

Choose a revealing title. It should be short and include the name(s) and address(es) of all authors. It should not have acronyms or abbreviations or exceed two printed lines.

**Abstract:** This summary should be two hundred words or less. It should clearly and briefly explain the key findings reported in the manuscript and must have precise statistics. It should not have acronyms or abbreviations. It should be logical in itself. Do not cite references at this point.

An abstract is a brief, distinct paragraph summary of finished work or work in development. In a minute or less, a reviewer can be taught the foundation behind the study, common approaches to the problem, relevant results, and significant conclusions or new questions.

Write your summary when your paper is completed because how can you write the summary of anything which is not yet written? Wealth of terminology is very essential in abstract. Use comprehensive sentences, and do not sacrifice readability for brevity; you can maintain it succinctly by phrasing sentences so that they provide more than a lone rationale. The author can at this moment go straight to shortening the outcome. Sum up the study with the subsequent elements in any summary. Try to limit the initial two items to no more than one line each.

*Reason for writing the article—theory, overall issue, purpose.*

- Fundamental goal.
- To-the-point depiction of the research.
- Consequences, including definite statistics—if the consequences are quantitative in nature, account for this; results of any numerical analysis should be reported. Significant conclusions or questions that emerge from the research.

#### **Approach:**

- Single section and succinct.
- An outline of the job done is always written in past tense.
- Concentrate on shortening results—limit background information to a verdict or two.
- Exact spelling, clarity of sentences and phrases, and appropriate reporting of quantities (proper units, important statistics) are just as significant in an abstract as they are anywhere else.

#### **Introduction:**

The introduction should "introduce" the manuscript. The reviewer should be presented with sufficient background information to be capable of comprehending and calculating the purpose of your study without having to refer to other works. The basis for the study should be offered. Give the most important references, but avoid making a comprehensive appraisal of the topic. Describe the problem visibly. If the problem is not acknowledged in a logical, reasonable way, the reviewer will give no attention to your results. Speak in common terms about techniques used to explain the problem, if needed, but do not present any particulars about the protocols here.

*The following approach can create a valuable beginning:*

- Explain the value (significance) of the study.
- Defend the model—why did you employ this particular system or method? What is its compensation? Remark upon its appropriateness from an abstract point of view as well as pointing out sensible reasons for using it.
- Present a justification. State your particular theory(-ies) or aim(s), and describe the logic that led you to choose them.
- Briefly explain the study's tentative purpose and how it meets the declared objectives.



**Approach:**

Use past tense except for when referring to recognized facts. After all, the manuscript will be submitted after the entire job is done. Sort out your thoughts; manufacture one key point for every section. If you make the four points listed above, you will need at least four paragraphs. Present surrounding information only when it is necessary to support a situation. The reviewer does not desire to read everything you know about a topic. Shape the theory specifically—do not take a broad view.

As always, give awareness to spelling, simplicity, and correctness of sentences and phrases.

**Procedures (methods and materials):**

This part is supposed to be the easiest to carve if you have good skills. A soundly written procedures segment allows a capable scientist to replicate your results. Present precise information about your supplies. The suppliers and clarity of reagents can be helpful bits of information. Present methods in sequential order, but linked methodologies can be grouped as a segment. Be concise when relating the protocols. Attempt to give the least amount of information that would permit another capable scientist to replicate your outcome, but be cautious that vital information is integrated. The use of subheadings is suggested and ought to be synchronized with the results section.

When a technique is used that has been well-described in another section, mention the specific item describing the way, but draw the basic principle while stating the situation. The purpose is to show all particular resources and broad procedures so that another person may use some or all of the methods in one more study or referee the scientific value of your work. It is not to be a step-by-step report of the whole thing you did, nor is a methods section a set of orders.

**Materials:**

*Materials may be reported in part of a section or else they may be recognized along with your measures.*

**Methods:**

- Report the method and not the particulars of each process that engaged the same methodology.
- Describe the method entirely.
- To be succinct, present methods under headings dedicated to specific dealings or groups of measures.
- Simplify—detail how procedures were completed, not how they were performed on a particular day.
- If well-known procedures were used, account for the procedure by name, possibly with a reference, and that's all.

**Approach:**

It is embarrassing to use vigorous voice when documenting methods without using first person, which would focus the reviewer's interest on the researcher rather than the job. As a result, when writing up the methods, most authors use third person passive voice.

Use standard style in this and every other part of the paper—avoid familiar lists, and use full sentences.

**What to keep away from:**

- Resources and methods are not a set of information.
- Skip all descriptive information and surroundings—save it for the argument.
- Leave out information that is immaterial to a third party.

**Results:**

The principle of a results segment is to present and demonstrate your conclusion. Create this part as entirely objective details of the outcome, and save all understanding for the discussion.

The page length of this segment is set by the sum and types of data to be reported. Use statistics and tables, if suitable, to present consequences most efficiently.

You must clearly differentiate material which would usually be incorporated in a study editorial from any unprocessed data or additional appendix matter that would not be available. In fact, such matters should not be submitted at all except if requested by the instructor.



**Content:**

- Sum up your conclusions in text and demonstrate them, if suitable, with figures and tables.
- In the manuscript, explain each of your consequences, and point the reader to remarks that are most appropriate.
- Present a background, such as by describing the question that was addressed by creation of an exacting study.
- Explain results of control experiments and give remarks that are not accessible in a prescribed figure or table, if appropriate.
- Examine your data, then prepare the analyzed (transformed) data in the form of a figure (graph), table, or manuscript.

**What to stay away from:**

- Do not discuss or infer your outcome, report surrounding information, or try to explain anything.
- Do not include raw data or intermediate calculations in a research manuscript.
- Do not present similar data more than once.
- A manuscript should complement any figures or tables, not duplicate information.
- Never confuse figures with tables—there is a difference.

**Approach:**

As always, use past tense when you submit your results, and put the whole thing in a reasonable order.

Put figures and tables, appropriately numbered, in order at the end of the report.

If you desire, you may place your figures and tables properly within the text of your results section.

**Figures and tables:**

If you put figures and tables at the end of some details, make certain that they are visibly distinguished from any attached appendix materials, such as raw facts. Whatever the position, each table must be titled, numbered one after the other, and include a heading. All figures and tables must be divided from the text.

**Discussion:**

The discussion is expected to be the trickiest segment to write. A lot of papers submitted to the journal are discarded based on problems with the discussion. There is no rule for how long an argument should be.

Position your understanding of the outcome visibly to lead the reviewer through your conclusions, and then finish the paper with a summing up of the implications of the study. The purpose here is to offer an understanding of your results and support all of your conclusions, using facts from your research and generally accepted information, if suitable. The implication of results should be fully described.

Infer your data in the conversation in suitable depth. This means that when you clarify an observable fact, you must explain mechanisms that may account for the observation. If your results vary from your prospect, make clear why that may have happened. If your results agree, then explain the theory that the proof supported. It is never suitable to just state that the data approved the prospect, and let it drop at that. Make a decision as to whether each premise is supported or discarded or if you cannot make a conclusion with assurance. Do not just dismiss a study or part of a study as "uncertain."

Research papers are not acknowledged if the work is imperfect. Draw what conclusions you can based upon the results that you have, and take care of the study as a finished work.

- You may propose future guidelines, such as how an experiment might be personalized to accomplish a new idea.
- Give details of all of your remarks as much as possible, focusing on mechanisms.
- Make a decision as to whether the tentative design sufficiently addressed the theory and whether or not it was correctly restricted. Try to present substitute explanations if they are sensible alternatives.
- One piece of research will not counter an overall question, so maintain the large picture in mind. Where do you go next? The best studies unlock new avenues of study. What questions remain?
- Recommendations for detailed papers will offer supplementary suggestions.



**Approach:**

When you refer to information, differentiate data generated by your own studies from other available information. Present work done by specific persons (including you) in past tense.

Describe generally acknowledged facts and main beliefs in present tense.

## THE ADMINISTRATION RULES

Administration Rules to Be Strictly Followed before Submitting Your Research Paper to Global Journals Inc.

*Please read the following rules and regulations carefully before submitting your research paper to Global Journals Inc. to avoid rejection.*

*Segment draft and final research paper:* You have to strictly follow the template of a research paper, failing which your paper may get rejected. You are expected to write each part of the paper wholly on your own. The peer reviewers need to identify your own perspective of the concepts in your own terms. Please do not extract straight from any other source, and do not rephrase someone else's analysis. Do not allow anyone else to proofread your manuscript.

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**CRITERION FOR GRADING A RESEARCH PAPER (COMPILED)**  
**BY GLOBAL JOURNALS**

Please note that following table is only a Grading of "Paper Compilation" and not on "Performed/Stated Research" whose grading solely depends on Individual Assigned Peer Reviewer and Editorial Board Member. These can be available only on request and after decision of Paper. This report will be the property of Global Journals.

Topics	Grades		
	A-B	C-D	E-F
<i>Abstract</i>	Clear and concise with appropriate content, Correct format. 200 words or below  Above 200 words	Unclear summary and no specific data, Incorrect form  Above 250 words	No specific data with ambiguous information
<i>Introduction</i>	Containing all background details with clear goal and appropriate details, flow specification, no grammar and spelling mistake, well organized sentence and paragraph, reference cited	Unclear and confusing data, appropriate format, grammar and spelling errors with unorganized matter	Out of place depth and content, hazy format
<i>Methods and Procedures</i>	Clear and to the point with well arranged paragraph, precision and accuracy of facts and figures, well organized subheads	Difficult to comprehend with embarrassed text, too much explanation but completed	Incorrect and unorganized structure with hazy meaning
<i>Result</i>	Well organized, Clear and specific, Correct units with precision, correct data, well structuring of paragraph, no grammar and spelling mistake	Complete and embarrassed text, difficult to comprehend	Irregular format with wrong facts and figures
<i>Discussion</i>	Well organized, meaningful specification, sound conclusion, logical and concise explanation, highly structured paragraph reference cited	Wordy, unclear conclusion, spurious	Conclusion is not cited, unorganized, difficult to comprehend
<i>References</i>	Complete and correct format, well organized	Beside the point, Incomplete	Wrong format and structuring

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save our planet

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