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The Impact of FDI Inflows on Economic Growth: An Empirical Study for the Senegal

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Abstract:- Last 8 years Senegal's FDI inflows increased dramatically and in 2018, reached 629 million US$. I want to study about influential factors and empirical research FDI inflows on Economic growth. Senegal external debt and FDI inflows are increasing by every year, we are facing problems that a huge amount of money back pay. For this reason, this topic is much interesting to me. My purposes of this research is to study research on economic current situation of Senegal and an analysis of the factors influencing the economic growth. I have achieved purposes of my thesis, I used OLS regression method. I also built the model on this paper. In open economy, defining factors of FDI inflows to economic growth is based on simple model (Unemployment, GDP and others). It involved hypothesis that FDI inflows has impact on these variables in the short term.

The equation results, the change in Senegal's GDP growth is depending on the following variables such as FDI net inflows of Senegal, Employment level, Net capital account of Senegal.

Keywords:- *GDP; FDI; Employment, Senegal.*

I. INTRODUCTION

A. Aim of the research

Define the influential factors of FDI Inflows on Economic growth in Senegal.

Purposes of the research paper

- Research on economic current situation of Senegal
- An analysis of the factors influencing the economic growth
- The empirical of FDI inflows influencing on Economic Growth

B. Introduction of Senegal

Senegal is one of the least developed countries in the world. 70% of its population is engaged in agriculture and has a certain industrial base. The development of the tertiary industry is relatively balanced. Agriculture is mainly planted with peanuts, cotton, millet, sorghum, corn, cassava, etc. Fishery, peanut, phosphate export and tourism are the four traditional foreign exchange earning industries. Since 1984, the Serbian government has carried out new agricultural and industrial policies, reduced state intervention, gradually privatized state-owned enterprises, encouraged free competition among enterprises, stressed the priority of developing agriculture and striving for food self-sufficiency, attached importance to investment in production projects, improved the level of industrial production and enhanced the ability of foreign exchange earning through export, and set up free industrial zones to introduce foreign investment and technology. After Wade came to power, he took increasing employment and reducing poverty as the primary goal of economic policy, and at the same time tried to expand tax sources and maintain fiscal balance. Serbia's economy has grown steadily. At the beginning of 2006, President Wade put forward the "accelerated growth strategy", which aims to achieve an average annual economic growth of 7-8% in the next 10 years and double the GDP.

Senegal is a least developed country, but its economic sectors are relatively complete and the development of the three major industries is relatively balanced. Food is not self-sufficient. Agriculture is dominated by the cultivation of peanuts and cotton. It is the main peanut and cotton producing country in West Africa. Fishery, peanut, phosphate export and tourism are the four traditional foreign exchange earning industries in Cyprus. After President Salle came to power, he gave priority to the development of high value-added, labor-intensive export-oriented economy, promoted the development of small and medium-sized enterprises, strengthened agricultural investment, improved power supply and attached importance to infrastructure construction. Serbia's economy has maintained steady growth. Main economic data in 2017: GDP: 16.46 billion US dollars; GDP per capita: 1038 US dollars; GDP growth rate: 7.2%; currency name: CFFA (African Financial Community Franc), referred to as African Franc (FCFA); average annual exchange rate: 1 euro = 655.957 CFA.

C. Current situation of Senegal's Economic

Senegal is one of the more developed countries in West Africa. In 2015, industrial output value accounted for 24.1% of GDP. There are more than 500 enterprises in the country, 85% of which are concentrated in Dakar. Food processing industry is the most important industrial sector, accounting for about 40% of the annual industrial added value. Chemical industry accounts for 12% of the annual industrial added value, mainly producing phosphate and chemical fertilizer. In 2010, the phosphate production was 1.055 million tons. In recent years, the automobile assembly industry has developed rapidly. In 2003, a joint venture company was established with Tata international company of India to produce automobiles, and in 2008, a car assembly plant was established with Khodro company of Iran. In addition, the construction industry has achieved rapid

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development in recent years due to the government's efforts in infrastructure construction.

In 2015, Senegal's agricultural output value accounted for about 15.6% of GDP. The agricultural population accounts for more than 70% of the total population of the country. The arable land is 8.157 million hectares, and the cultivated land is 2.46 million hectares. The main cash crops are peanuts and cotton. In 2011, the peanut planting area was about 866000 hectares, and the cotton planting area was 27000 hectares. In addition to meeting domestic needs, the vast majority of peanuts are used for export, which is one of the important pillars of the national economy. The main crops are millet, sorghum and corn. The grain is not self-sufficient and can only meet 40% of the demand. In recent years, with the government increasing investment in farmland and water conservancy facilities, the arable land area has expanded, and the output of rice and other crops has increased In 2017, the rice output was 1.01 million tons, and the peanut output was 1.4 million tons.

It mainly exports fishery products, cement, phosphate, peanut and cotton, and imports grain, mechanical and electrical products and daily consumer goods.

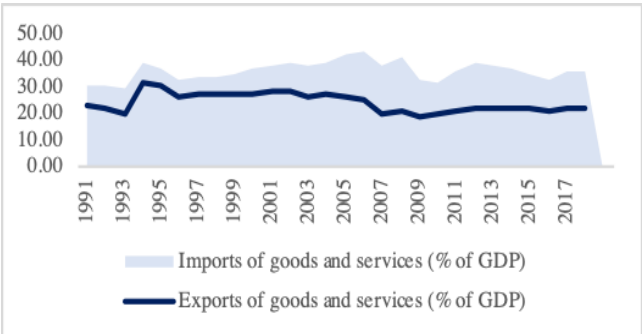

Fig 1:- Imports and exports of goods and services unit:%
Source: World bank

Import percent of GDP stood at 30, export was 23. Import and export in the following two years decreased steadily and reached 29 and 20. In 1994, import and export increased dramatically and reached 39 and 32 percent. Then export decreased gradually to 19 in 2010. During the next 8 years export stable at around 22.

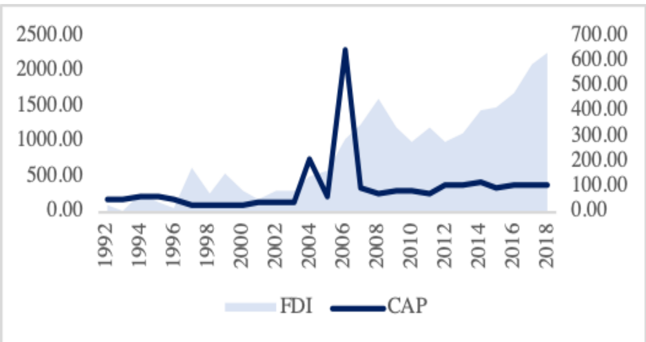

Fig 2:- Senegal's FDI flows and Capital unit: million US$
Source: World bank

In 1991, Senegal's FDI flows stood 21 million US$, and Capital stood 182 million US$. During the next 12 years capital fluctuated from 100 to 200 million US$. In 2006, Senegal's capital reached a high of 2300 million US$. Then it decreased dramatically and reached 332 million US$. During the next 10 years it remained constant at around 300 million US$. Senegal's FDI flows increased steadily and reached 453 million US$ in 2008, during the next 2 years it dropped steadily and reached 276 million US$. Then it peaked at 620 in 2018.

	2015	**2016**	**2017**
Export	2269	2312	2363
Import	4839	4965	5219
Trade balance	2570	2653	2856

Table 1 Senegal's trade Unit: percent
Source: World bank

In 2016, Serbia mainly exported to the following countries: Mali 20.1%, Switzerland 11.7%, India 9.1%, Ivory Coast 5.9%, China 5%; mainly imported from France 17.3%, China 11.2%, Nigeria 8.4%, India 8.3%, Spain 4.9%. The import and export situation in recent years is as follows.

The main industries include food processing, mining, cement, artificial fertilizer, chemicals, textiles, refining imported petroleum, and tourism. Exports include fish, chemicals, cotton, fabrics, groundnuts, and calcium phosphate.

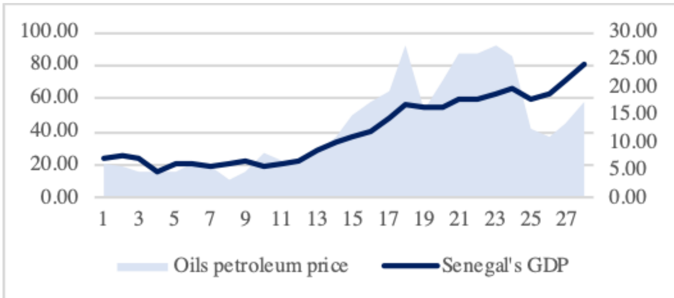

Fig 3:- Oils petroleum price and Senegal's GDP Unit: million US$
Source: World bank

Senegal's export product 24% is oils petroleum. 8.2 % of total export product is cement clinkers. Senegal's GDP and Oils petroleum price on the world are highly correlation.

II. METHOD AND EQUATION

The amount of a GDP has indirect and direct impact on the economy. Specifically, increasing the FDI inflows leads to increase the inflation rate and unemployment rate, decrease saving, affect the monetary policy, as well as is likely to threaten the country's economy and independence. In case the proper amount of external debt exceeds the limit, the macro indicators drop dramatically, the sustainability of society will be lost, or political situation will get worsen.

A. Units

- FDI Foreign direct investment, net inflows (BoP, current million US$)
- EMP Employment, total (% of total labor force) (modeled ILO estimate)
- CAP Net capital account (BoP, current million US$)
- GDP GDP (current trillion US$)

B. Equations

In open economy, defining factors of FDI inflows to economic growth is based on simple model (Unemployment, GDP and others). It involved hypothesis that FDI inflows has impact on these variables in the short term. Hence, linear expressions of variables are able to measure the impacts of FDI inflows. I will use the below function on my thesis. More realistic in economics to assume an economic variable is function of number if different factors.

Also I calculated the model: In model, dependent variable is GDP of Senegal.

$$Log(Y^1_{ijt})=\alpha Log(FDI_{it}) - \beta Log(EMP_{jt}) + \chi Log(CAP_{it})+\varepsilon>0 \quad (1)$$

In here: y^1_{ijt} – on t time, GDP of Senegal
FDI_{jt} – on t time, FDI inflows of Senegal
EMP_{jt} – on t time, employment level of Senegal
CAP_{jt} – on t time, Net capital account of Senegal
ε - stochastic error

The quantities of α, β and γ represent the relative impact on GDP for FDI, Unemployment, Net capital account of Senegal. The stability of variables was checked by unit root, and the causality was examined by Granger causality test.

C. Research Methodology

This analysis samples data running from 1991 to 2018. Foreign direct investment, net inflows (BoP, current million US$), Unemployment, total (% of total labor force) (modeled ILO estimate), Net capital account (BoP, current million US$), GDP (current trillion US$) were taken from National Statistical office and International Monetary Fund, Balance of Payments database, supplemented by data from the United Nations Conference on Trade and Development and official national sources. Foreign direct investment refers to direct investment equity flows in the reporting economy. It is the sum of equity capital, reinvestment of earnings, and other capital. Direct investment is a category of cross-border investment associated with a resident in one economy having control or a significant degree of influence on the management of an enterprise that is resident in another economy. Ownership of 10 percent or more of the ordinary shares of voting stock is the criterion for determining the existence of a direct investment relationship. Data are in current U.S. dollars.

III. EMPIRICAL RESEARCH

It was intended to explain the GDP and the impact on the economic cycles through the estimation methods in econometrics. In order to remove the effects of seasonal fluctuations in GDP data, the data were adjusted for seasonal effects by using the Gensus X13-ARIMA and some factors were adjusted by the Hodrick Prescott Filter. For other variables, the seasonal adjustments were not made, and ordinary least squares in EViews 10.0 program was used to estimate linear regression model.

A. The dependence of Senegal's GDP

As showed in the equation results, the change in volume of GDP is depending on the following variables such as FDI inflows, Capital of Senegal and employment of Senegal.

Variable	Dependent Variable: GCB		
	Coefficient	***Std. Error***	***Prob.***
FDI	0.001766	0.000299	0.0000***
LOG(EMP)	0.657265	0.156073	0.0004***
LOG(CAP(-1))	0.122508	0.050416	0.0237**
Remark: ***), (**), (*) indicate that the hypothesis of "no effect" is rejected at the 1%, 5%, 10% significant level respectively.			
R^2=86.5; *Durbin Watson = 1.97; SER=0.022*			

Table 2:- The dependence of GDP of Senegal and explanatory variables
Source: estimated by research

In the result of model, all factors are significant. Specifically: It showed that increasing FDI inflows increases the GDP growth of Senegal the base year by 0.17 percent. If the foreign direct investment flows increase, the country will be able to increase its gross domestic product. so as the investment in production and farming increases, the quantity of products will increase. If GDP increases, income of the entire population increases. Decrease in economic growth, slowing export growth and rapid inflows of foreign direct investment.

Increasing employment level of Senegal increases the GDP the base year by 0.65 unit. International experience suggests that rapid economic growth can reduce poverty through good labor. This is achieved by creating a new productive workplace. In other words, decent employment allows the poor to maximize their full potential of their own property. Involving poor people into economic activities is a way of reducing poverty through economic growth.

Increasing net capital account increases the GDP growth after 1 year since the base year by 0.12 unit. If the country's capital increases, then GDP increases, thereby reducing unemployment. Increasing capital will increase the living conditions and economic conditions of the people and export their own products to the country. So exports will increase.

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IV. CONCLUSION

Foreign investment and discounted aid are a kind of loan and risk is repayable if it does not properly spend. Most countries invest in a program to provide long-term returns on investing in other countries. So the project does not start to benefit when the loan is due. Hence, there is a higher interest expense on discounted lending and investment repayment. So the country with which the loan and the investment are coming into debt burden. So governments and companies need to spend the right amount of investment and concessional loans. Investments and loans are necessary to finance large projects and programs. so the government receives substantial funding from other countries as loans, grants, and investments. If the funds are properly spent, the state economy will improve, the livelihoods of the people will improve, and the unemployment will decrease.

From result of model, FDI inflows directly influence GDP of Senegal. If one day FDI inflows decrease dramatically, GDP also decrease dramatically because GDP grows follows the FDI inflows. FDI and GDP growth correlation is highly. Increasing net capital account increases the GDP growth after 1 year since the base year by 0.12 unit. If the country's capital increases, then GDP increases, thereby reducing unemployment.

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