

The Green Economy Policies and Foreign Direct Investment “A Comparative study”

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Abstract

This study analyzed the effects of lax environmental laws on foreign direct investment (FDI) inflows to developing countries (case study). The Lax environmental laws in developing countries may attract polluting FDI that usually escapes from stringent environmental laws in other countries. This hypothesis is examined in multiple regression data model for the time period 1982-2013. The results of estimation reject the hypothesis for four countries (Mexico, India, China and Brazil). The conclusion of this study may be essential in order to solve the ongoing dilemma of how to promote FDI inflows without leading to environmental degradation.

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المخلص

قامت هذه الدراسة بتحليل تأثير القوانين البيئية المتراخية على تدفقات الاستثمار الأجنبي المباشر الداخلة في البلدان النامية (في الدول محل الدراسة) . وقد يؤدي تراخي القوانين البيئية في الدول النامية إلى اجتذاب الاستثمار الأجنبي المباشر الملوث الذي عادة ما يفلت من القوانين البيئية الصارمة في الدول الأخرى . ويتم اختبار هذه الفرضية في نموذج الانحدار المتعدد خلال الفترة 1982- 2013. وانتهت نتائج التقدير في الدراسة إلي رفض الفرضية في الدول الأربع (المكسيك ,الهند, الصين والبرازيل). ويمكن أن تكون نتائج هذه الدراسة لحل هذه المعضلة الجارية بشأن كيفية تشجيع تدفقات الاستثمار الأجنبي المباشر الداخلة دون أن يؤد ذلك إلى تدهور البيئة.

1/Introduction:

The green economy seeks to drive growth, jobs, environmental improvement, poverty eradication and social equity by shifting investments towards clean and efficient technologies, natural capital and social infrastructure.

UNEP defines green economy as one that results in “improved human well-being and social equity, while significantly reducing environmental risks and ecological scarcities” (UNEP,2011:16).

The green economy is driven by public and private investments that reduce carbon emissions and pollution, enhance energy and resource efficiency. Foreign direct investment (FDI) can be defined as an investment involving a long-term relationship and demonstrating a lasting interest and control by a resident entity in one country in an enterprise resident in a country other than that of the foreign direct investor (Pant & Sigdel, 2004 :2).

2/The Problem of the Study

During past several decades, the accumulation of greenhouse gases have grown rapidly, that means more heat gets trapped in the atmosphere and few of these gases escapes back into the space. These gases heat up the earth’s surface and this results in global warming.

Environmental degradation also has drawn the attention of numerous policy-makers as it continues to be a threat in the current era. There are three main aspects of environmental

degradation, and these include land degradation, water pollution, and air pollution. Land degradation has been defined as a process that makes land lose its productive capacity due to numerous factors, such as poor farming techniques, deforestation, overexploitation of vegetation for domestic and industrial use, and mining activities. Water pollution has been defined as a process of contaminating water bodies such as oceans, lakes, and rivers by chemical, physical, and biological factors. These factors include, among others, poor fishing methods and mining activities. The focus is on the third type of environmental degradation, namely air pollution. It has been defined as contamination of air due to a persistent increase in the level of greenhouse gases, dusts, fumes, in larger quantities. Lax environmental laws in developing countries may attract polluting FDI that usually escapes from stringent environmental laws in another developing countries.

Our environment is constantly changing. There is no denying that. However, as our environment changes, so does the need to become increasingly aware of the problems that surround it. people need to be aware of what types of environmental problems our planet is facing. Current environmental problems require urgent attention.

3/ Hypothesis

There is a negative relationship between the green economy policies and FDI inflows in developing countries.

4/Methodology

This study depends on deductive approach, to test the hypothesis for the four countries (India,China,Brazil and Mexico) The study depends on multiple regression models.

5/The theoretical framework

The review of the previous studies here aims to demonstrate the different econometrics method of estimation.

This study examined the impact of carbon dioxide emission on trade liberalization in Pakistan. For this purpose they have used secondary data from 1980-2010. The variable was taken as CO2 emission and openness of trade. Granger causality test was applied to analyze the dynamic relationship between variables under study. Empirical results show that bi-directional causality is running between openness of trade (OT) and carbon dioxide emission (CO2). (**Salam et. al, 2015**).

The study included the impact of foreign direct investment on carbon dioxide emissions, this study used FDI and manufacturing value added as percentage of GDP and population density as independent variables_and carbon dioxide emissions as dependent variable. The study used ARDL

cointegration technique and its error correction model to check the long run and short run relationships. The long run relationship exists in environment model and short run relationship does not exist in the model. FDI, population density and manufacturing value added have the positive impact on carbon dioxide emissions. Results give evidence that all variables in the environment model contribute to the pollution in Pakistan. **(Mahmood & Chaudhary,2012).**

They employed Autoregressive Distributed Lag (ARDL) model to test the cointegration between CO2 emission and economic growth. They also considered exogenous variables such as energy consumption, population density, and trade openness. The results evidenced the study relationship between CO2 emission and economic growth for all countries, but only three countries (e.g. Mexico, Nigeria and South Africa) were influenced by trade openness on CO2 emission. **(Owoye & Onafowora,2013)**

This study attempted that the method of carbon emissions coefficient is used to have measured the total amount of CO2 emissions and to have calculated the CO2 emissions intensity of China from 1995-2010. The relationship between FDI and CO2 emissions intensity of China is also analyzed the means of cointegration test, error correction model and granger causality test. The results indicate that there is a long-term relationship between FDI and CO2 emissions intensity of China. Furthermore, the growth of FDI makes effect on CO2 emissions

intensity of China, but CO₂ emissions intensity of China does not make effect on the growth of FDI conversely.(Ren & Yang,2013).

This study examined how free international trade affects the environment in the developed and less developed worlds. Using input-output techniques, tests of the pollution haven hypothesis (PHH) and the factor endowment hypothesis (FEH) for the US and China were empirically carried out. We found that China gains and the US lose in terms of CO₂, SO₂ and NO_x emissions from increased trade, and the US is not exporting capital intensive goods. Thus both the PHH and the FEH are rejected, which implies that explaining the trade of pollutants remains an unresolved.(Temurshoev,2006).

6/ Model Specification

$$FDI = A_0 + A_1CO_2T + A_2CO_2T-1 + A_3FDIT-1 + e$$

$$CO_2 = B_0 + B_1FDIT + B_2FDIT-1 + B_3CO_2T-1 + e$$

Where

Co₂ = Carbon Dioxide per capita

FDI = Foreign Direct Investment net inflows (% of GDP)

A₀ = Constant Variable.

A₁ = The impact of Co₂ emissions on FDI for the same year.

A₂ = The impact of Co₂ emissions on FDI for the lagged variable.

A₃ = The impact of Co₂ emissions on FDI for the lagged variable.

- The expected sign is positive.

B_0 = Constant Variable.

B_1 = The impact of FDI on CO_2 emissions on the same year.

B_2 = The impact of FDI on CO_2 emissions for the lagged variable.

B_3 = The impact of FDI on CO_2 emissions for the lagged variable.

- The expected sign is positive.

7/Model Estimation

The objective of this part of the study is to find and estimate the causality relation between FDI inflow and CO_2 emissions for the four countries. This means that this study concerns with the significance of the parameters only.

7/1 The Estimation of the Model for Brazil

Endogenous Variable is FDI

Table (7-1) The impact of CO_2 on FDI inflows to Brazil

Variable	Coefficient	t-Statistic	Probability
CO_{2t}	4.905172	2.644224	0.0135***
CO_{2t-1}	-4.644262	-1.989549	0.0569*
FDI_{t-1}	0.817617	5.236353	0.0000***
Constant	-0.215983	-0.177765	0.8602

* significant at 10%

** significant at 5 %

***significant at 1%

The estimation of the equation indicates that the impact of CO_{2t} emissions is significant at 1 % , CO_{2t-1} is significant at 10

%,FDIt-1is significant at 1%, the value of Adj R² is 0.784757, the prob of F=0.000000 and the Durbin-Watson stat=1.502016. According to estimation of this equation the study reject the hypothesis for Brazil. It means that the Co2 emissions increases and leads to increase of FDI inflows.

Endogenous Variable is CO2

Table (7-2)The impact of FDI inflows on Co2 for Brazil

Variable	Coefficient	t-Statistic	Probability
FDI t	0.041934	2.644224	0.0135***
FDI t-1	-0.055626	-3.182571	0.0037***
CO2 t-1	1.133544	14.85394	0.0000***
Constant	-0.165913	-1.539447	0.1353

* significant at 10%

** significant at 5 %

*** significant at 1%

The estimation equation indicates that the impact of FDI t is significant at 1%, FDI t-1 is significant at 1 %, FDI t-1 is significant at 1 % ,CO2 t-1 is significant at 1 % , the value of Adj R² is 0.954974 , the prob of F=0.000000 and the Durbin-Watson stat =2.046970.

According to estimation of the equation the study reject the hypothesis for Brazil. It means that the increase in FDI inflow leads to increase the Co2 emissions for Brazil.

7/3 The Estimation of the Model for Mexico

Endogenous Variable is FDI

Table (7-3)The impact of Co2 on FDI inflows to Mexico

Variable	Coefficient	t-Statistic	Probability
CO2 t	0.457470	0.589313	0.5606
CO2 t-1	-0.231748	-0.322341	0.7497
FDI t-1	0.691201	4.646313	0.0001***
Constant	-0.138857	-0.043059	0.9660

* significant at 10%

** significant at 5 %

***significant at 1%

The estimation equation indicates that the impact of FDI_{t-1} is significant at 1%, the value of Adj R² is 0.412803 , the prob of F= 0.000553, and the Durbin-Watson stat =1.984671.

According to estimation of the equation the study reject the hypothesis for Mexico. It means that the Co2 emissions increases leads to increase of FDI inflows.

Endogenous Variable is CO2

Table (7-4)The impact of FDI inflows on Co2 for Mexico

Variable	Coefficient	t-Statistic	Probability
FDI t	0.027760	0.589313	0.5606
FDI t-1	0.018923	0.385996	0.7025
CO2 t-1	0.327757	1.976181	0.0584*
Constant	2.471402	3.883994	0.0006

* significant at 10%

** significant at 5 %

***significant at 1%

The estimation equation indicates that the impact of CO₂ t-1 is significant at 10% , the value of Adj R² is 0.083701 ,the prob of F= 0.151215, and the Durbin-Watson stat =1.960041.

According to estimation of the equation the study reject the hypothesis for Mexico. It means that the FDI inflows increases lead to increase of Co₂ emissions.

7/5 The Estimation of the Model for India

Endogenous Variable is FDI

Table (7-5)The impact of Co₂ on FDI inflows to India

Variable	Coefficient	t-Statistic	Probability
CO ₂ t	5.398977	2.095434	0.0456**
CO ₂ t-1	-4.523123	-1.788305	0.0850*
FDI t-1	0.512787	2.917696	0.0070***
Constant	-0.556285	-1.493217	0.1470

* significant at 10%

** significant at 5 %

***significant at 1%

The estimation equation indicates that the impact of Co₂T is significant at 5%, Co₂t-1 is significant at 10% , FDI t-1 is significant at 1%, the value of Adj R² is 0.755702, the prob of F=0.000000 and the Durbin-Watson stat =2.04648.

According to estimation of the equation the study reject the hypothesis for India. It means that the Co₂ emissions increases leads to increase of FDI inflows.

Endogenous Variable is CO2

Table (7-6) The impact of FDI inflows on Co2 for India

Variable	Coefficient	t-Statistic	Probability
FDI t	0.025908	2.095434	0.0456**
FDI t-1	0.010767	0.779782	0.4423
CO2 t-1	0.946024	27.44999	0.0000***
Constant	0.054568	2.208125	0.0359

* significant at 10%

** significant at 5 %

*** significant at 1%

According to estimation of the equation indicates that the impact of FDI_t is significant at 5% , CO₂ t-1 is significant at 1% , the value of Adj R² is 0.990238 , the prob of F= 0.000000 and Durbin-Watson stat = 2.11585.

According to estimation of the equation the study reject the hypothesis for India. It means that the FDI inflows increases leads to increase of Co₂ emissions.

7/7 The Estimation of the Model for China

Endogenous Variable is FDI

Table (7-7) The impact of Co2 on FDI inflows to China

Variable	Coefficient	t-Statistic	Probability
CO2 t	0.956811	1.190529	0.2442
CO2 t-1	-1.055456	-1.217048	0.2341
FDI t-1	0.850538	8.942439	0.0000***
Constant	0.676817	1.815018	0.0806

* significant at 10%

** significant at 5 %

***significant at 1%

According to estimation of the equation indicates that the impact of FDI_{t-1} is significant at 1% , the value of Adj R^2 is 0.751425 , the prob of $F= 0.000000$ and the Durbin-Watson stat = 1.571389.

According to estimation of the equation the study reject the hypothesis for China . It means that the Co_2 emissions increases leads to increase of FDI inflows.

Endogenous Variable is CO2

Table (7-8)The impact of FDI inflows on Co2 for China

Variable	Coefficient	t-Statistic	Probability
FDI t	0.052128	1.190529	0.2442
FDI t-1	-0.046718	-1.079846	0.2898
CO2 t-1	1.073424	45.92481	0.0000***
Constant	-0.072440	-0.794860	0.4336

* significant at 10%

** significant at 5 %

***significant at 1%

According to estimation of the equation indicates that the impact of CO_2 t-1 is significant at 1% , the value of Adj R^2 is 0.751425 , the prob of $F= 0.000000$ and the Durbin-Watson stat = 0.949357.

According to estimation of the equation the study reject the hypothesis for China . It means that the FDI inflows increases leads to increase of Co_2 emissions.

Conclusion and Recommendations for Green Economy

These are six key areas of policy making which most governments will need to focus on in order to correct the incentive structures in current unsustainable markets and to alter investment landscapes in the short to medium-term. These policy tools are:

1. Promoting investment and spending in areas that stimulate a green economy (green public infrastructure and procurements).
2. Addressing environmental externalities and market failures (taxes and tradable permits).
3. Limiting government spending in areas that deplete natural capital (reforming harmful subsidies).
4. Establishing sound regulatory frameworks (standards, property laws and access right, negotiated and voluntary agreements, information based tools)
5. Investing in capacity building, training and education.
6. Strengthening international governance.

Carefully designed investment and spending can stimulate the greening of economic sectors. The green economy investment will have to come from the private sector, the effective use of public expenditure and investment incentives can play a useful role in the transition to a green economy.

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