RESEARCH ARTICLE

A CONTRIBUTION TO THE UNDERSTANDING OF THE DETERMINANTS OF FDI ATTRACTED IN THE FRAMEWORK OF DELEGATED MANAGEMENT OF ELECTRICITY WATER SUPPLY AND SANITATION OF LIQUID SEWAGE IN MOROCCO.

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Manuscript Info	*Abstract*
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The formation of public debt in Morocco is the result of years of economic policies. How the debt of the treasure reached this level 64% of GDP. The debt tolerance threshold in Morocco is 60% of GDP, making difficult its sustainability. We have a challenge of economic policy at the service of economic growth. In the sense of economic policies based on supply and in order to find alternatives for financing economic and social projects in Morocco, we have tried in the scope of this article to analyze the determinants of FDI attracted in the framework of distribution delegated management.

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Introduction:-

1.1 Background And Purpose Of Research
In Morocco, the formation of public debt is the result of years of economic policies. How Morocco has arrived to this debt of the treasure 64% of GDP?. We were in 2001 to 67%, said (El Azami, 2016, November), and in 2008 we got to floor 47% of GDP. But between 2009 and 2014, the pace of debt growth was accelerated rate, approximately 4.1% of GDP, due to public policy stimulus declined to support domestic demand and investment to cope with the imported international financial crisis. In fact, between 2008-2012, the weight of public investment has doubled over the period between 2005 and 2008 (330 billion dirhams), about a cumulative of 653 billion dirhams, next to the wage increases, the compensation system and the reform of direct taxes: IT (income tax) and CT(Corporation tax).

Empirically, the public debt in Morocco is not an economic growth factor (Granger causality) **(Hamid, 2016, June),** and it exceeded the debt tolerance threshold that is 60% of GDP, making difficult its sustainability **(Ouafaa & Youssef, 2012)**.In fact, the internal financing of the fiscal deficit has an eviction effect on private investment (1986-2003). Given the narrow flexibility in terms of increasing the tax burden and the increasing difficulty of external resources mobilization, financial authorities have moved towards the mobilization of domestic resources **(Bendaoud, 2008).**

the research object of our article is:
An economic policy at the service of growth, what is perspectives ?

1.2 Problems, Assumptions And Research Question
In fact, on the basis of the budget constraint, the government must maintain a level of debt lower than the tolerance threshold, which is 60% **(Ouafaa & Youssef, 2012),** while taking advantage of the periods of the boom to reduce

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the fiscal deficit, and therefore the public debt. The government also has to promote the microeconomic impact of spending on education, health and infrastructure to boost economic growth**(El Mokri, ragbi & Tounsi, 2015)**.

So, Morocco, to avoid the negative impact of fiscal policy on growth, the theoretical and empirical literature offers:
- Optimal mixes between the three modalities of financing the deficit are: external borrowing, domestic borrowing and money creation **(Bendaoud, 2008).**
- The control of public spending by multiannual programming and the medium term expenditure contracts **(Abdellatif, 2008)**
- The government must rely on growth driven by economic policy of supply and not only by the economic policies of the demand **(Bendaoud, 2008)** including financing economic and social projects by the private-public partnerships as a form of financial governance and attracting FDI are part **(Yang ans ale., 2016)**.

In this context, and as part of our doctoral thesis, our purpose is:
A contribution to the understanding of the determinants and effects of FDI attracted in the framework of delegated management of electricity water supply and sanitation of liquid sewage in Morocco.
As part of our article, we have tried to understand just the determinants of FDI attracted in the framework of delegated management of electricity, water supply and sanitation of liquid sewage in Morocco. Our research hypothesis is:
The economic, political and institutional factors would positively influence the FDI attracted in the framework of delegated management of electricity, water supply and sanitation of liquid sewage in Morocco

Our research question related to our problem is:
- Is there a relationship between the economic, political and institutional and FDI attracted under distribution delegated management in Morocco?

Method and materials:-
2.1 Research Approach, Methodology And Research Steps
Our research approach is a macro economic positivistic approach. As part of our research, the chosen methodological paradigm is the analysis of reality by using the laws of causality and pragmatism, to identify the determinants of FDI attracted in the context of delegated management, and conclude laws general economic **(Rachidi & Ennaji,1996)** and **(Jaidi & Laraki, 1997).** Our research hypothesis is the result of a hypothetico deductive approach.

SAMPLE
2.2.1 Size And Fields Of Study
Our scale study of the determinants of public-private partnerships is mesoeconomics **(Bauchet, 1977)** and **(Bar & Mouline, 1995).**In this sense, our field study that we have chosen within our research is delegated companies operating in **(High Planning Commission, 2017).**:
- Section D: production and distribution of electricity, gas, steam and air conditioning
- Section E: production and distribution of water; sanitation of liquid sewage, waste management and depollution
- Section H: Transportation and Storage

2.2.2 The Elements Of Our Sample
Given the importance of the amounts of investments expected over the contract period for local public distribution services, which are in the order of 48,000 M MAD financed by the private delegates, the delegating authority and the customers **(Courts of Auditors, 2014)**, and given the availability of the data sources concerning the delegated companies, the method of selection of the individuals of the sample used is the empirical method based on reasoned choices.

It is therefore, of four foreign delegated companies in water electricity supply and sanitation of liquid sewage (Lydec (Casablanca), Amendis (Tangier), Amendis (Tetouan) and Veolia (Rabat)) covering 46 municipalities **(Miras, 2007)** and **(OECD, 2008)** :
- Amendis (Tangier), Amendis (Tetouan) and Veolia (Rabat) are subsidiaries of the French group Veolia,
- Lydec (Casablanca) is a subsidiary of French group Suez Environnement.

To take advantage of the comparison between the the distribution delegated management in Morocco and France, we have considered in our sample aggregated data on capital flows of distribution foreign delegatees in France.

So our sample consists of capital flows of foreign delegatees of water, electricity and sanitation of liquid sewage in France and Morocco for the period 2000 and 2017, allowing us to study 36 observations.

Variables:-
When it regards FDI attracted under delegated management. This variable concern the stock of FDI, equity flows and reinvested earnings to reported GDP as defined and published in the statistics of the World Bank.
Due to lack of data on the distribution of FDI by country and then by sector, by industry, by sub branches and activities, we tried to extract data directly on FDI balance sheets of foreign delegates distribution:

$$FDI\_PPP_t = CP_t - CP_{t-1}$$

With:
- FDI_PPP: capital flows of of distribution foreign delegatees
- CP: equity of distribution foreign delegatees

However, amounts, calculation result of FDI_PPP not only reflect the flow of foreign capital, since the participation of direct investors in the share capital of direct investment enterprises is shared with local investors. In this sense, the risk of a capital increase by offsetting receivables of local investors is possible, as well as reinvested dividends does not only relate to the direct investor.

Moreover, in tax documents submitted by the companies to the tax authorities, the document C4 is the solution. But this information remains confidential.
Given the forced mentioned above, we used data on direct investment income in branches activity of the period 2010-2017:
- N° 35 : Electricity production and distribution, gas, steam and air conditioning
- N° 36 : Collection, purification and distribution of water
- N° 37 : Collection and treatment of wastewater

possible risks of this method is that the factors of attraction and motivation of foreign direct investment in the context of delegated management are not necessarily the same in relation to other types of direct investments in the above-mentioned branches. For example, flows of foreign direct investment capital attracted in the context of delegated management may be negatively correlated with price liberalization, while for other types of direct investments, they can be positively correlated with the exogenous variable, depending on the desired business climate, competition or monopoly **(Bevan & Estrin, 2000)**.

So to increase the opportunity to use just concernants data revenues of foreign direct investments attracted in the context of delegated management of electricity water supply and sanitation of liquid sewage , we mobilized the amounts of the branch N° 36 (Corresponds to the division N° 36 of French activities the nomenclature). Finally, these two variables represent the proxy used for the foreign capital flows of distribution foreign delegatees. In fact, our interest is the measurement of the reaction of these capital flows to macro determinants of FDI and their effects on the local private investment. Given that, in the water sector, it is the National Office of Potable Water (NOPW), which ensures the entire production of potable water, while the water distribution and sanitation of liquid sewage are partly NOPW and partly by authorities and foreign delegatees **(OECD, 2010)** .In France too, the management of potable water and waste water is the responsibility of municipalities or their groups. It can be also provided by the town (called management "in-house") or delegated to private companies **(NMSPWS, 2007)** and **(DETD, 2011)**.

Then the variables in our model are:
- FDI_PPP : is the ratio of FDI flows attracted within the delegated management by gross domestic product at current prices,
- Lagged FDI_PPP: is the proof of continuity of PPPs attracting (autoregressive variable)
- Lagged GROW : is the previous year's economic growth rate which the studies of greenfield projects are based on.
- OPEN : Shows the opening rate cross-border barriers, it is negative sign in the case of horizontal FDI "Tariff jumping" in, and a positive sign in the opposite case (Export + Import of good and service / GDP).

- R: is the real exchange rate has a wealth effect, valuing the active cross-border capital, and an effect on the productive activities of the host countries reflecting relative production costs.
- CONSU: is the total consumption by GDP. It is an attractive factor of Greenfields,
- UNEMP: is the unemployment rate .A high unemployment is a FDI motivator, enabling low labor costs and the abundance of labor
- CAPIT: is the market capitalization of listed companies is a threat related to the degree of concentration of capital to a smaller number of large group.
- ΔS : is the growth rate of gross saving is a sign of financial sector of good quality, and therefore a motivating factor for FDI.

Additional variables are SUP:
- INF: A high inflation rate is a sign of tension in the market for goods and services and in the money market. It also reflects an inability or unwillingness of fiscal and monetary authorities to control the money supply in circulation
- FUEL: The share of oil in total exports of goods. It concerns the vertical FDI.
- DEBT: is the gross public debt ratio. A high level of public debt hints at restrictive policies implying lower demand, rising taxation and therefore a less attractive investment environment.
- BUSFREE: is an institutional explanatory variable represented by the freedom of undertaking .The index is an index ranging from 0 to 100, 100 symbolizing the least environmental binding as possible to do business.

Figure 1:- References and data sources for analysis variables

Variables	References	Data Sources
Lagged FDI_PPP	**(Prost, 2012)**	Bank of France Statistics Morocco Exchange Office Statistics
Lagged GROW	**(Gastanaga, Nugent, & Pashamova, 1998)**	World Bank statistics
OPEN	**(Prost, 2012)**	World Bank statistics
R	**(Prost, 2012)**	World Bank statistics
CONSU	**(Prost, 2012)**	HCP Statistics INSEE statistics
UNEMP	**(Prost, 2012)**	World Bank statistics University of Sherbrooke Statistics
CAPIT	**(Prost, 2012)**	World Bank statistics
ΔS	**(Prost, 2012)**	World Bank statistics
INF	**(Garibaldi, Mora, Sahay, & Zettelmeyer, 2002)**	World Bank statistics
DEBT	**(Prost, 2012)**	University of Sherbrooke Statistics Ministry of Economy and Finance
BUSFREE	**(Prost, 2012)**	University of Sherbrooke Statistics

Source: Prepared by us

Model:-
Regression is made based on panel data of the two countries, Morocco and France, and for a period from 2000 until 2017. The model chosen is the one built by **(Prost, 2012).**

$$FDI\_PPP_{i,t} = \beta_0 + \beta_1.FDI\_PPP_{i,t-1} + \beta_2.GROW_{i,t-1} + \beta_3.OPEN_{i,t} + \beta_4.R_{i,t} + \beta_5.CONSU + \beta_6.UNEMP$$
$$\beta_7.CAPIT + \beta_8.\Delta S + \beta_9.SUP + \varepsilon_{i,t}$$

With:
- SUP takes turns in the form of 0, INF, FUEL, BUSFREE and DEBT
- $\varepsilon_{i,t} = \alpha_i + \delta_t + u_{i,t}$

  - α_i the individual specific effect which is fixed in time it corresponds to unobserved heterogeneity;

  - δ_t a time component (or inter-temporal heterogeneity)

- $u_{i,t}$ a specific component to the individual who varies over time and across individuals

Our estimation method is ordinary least squares.

Results and Discussion:-
As part of our article, the research object is the outlook for economic policies at the service of growth. Our research question is the contribution to the understanding of the determinants of FDI attracted in the framework of delegated management of electricity water supply and sanitation of liquid sewerage. Our research hypothesis is:

The economic, political and institutional factors would positively influence the FDI attracted under distribution delegated management in Morocco. Lastly, our research question is:

Is there a relationship between the economic, political and institutional factors and FDI attracted under distribution delegated management in Morocco?

We have answered this question based on the regression results above:

Figure 1:- Regression on determining the location of FDI over the period 2000 - 2017, all of the overall sample, IDE_PPP data / GDP

(Dependent Variable: incoming IDE_PPP flows in Dhs / GDP, randomized panel data test results)

Variables	Regression n°1	Regression n°2	Regression n°3	Regression n°4
	SUP = 0	SUP = inflation rate	SUP = Debt rate	SUP = freedom index
Lagged FDI_PPP	0.320703 (2.094927)**	0.133871 (0.904088)	0.188978 (1.192706)	0.174519 (1.215161)
Lagged GROW	-0.005151 (-2.503423)**	-0.003282 (-1.678346)	-0.002980 (-1.351256)	-0.003935 (-2.147963)**
OPEN	-1.33E-07 (-0.010429)	1.93E-05 (1.408346)**	1.64E-05 (1.152080)**	-5.33E-06 (-0.513048)**
R	0.000698 (1.047876)	0.001878 (2.239208)	0.001126 (1.991914)	0.001000 (2.112937)
CONSU	-3.16E-05 (-0.526861)	-2.02E-05 (-0.382901)	2.41E-05 (0.383642)	5.55E-05 (0.919581)
UNEMP	-0.004658 (-1.080516)	-0.007668 (-1.800583)**	-0.010814 (-2.294887)**	-0.000431 (-0.107202)
CAPIT	-0.000417 (-1.639266)	-0.000724 (-2.864015)*	-0.000581 (-2.319480)**	-0.000760 (-3.047229)*
ΔS	-0.000209 (-0.349787)	0.000345 (0.621594)	2.10E-06 (0.003642)	-0.000163 (-0.308973)
INF		-0.011912 (-2.784668)*		
DEBT			0.000779 (2.210056)**	
BUSFREE				1.93E-05 (3.078590)*
C	0.000528 (0.299749)	-0.001555 (-0.804872)	-0.001471 (-0.794555)	-0.000952 (-0.634364)
R²	0.524683	0.651348	0.602348	0.658857
Ajusted R²	0.372581	0.520604	0.453228	0.530929
Prob(F-statistic)	0.008223	0.000777	0.002964	0.000619
Durbin-Watson stat	1.501781	1.726040	1.647011	1.613570
Prob(Jebra-Bera)	0,00022	0,25	0,26	0,000132
White test	(0.663601)	(1.218652)	(2.772625)**	(1.433751)

Notes: * ** *** represents respectively statistical significance at the 1%, 5% and 10%, the t-statistics are shown in parentheses.
Source: Prepared by us under the Eviews software

Regression N°2 seems significant and respects the assumptions of error normality (Jarque-Bera test), homoscedasticity (White test, see Appendix) and non autocorrelation errors (Durbin Watson Test).

Thus according to the regression N°2, the lagged FDI_PPP variables, the lagged GROW, R, and CONSU ΔS have a statistically insignificant coefficient, while the other variables reveal a statistically significant coefficient to the above thresholds.

We regard the variables associated with a non-significant coefficient, they not represent for FDI attracted in the context of delegated management a locational factors. For the lagged growth and lagged capital flows, the delegates of distribution have already exceed the FDI greenfield project preparation phase to be worry of the pace of market growth and continuity of delegates capital flows **(Prost, 2012)**. When the exchange rate and the growth of the gross savings it concerned, they show a positive sign of wealth and liquidity effect. Finally, the total consumption is a negative sign, which is quite contrary to the expectations of greenfield FDI in search of market Moreover, the variables OPEN, UNEMP, CAPIT and INF are associated with statistically significant coefficient, demonstrating their importance in locating horizontal FDI attracted in the framework of delegated management of electricity water supply and sanitation of liquid sewerage. The open rate has little impact on flows of capital delegated, can be seen in the nature of the service provided by these direct investors. The unemployment rate is a negative sign implying that this variable is a demotivating factor of delegates of distribution. On the side of the market capitalization, the negative sign of this variable shows distrust of delegates of distribution to large local business groups. Finally, the inflation rate is a sign of tension in the market for goods and local services, and setting short-term price **(Schneider & Frey, 1985)** and **(Trevino, Daniels & Arbelaez, 2002).**

Conclusion:-
For economic policies at the service of growth, FDI attracted in the framework of delegated management of electricity water supply and sanitation of liquid sewerage in Morocco will both reduce the use of fiscal deficit, financing economic and social projects of the government and promote 'economy. In this sense, the attraction of FDI is still based on economic, political and institutional factors. In Morocco, and as an answer to our research question, FDI attracted in the context of delegated management of distribution do not pay interest on lagged capital flows, a lagged economic growth, the real exchange rate, the total consumption and the growth of gross savings in their localization. But they are influenced by the degree of openness, the unemployment rate, the market capitalization and the rate of inflation.

The question is the different effects of FDI attracted in the context of delegated management of distribution on the economy. Does he have a complementary or substitution effect on local investment ?

Acknowledgements:-

Appendix:-
Appendix 1:- Descriptive Statistics for the period 2000-2017, all of the sample

Correlation

	FDI_PPP	FDI_PPP(-1)	GROW(-1)	R	OPEN	CONSU	UNEMP
FDI_PPP	1.000000	0.510990	-0.336161	-0.169968	0.135323	-0.208781	-0.016307
FDI_PPP(-1)	0.510990	1.000000	-0.167116	-0.120609	0.035902	-0.128604	0.258716
GROW(-1)	-0.336161	-0.167116	1.000000	0.310453	0.500325	-0.466019	0.146822
R	-0.169968	-0.120609	0.310453	1.000000	-0.120458	-0.307126	0.312622
OPEN	0.135323	0.035902	0.500325	-0.120458	1.000000	-0.647475	0.027857
CONSU	-0.208781	-0.128604	-0.466019	-0.307126	-0.647475	1.000000	-0.351490
UNEMP	-0.016307	0.258716	0.146822	0.312622	0.027857	-0.351490	1.000000
CAPIT	-0.271596	-0.326160	-0.300197	-0.448938	-0.192388	0.613493	-0.542086
CROI_S	0.070356	0.317905	-0.166467	0.197408	-0.065917	0.042635	0.419639
BUSFREE	0.393983	0.104761	-0.431744	-0.172829	-0.284198	0.175900	-0.421711
INFLATION	-0.360464	-0.340343	0.245162	0.322236	0.109881	-0.101296	-0.263489
DEBT	0.382603	0.367484	-0.648682	-0.489706	-0.418183	0.270130	0.156166

Date: 10/31/17   Time: 23:16
Sample: 2000 2017

	FDI_PPP	FDI_PPP(-1)	GROW(-1)	R	OPEN	CONSU	UNEMP
Mean	8.57E-05	0.000111	0.027824	99.97057	0.647865	1.513126	0.097262
Median	0.000111	0.000135	0.024630	100.0797	0.605578	0.770146	0.096350
Maximum	0.000444	0.000595	0.075746	107.8728	0.856728	3.566000	0.124600
Minimum	-0.000605	-0.000605	-0.029413	92.37220	0.495679	0.516000	0.074800
Std. Dev.	0.000233	0.000254	0.021940	3.859719	0.114392	1.034353	0.010206
Skewness	-0.711730	-0.526659	0.108112	0.101269	0.524641	0.834180	0.636137
Kurtosis	3.661085	3.329009	3.338928	2.534377	1.837000	1.987208	3.814449
Jarque-Bera	3.489632	1.725110	0.228968	0.365255	3.475881	5.396325	3.232849
Probability	0.174677	0.422082	0.891826	0.833079	0.175882	0.067329	0.198608
Sum	0.002915	0.003771	0.946023	3398.999	22.02741	51.44628	3.306910
Sum Sq. Dev.	1.78E-06	2.13E-06	0.015885	491.6152	0.431823	35.30627	0.003437
Observations	34	34	34	34	34	34	34

Appendix 2: Regression on determining the location of FDI over the period (Sup = 0)

Dependent Variable: FDI_PPP
Method: Panel EGLS (Cross-section random effects)
Date: 10/31/17   Time: 22:37
Sample (adjusted): 2001 2017
Periods included: 17
Cross-sections included: 2
Total panel (balanced) observations: 34
Wallace and Hussain estimator of component variances

Variable	Coefficient	Std. Error	t-Statistic	Prob.
FDI_PPP(-1)	0.320703	0.153086	2.094827	0.0465
GROW(-1)	-0.005151	0.002058	-2.503423	0.0192
R	-1.336-07	1.26E-05	-0.010429	0.9918
OPEN	0.000698	0.000666	1.047876	0.3047
CONSU	-3.16E-05	5.99E-05	-0.526661	0.6029
UNEMP	-0.004658	0.004311	-1.080616	0.2902
CAPIT	-0.000417	0.000255	-1.638266	0.1137
CROI_S	-0.000209	0.000597	-0.349787	0.7294
C	0.000528	0.001762	0.299749	0.7665

Effects Specification

	S.D.	Rho
Cross-section random	0.000111	0.2655
Idiosyncratic random	0.000184	0.7345

Weighted Statistics

R-squared	0.524683	Mean dependent var	3.21E-05
Adjusted R-squared	0.372581	S.D. dependent var	0.000232
S.E. of regression	0.000184	Sum squared resid	8.47E-07
F-statistic	3.449556	Durbin-Watson stat	1.501761
Prob(F-statistic)	0.008223		

Unweighted Statistics

R-squared	0.488063	Mean dependent var	8.57E-05
Sum squared resid	9.12E-07	Durbin-Watson stat	1.366641

Correlated Random Effects - Hausman Test
Equation: EQUATION_DET_IOS_PPP_PRO
Test cross-section random effects

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	0.000000	8	1.0000

* Cross-section test variance is invalid. Hausman statistic set to zero.

Cross-section random effects test comparisons:

Variable	Fixed	Random	Var(Diff.)	Prob.
FDI_PPP(-1)	0.388916	0.320703	0.001142	0.3173
GROW(-1)	-0.004326	-0.005151	0.000001	0.3173
R	0.000009	-0.000000	0.000000	0.3173
OPEN	0.001443	0.000698	0.000001	0.3173
CONSU	-0.000033	-0.000032	0.000000	0.3173
UNEMP	-0.002876	-0.004658	0.000003	0.3173
CAPIT	-0.000439	-0.000417	0.000000	0.3173
CROI_S	-0.000142	-0.000209	0.000000	0.3173

Cross-section random effects test equation:
Dependent Variable: FDI_PPP
Method: Panel Least Squares
Date: 10/31/17   Time: 22:39
Sample (adjusted): 2001 2017
Periods included: 17
Cross-sections included: 2
Total panel (balanced) observations: 34

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.000918	0.003376	-0.401809	0.6913
FDI_PPP(-1)	0.388916	0.186770	1.830176	0.0797
GROW(-1)	-0.004326	0.002217	-1.861106	0.0628
R	3.31E-06	1.836-05	0.643366	0.8826
OPEN	0.001443	0.000996	1.443946	0.1617
CONSU	-3.366-05	6.066-06	-0.372636	0.7127
UNEMP	-0.002876	0.004629	-0.642347	0.5284
CAPIT	-0.000439	0.000352	-1.910386	0.0681
CROI_S	-0.000142	0.000600	-0.337006	0.8147

Effects Specification

Cross-section fixed (dummy variables)

R-squared	0.544187	Mean dependent var	8.57E-05
Adjusted R-squared	0.373230	S.D. dependent var	0.000233
S.E. of regression	0.000184	Akaike info criterion	-16.13213
Sum squared resid	8.14E-07	Schwarz criterion	-15.67316
Log likelihood	290.0761	Hannan-Quinn criter.	-15.96603
F-statistic	3.183429	Durbin-Watson stat	1.624672
Prob(F-statistic)	0.011367		

Source: Prepared by us under the Eviews software

Appendix 3:

Regression on determining the location of FDI over the period (= Sup inflation)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
FDI_PPP(-1)	0.133871	0.148073	0.904088	0.3749
GROW(-1)	-0.003282	0.001955	-1.678346	0.1063
R	1.93E-05	1.37E-05	1.408346	0.1719
OPEN	0.001878	0.000839	2.239208	0.0347
CONSU	-2.02E-05	5.28E-05	-0.382901	0.7052
UNEMP	-0.007668	0.004259	-1.800583	0.0844
CAPIT	-0.000724	0.000253	-2.864015	0.0086
CROI_S	0.000345	0.000554	0.621594	0.5401
INFLATION	-0.011912	0.004278	-2.784668	0.0103
C	-0.001555	0.001932	-0.804872	0.4288

Dependent Variable: FDI_PPP
Method: Panel EGLS (Cross-section random effects)
Date: 10/31/17 Time: 22:47
Sample (adjusted): 2001 2017
Periods included: 17
Cross-sections included: 2
Total panel (balanced) observations: 34
Wallace and Hussain estimator of component variances

Effects Specification

	S.D.	Rho
Cross-section random	0.000332	0.8093
Idiosyncratic random	0.000161	0.1907

Weighted Statistics

R-squared	0.651348	Mean dependent var	1.00E-05
Adjusted R-squared	0.520604	S.D. dependent var	0.000232
S.E. of regression	0.000161	Sum squared resid	6.22E-07
F-statistic	4.981846	Durbin-Watson stat	1.726040
Prob(F-statistic)	0.000777		

Unweighted Statistics

R-squared	-0.189453	Mean dependent var	8.57E-05
Sum squared resid	2.12E-06	Durbin-Watson stat	0.505336

Source: Prepared by us under software Eviews

Appendix 6: White test (Sup = 0)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
(FDI_PPP(-1))^2	5.40E-09	8.06E-09	0.666869	0.5091
(GROW(-1))^2	3.65E-13	4.79E-13	0.762112	0.4531
R^2	-6.57E-19	1.02E-18	-0.645107	0.5247
OPEN^2	-7.33E-17	5.06E-15	-0.014501	0.9685
CONSU^2	2.27E-16	2.32E-16	0.981564	0.3357
UNEMP^2	3.22E-14	3.25E-13	0.099122	0.9218
CAPIT^2	-3.13E-17	3.14E-15	-0.009958	0.9921
CROI_S^2	-1.66E-14	6.50E-14	-0.254771	0.8010
C	5.73E-15	1.20E-14	0.476717	0.6377

Dependent Variable: RESID^2
Method: Panel EGLS (Cross-section random effects)
Date: 10/31/17 Time: 23:35
Sample (adjusted): 2001 2017
Periods included: 17
Cross-sections included: 2
Total panel (balanced) observations: 34
Wallace and Hussain estimator of component variances

Effects Specification

	S.D.	Rho
Cross-section random	0.000000	0.0000
Idiosyncratic random	3.01E-15	1.0000

Weighted Statistics

R-squared	0.175157	Mean dependent var	9.55E-16
Adjusted R-squared	-0.088792	S.D. dependent var	2.84E-15
S.E. of regression	2.96E-15	Sum squared resid	2.19E-28
F-statistic	0.663601	Durbin-Watson stat	1.846979
Prob(F-statistic)	0.717921		

Unweighted Statistics

R-squared	0.175157	Mean dependent var	9.55E-16
Sum squared resid	2.19E-28	Durbin-Watson stat	1.846979

Source: Prepared by us under software Eviews

Appendix 8: White test (= Sup debt ratio)

Appendix 4:

Regression on determining the location of FDI over the period (= Sup debt ratio)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
FDI_PPP(-1)	0.188978	0.158445	1.192706	0.2446
GROW(-1)	-0.002980	0.002205	-1.351256	0.1892
R	1.64E-05	1.43E-05	1.152080	0.2606
OPEN	0.001126	0.000565	1.991914	0.0579
CONSU	2.41E-05	6.27E-05	0.383642	0.7046
UNEMP	-0.010814	0.004712	-2.294887	0.0308
CAPIT	-0.000581	0.000250	-2.319480	0.0292
CROI_S	2.10E-06	0.000577	0.003642	0.9971
DEBT	0.000779	0.000352	2.210056	0.0369
C	-0.001471	0.001851	-0.794555	0.4347

Dependent Variable: FDI_PPP
Method: Panel EGLS (Cross-section random effects)
Date: 10/31/17 Time: 22:52
Sample (adjusted): 2001 2017
Periods included: 17
Cross-sections included: 2
Total panel (balanced) observations: 34
Wallace and Hussain estimator of component variances

Effects Specification

	S.D.	Rho
Cross-section random	0.000000	0.0000
Idiosyncratic random	0.000175	1.0000

Weighted Statistics

R-squared	0.602348	Mean dependent var	8.57E-05
Adjusted R-squared	0.453228	S.D. dependent var	0.000233
S.E. of regression	0.000172	Sum squared resid	7.10E-07
F-statistic	4.039362	Durbin-Watson stat	1.647011
Prob(F-statistic)	0.002964		

Unweighted Statistics

R-squared	0.602348	Mean dependent var	8.57E-05
Sum squared resid	7.10E-07	Durbin-Watson stat	1.647011

Appendix 7: White test (= Sup inflation)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
(FDI_PPP(-1))^2	3.41E-23	7.13E-23	0.478267	0.6366
(GROW(-1))^2	5.19E-27	4.06E-27	1.274790	0.2146
R^2	-1.97E-32	1.13E-32	-1.750357	0.0928
OPEN^2	-6.39E-29	6.39E-29	-0.997419	0.3286
CONSU^2	1.66E-30	1.86E-30	0.999702	0.3274
UNEMP^2	-3.60E-29	2.76E-27	-0.012950	0.9898
CAPIT^2	-1.97E-31	2.63E-29	-0.007484	0.9941
CROI_S^2	3.07E-28	6.02E-28	0.510807	0.6142
INFLATION^2	2.53E-26	1.62E-26	1.390102	0.1773
C	2.08E-28	1.34E-28	1.549575	0.1343

Dependent Variable: RESID^2
Method: Panel EGLS (Cross-section random effects)
Date: 10/31/17 Time: 23:37
Sample (adjusted): 2001 2017
Periods included: 17
Cross-sections included: 2
Total panel (balanced) observations: 34
Wallace and Hussain estimator of component variances

Effects Specification

	S.D.	Rho
Cross-section random	1.64E-29	0.3156
Idiosyncratic random	2.41E-29	0.6844

Weighted Statistics

R-squared	0.313656	Mean dependent var	2.17E-30
Adjusted R-squared	0.056276	S.D. dependent var	2.46E-29
S.E. of regression	2.41E-29	Sum squared resid	1.39E-56
F-statistic	1.218652	Durbin-Watson stat	1.667889
Prob(F-statistic)	0.329463		

Unweighted Statistics

R-squared	0.245742	Mean dependent var	6.44E-30
Sum squared resid	1.37E-56	Durbin-Watson stat	1.460241

Appendix 7: White test (= Sup inflation)

Dependent Variable: RESID^2
Method: Panel EGLS (Cross-section random effects)
Date: 10/31/17 Time: 23:39
Sample (adjusted): 2001 2017
Periods included: 17
Cross-sections included: 2
Total panel (balanced) observations: 34
Wallace and Hussain estimator of component variances

Variable	Coefficient	Std. Error	t-Statistic	Prob.
(FDI_PPP(-1))^2	-6.56E-52	3.15E-51	-0.208164	0.8369
(GROW(-1))^2	9.71E-56	1.86E-55	0.522697	0.6060
R^2	-1.94E-60	5.43E-61	-3.573836	0.0015
OPEN^2	-5.65E-57	2.94E-57	-1.923744	0.0663
CONSU^2	-2.23E-59	9.47E-59	-0.235099	0.8161
UNEMP^2	3.26E-55	1.64E-55	1.994033	0.0576
CAPIT^2	3.56E-56	1.20E-57	0.297144	0.7689
CROI_5^2	9.00E-57	2.41E-56	0.373096	0.7124
DEBT^2	-4.07E-57	1.27E-57	-3.212717	0.0037
C	2.19E-56	6.64E-57	3.295839	0.0030

Effects Specification

	S.D.	Rho
Cross-section random	7.73E-58	0.3295
Idiosyncratic random	1.10E-57	0.6705

Weighted Statistics

R-squared	0.509740	Mean dependent var	1.51E-58
Adjusted R-squared	0.325893	S.D. dependent var	1.34E-57
S.E. of regression	1.10E-57	Sum squared resid	2.9E-113
F-statistic	2.772625	Durbin-Watson stat	1.839185
Prob(F-statistic)	0.022211		

Unweighted Statistics

R-squared	0.487006	Mean dependent var	4.62E-58
Sum squared resid	3.2E-113	Durbin-Watson stat	1.681937

Dependent Variable: RESID^2
Method: Panel EGLS (Cross-section random effects)
Date: 10/31/17 Time: 23:41
Sample (adjusted): 2001 2017
Periods included: 17
Cross-sections included: 2
Total panel (balanced) observations: 34
Wallace and Hussain estimator of component variances

Variable	Coefficient	Std. Error	t-Statistic	Prob.
(FDI_PPP(-1))^2	7.6E-108	7.6E-108	0.998005	0.3282
(GROW(-1))^2	6.0E-112	4.5E-112	1.316046	0.1999
R^2	-1.5E-117	9.6E-118	-1.550123	0.1342
OPEN^2	-7.7E-114	5.4E-114	-1.426330	0.1667
CONSU^2	-8.3E-117	2.5E-115	-0.032775	0.9741
UNEMP^2	-3.5E-112	3.4E-112	-1.046370	0.3058
CAPIT^2	1.1E-114	3.3E-114	0.349096	0.7301
CROI_5^2	1.0E-113	6.2E-113	0.163934	0.8712
BUSFREE^2	-8.6E-118	6.7E-118	-1.286556	0.2105
C	2.6E-113	1.3E-113	1.912278	0.0678

Effects Specification

	S.D.	Rho
Cross-section random	0.000000	0.0000
Idiosyncratic random	2.6E-114	1.0000

Weighted Statistics

R-squared	0.349660	Mean dependent var	9.4E-115
Adjusted R-squared	0.105782	S.D. dependent var	2.9E-114
S.E. of regression	2.6E-114	Sum squared resid	1.6E-226
F-statistic	1.433751	Durbin-Watson stat	1.727934
Prob(F-statistic)	0.229091		

Unweighted Statistics

R-squared	0.349660	Mean dependent var	9.4E-115
Sum squared resid	1.6E-226	Durbin-Watson stat	1.727934

Source: Prepared by us under software Eviews

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