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Environmental Impact of FDI on Developing Countries. Does Environmental Policy Stringency has an Impact on Inflow of FDI to India?

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ABSTRACT

The present decade has witnessed a proliferation in private investment flows, of which Foreign Direct Investment is the main contributor. FDI is an increasingly powerful stimulant to economic growth and therefore of growing importance to global environment protection. The pollution heaven hypothesis postulates that the weaker environmental regulations attract the inflow of FDI towards developing countries. Developing countries, while seeking to attract foreign investment in order to supplement national savings by capital inflows and promote economic development put much importance on providing favourable business environment to the foreign investors and lax environmental regulations of developing countries is their policy to bring more foreign investment towards these countries. Since, stringent environmental regulations discourage FDI owing to relatively high production costs. With this background, the following paper tries to find whether the environmental policy stringency discourage the inflow of FDI in India. Assuming that manufacturing sector is the most polluting sector we examine the relationship between environmental policy stringency and percentage share of manufacturing FDI for the period 2003 to 2013 of developed countries viz. United States, United Kingdom, Japan where environmental policies are highly stringent. Study found that in Japan, a growing strictness in environmental policy is followed by a falling share in manufacturing FDI inflow, but the impact is insignificant relating to some countries like, US, UK. The graphical analysis is used to show the impact of environmental policy stringency on foreign investment inflows to India using the data for the period 2007-2015.The results shows that Environment policy stringency and Foreign direct investment is both rising i.e. the environmental policy stringency has insignificant impact on foreign investment flows.

KEYWORDS: Environmental regulations, Environmental Policy stringency, Foreign Direct Investment, Developing Countries.

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1.0 INTRODUCTION

Far-reaching developments in the global trading and environmental regimes since 1990 have accelerated the process of globalization and created both opportunities and challenges to developing countries. While, countries concentrates on growth first and after it has reached a certain stage of development it pays attention to improvement in environmental quality is based on the assumption that environmental quality is a luxury good. The stricter enforcement of environmental standards related to pollution in developed countries makes domestic production of dirty goods and recycling the toxic waste more difficult and expensive, but donot prohibit companies from exporting "the work and associated danger" to countries where environmental standards are low and enforcement is weak. FDI is also very closely linked to GDP and its growth prospects (the FDI Report 2017). In India FDI has become an important part of the economy after the adoption of the New Economic Policy. In first half of the 2015, India attracted investment of $31 billion compared to $28 billion and $27 billion of China and the US respectively becoming the top destination for foreign direct investment.

There has been an interesting association of FDI and natural environment. Environmental regulations add to the production cost and international investors choose their destination where the cost is the minimum. Opposite to this opinion some policymakers have also argued that a more stringent environmental regulation instead of discouraging attracts the flow of FDI with the argument that it reduces the risks of environmental liabilities and encourage exploiting the competitive advancement based on technological innovation**.** In poor countries environmental quality is considered to be a luxury where a faster development is more important. In those countries international investment is encouraged by reduction in national environmental standard. The idea of preserving the environmental quality has been increasingly receiving a comprehensive importance in recent decades. As the economy grows, people's preference moves toward a cleaner environment.
Muthukumara Mani and David Wheeler ranked the polluting industries in their research document presented to the OECD Conference on FDI and the Environment (The Hague, 28-29) January 1999), In their list of top ten polluting industries a total of eight industries hailed from the manufacturing sector. On the above background this paper tries to assess the relationship between the environmental policy stringency and direction of the flow of FDI in manufacturing sectors, assumed as polluting sectors.

1.1 Environmental Regulations

A good environment is a constitutional right to the citizens of India. It has also been a fundamental duty of Indian citizens to protect natural environment and wildlife. The Directive

Principle of State Policy of the Constitution states that it is a duty of the government to protect and improve the environment and to safeguard the forests and wildlife of the country'. The Ministry of Environment and Forests (MoEF) is the highest administrative body for regulating and ensuring environmental protection and for the formulation of environmental policy framework.

The responsibility for prevention and control of industrial pollution is primarily accomplished by a central level statutory authority -the Central Pollution Control Board (CPCB) which is attached to MoEF. In state level also there are State Pollution Control Boards in all states.

2. LITERATURE REVIEW

Many studies have been conducted in past to analyse the impact of Foreign Direct Investment on the developing countries. The relationship between FDI inflow and the environment is not simple either**.** Previous studies have analysed the much-debated capital flight and pollution haven hypotheses (PHH) which talks about FDI being attracted into the countries that have relatively lax environmental regulations or lower environmental taxes.

Acharyya (2009) examined the two most important benefits and costs of foreign direct investment in the Indian context, i.e. GDP growth and the environment degradation. The study found statistically significant long run positive, but marginal, impact of FDI inflow on GDP growth in India during 1980-2003. Also, there is a cost in the long run due to growth in FDI on CO2 emissions which is quite large.[1]

Muhammad, Samia, and Talat (2014) tested the economic growth-environment and foreign direct investment-environment nexuses and using the pooled regression, found that there exists an inverted U-shaped and significant relation between environmental degradation and economic growth termed as environmental Kuznets curve (EKC) in selected 110 developed and developing economies. The empirical analyses had evidence which shows that a consistent rise in foreign direct investment is contributing to CO2 emissions.[2]

Dong, Gong, and Zhao (2012) studied the relationship between FDI and environmental regulation using a North–South market share game model in a two-country setting, when pollution is transboundary. Contrary to the pollution haven hypothesis, their model showed that if market sizes of the two countries are small, FDI will raise the emission standard of the host country, resulting in a "race-to-the-top" phenomenon; but if market sizes are large enough, FDI will not change the

emission standard of the South (from its laxest form), a finding that is consistent with the "regulatory chill" argument.[3]

Copeland and Antweiler's study reveals that increased international trade only slightly increases pollution levels and appears to be 'good for the environment'.[4]

Variations in environmental regulations have also created anxiety_among the researcher about the impact of environmental regulations on foreign investment flows. It is critical to understand the environmental effects of private investment and identify appropriate responses **Mabey and McNall**, 1999[5]

Mani, Pargal and Huq (1997) studying determinants of the location of new manufacturing plants in India found that the plants' locational choice wasn't adversely affected by the stringency of environmental enforcement.[6]

3.0 OBJECTIVES OF THE STUDY

- To analyse how environment of developing countries gets affected through FDI.
- To examine whether the FDI affect the sustainability of the environment.
- To analyse whether the environment of developing countries gets worst affected under FDI compared to developed countries.
- To test whether the environmental policy stringency has an impact on the inflow of FDI.

3.1 RESEARCH QUESTION

Does environmental policy stringency have an impact on the inflow of foreign Investment in India?

3.2 MATERIALS AND METHODS

Data

Firstly, trends of environmental sustainability among the selected developed and low developed countries is shown using the pollution index from numbeo. The pollution Index is an estimation of the overall pollution in the city. The biggest weight is given to air pollution, than to water pollution/accessibility, two main pollution factors.

Secondly, the total inflow of FDI in four countries viz. United States, United Kingdom, Japan, India collected from the sources Reserve Bank of India and OECD. Then the percentage share of manufacturing FDI is computed.

To measure the strictness of environmental policies we are using the Environmental Policy Stringency Index (ESI) constructed by OECD. The OECD Environmental Policy Stringency Index

(EPS) is a country-specific and internationally-comparable measure of the stringency of environmental policy. Stringency is defined as the degree to which environmental policies put an explicit or implicit price on polluting or environmentally harmful behaviour. The index ranges from 0 (not stringent) to 6 (highest degree of stringency). The index covers 28 OECD and 6 BRICS countries for the period 1990-2012. The index is based on the degree of stringency of 14 environmental policy instruments, primarily related to climate and air pollution.

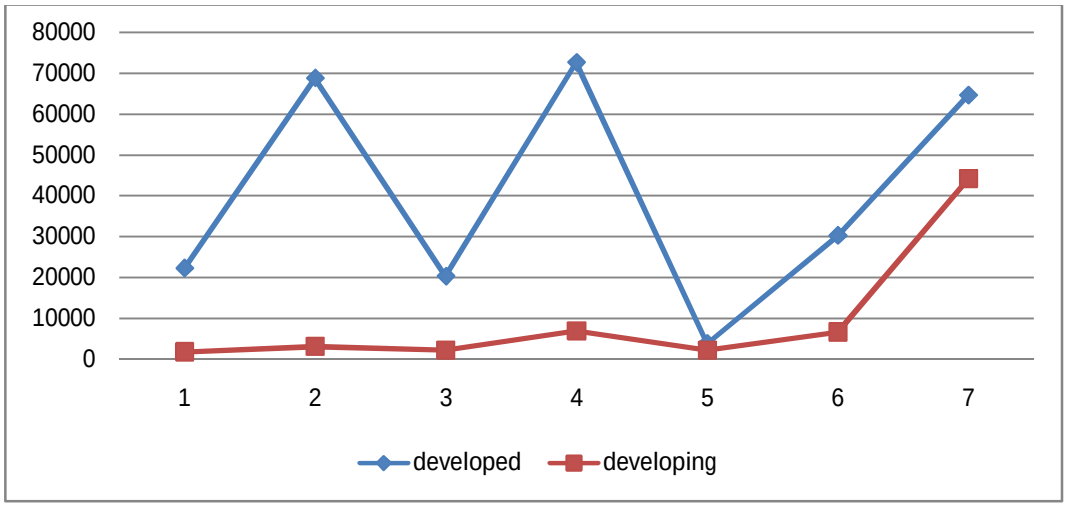
Methodology:

Graphical methodology has been put in use to see the relationship between environmental policy stringency and percentage flow of manufacturing FDI for the four countries in separate graph. Using, graphical analysis, we show the impact of environmental policy stringency of India on foreign investment flows.

4.0 DISCUSSION/ANALYSIS

In the last two decades world has seen an extensive inflow of FDI or foreign direct investment into developing countries. More and more developing countries are competing with each other to attract this investment. Restrictions which were earlier in place on these investments are now being removed as the importance of FDI is being realized. FDI plays a major role in developing countries like India. They act as a long term source of capital as well as a source of advanced and developed technologies.

Figure: 1 trends in foreign investment flows among developed and developing countries.



Source: World Bank Data, (2016)

As large amount of capital comes in through these investments more and more industries are set up. Some of the benefits of FDI are technological innovation, increases in competitiveness improvements in efficiency and transfers of intangible resources such as new forms of organisation, administration and marketing.

However, a policy of trade liberalization aimed at opening the economy to foreign investment as a means of stimulating economic growth in developing countries it may simultaneously lead to more pollution either as a result of relocation of polluting industries from countries with strict environmental policy or owing to increased production in dirty industries, due to the comparative advantage experienced by developing countries in dirty goods. Thus, what happens to the environment when international trade is liberalized is a matter of debate.

4.1 How environment of developing countries gets affected through FDI?

Environmentalists have argued that FDI brings along negative environmental effects especially in developing countries that have lower environmental standards, possibly constituting pollution havens. Funds for development are usually in high demand in developing countries and these countries have less stringent environment protection laws. This leads to huge inflow of foreign investment from the developed countries into the developing countries like, India.

The debate on FDI and its impact on the environment has focused on the micro-level, particularly how environmental regulation affects a firm's decision to locate (the ''Pollution havens hypothesis"). However, less attention has been paid to macro-level issues of how increased economic activity, driven by liberalised investment and trade, impacts on the environment and a country's prospects for sustainable development.

Environmental impacts of FDI (and trade liberalisation) are characterised by three main arguments:

Countries have environmental comparative advantages: each country set its regulations based on domestic preferences and resources. Countries with low incomes, the ability to tolerate pollution or extensive resources set standards low and attract pollution intensive and resource seeking FDI.

FDI increases the demand for environmental quality: if host country demand for environmental quality increases as incomes rise, then eventually environmental damage will begin to fall (the environmental Kuznets curve argument). As FDI increases incomes it will contribute to this increased environmental demand.

FDI is cleaner than domestic investment: FDI involves new technologies that are cleaner than domestic producers, therefore encouraging FDI will improve the environmental performance of a country.

However, none of them address the over-riding issue of whether FDI is likely to encourage a country to develop sustainably. That is, in a way that avoids irreversible environmental damage and preserves the options of future generations to develop. This cannot be achieved merely by a general increase in environmental efficiency, but requires explicit consideration
of the scale of environmental damaging activities relative to a country's – and the
planet's - ecological capacity.

Reasons behind the inflow of FDI in developing countries

Foreign Direct Investment has gained huge importance in developing countries in past few decades. Funds for development are usually in high demand in developing countries. Capital flows into the country where the environmental standards are less stringent and the developing countries keep such standards deliberately low to attract FDI. This leads to huge inflow of foreign investment from the developed countries into the developing countries like, India. India has sought to increase inflows of FDI with a liberal trade and investment policies since 1991 after four decades of caution, if not restrictive attitude to it. The timing of policy liberalization by India has coincided with the dramatic upsurge in the FDI inflow into the country Two factors that attract FDI towards developing countries are:

- Lax environmental laws
- Lower pollution taxes.

4.2 FDI and Environmental Sustainability

True sustainability requires the definition of what options the present generation wishes to leave the next generation, which in turn defines the permissible level of irreversible environmental damage today. Once defined, these limits will set prices for commodity use and pollution if mechanisms exist to internalise their scarcity. Present trends of accelerated economic growth at the expense of the environment could be interpreted as indicating a high level of indifference of the present generation towards future generations

FDI is becoming increasingly important for economic growth. There is a clear expectation among both donor countries and recipients that private capital will be the main driver of development in the future. However, increasing reliance on foreign investment does have significant implications for sustainable development, and the rules and regulations governing investment flows.

Will Growth resulting from FDI bring Environmental Sustainability?

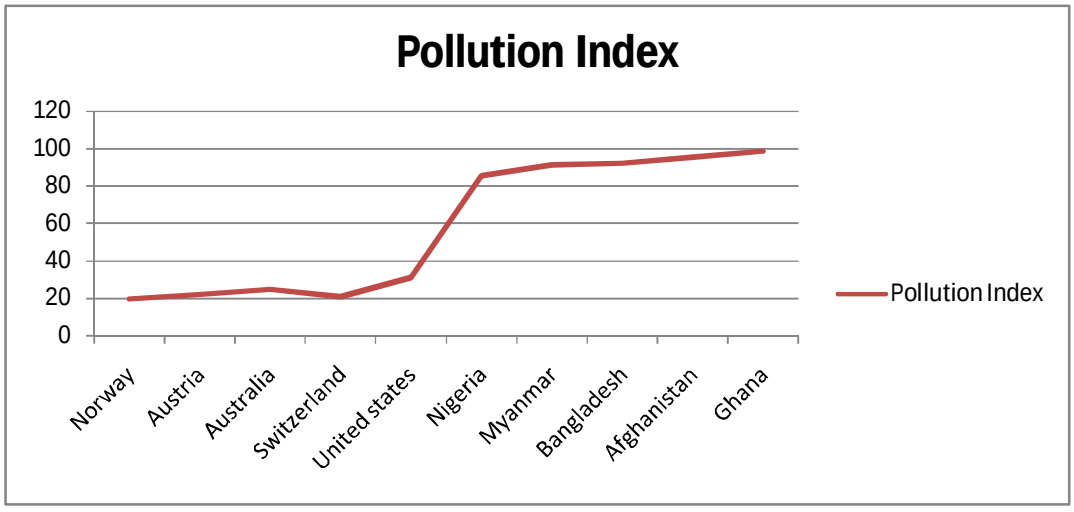
It has become fashionable for policy makers to assume that economic growth and environmental quality are compatible in the long term, but that short term environmental and social costs are a prerequisite for long term prosperity. However, as growth continues unabated and all trends in environmental degradation are deteriorating at an accelerated rate, the arrival of such compatibility seems long delayed. As Keynes famously said - "in the long run we are all dead" - and this is particularly true for the environment.

This assertion that environmental degradation increases up to a certain level of income, after which it begins to improve, is known as the 'Environmental Kuznets Curve' (EKC).

Regulation of industrial pollution increases with economic development for two main reasons. First, the demand for environmental quality rises with income, both for aesthetic reasons and because the valuation of pollution damage increases. Second, more developed economies have more highly developed public institutions and are more capable of enforcing desirable environmental norms. If the income elasticity of regulation is greater than one, the developing countries will not retain a comparative advantage in dirty production.

The following figures shows the relationship between economic growth by taking five highly developed countries in terms of high GDP(viz. Norway, Austria, Switzerland, Denmark, United States) and five low developed countries in terms of low GDP (viz. Myanmar, Bangladesh, Mongolia, Afghanistan, Ghana.) and environmental sustainability measured in terms of lower pollution index.

Figure:2 Trends in pollution index among the developed and lower developed countries.



Findings:

Graphical analysis reveals the following results:

- For countries like Norway, Austria, Switzerland, Denmark, United States which are highly developed their pollution index are comparatively lower.
- The countries which are not developed or the lower developed countries like, Myanmar, Bangladesh, Mongolia, Afghanistan, Ghana they have a higher pollution index.

Thus, it reflects that with growth brings environmental sustainability.

So, even if the EKC holds, economic growth will not bring about the desired environmental improvements in local air quality for the vast majority of the world's population as the average income in developing countries was very low. It will take many years of accelerated environmental degradation, with potentially large catastrophic, irreversible effects, before they could reach this level - if they ever can. However, arguments around EKC are really irrelevant when aiming to move countries onto a sustainable development path. Developing countries will not be able to grow that way, because resource prices will rise to reflect greater scarcity and environmental damage will depress production in critical areas.

India is facing an ecological crisis and is degrading her natural resources day-by-day. There is increasing deficiency of energy, metals, coal, non-fuel and non-metallic minerals. With regards to fuels there is a great concern over huge outflow of foreign exchange and every year enough oil is purchased from the middle-east countries which are the major sources of petroleum. For a country like, India which very often faces deficit budget, the large amount of foreign exchange which is used every year for making import payment of oil, it put strain on our budget, as a result it limits other development activities of our country. Hence, the country cannot grow through unsustainable growth paths.

To ensure ecological limits are preserved developing countries in particular will have to raise their environmental standards in the short run in order to 'tunnel through' the EKC. To achieve this requires the transfer of resources (financial, technological and capacity building) from North-to-South.

Whether the environment of developing countries is worst affected under FDI compared to developed countries?

Environmental regulation is essentially a means to internalise the external environmental costs of firms' economic activities. Strict environmental regulation of developed countries raises the costs of production of dirty goods. Hence, domestic dirty industries have a comparative disadvantage in developed countries. These regulations make MNCs and foreign investment unattractive towards dirty industries of developed countries where the environmental regulation was strict and higher tax was imposed on pollution. Also, developed countries have environmentally sustainable technologies which restrict the emission of pollutants to cross the level above which affects the sustainability of the environment.

Developing countries at an earlier stage of development should specialise in, and export, primary products and commodities, since they have an advantage in terms of cheap labour and environmental protection. (Which is income-elastic)? Investment should therefore be encouraged to allow them to exploit these advantages, to enable them to accumulate physical and human capital - eventually freeing them from their reliance on their natural resource base for economic growth. In order to attract investment, governments undervalue their environment through lax or non-enforced regulation (the "pollution havens" hypothesis). As a result, large industrialized nations seek to shift operations to these countries to take advantage of lower production costs ("the industrial flight hypothesis"). Both lead to excessive (sub-optimal) pollution in the host country i.e., developing country.

The following figures show the relationship between environmental regulation (measured by Environmental Policy Stringency Index formulated by OECD) and percentage share of manufacturing FDI in developed countries viz. United States, United Kingdom, Japan during the period 2003-2013.

Figure-3: ESI and inflow of FDI in manufacturing: UNITED STATES

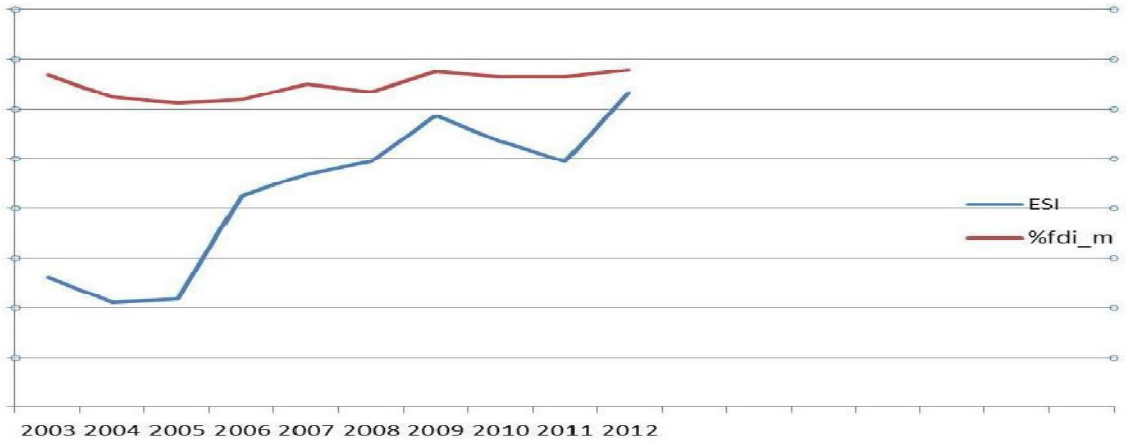


Figure-4: ESI and inflow of FDI in manufacturing: UNITED KINGDOM

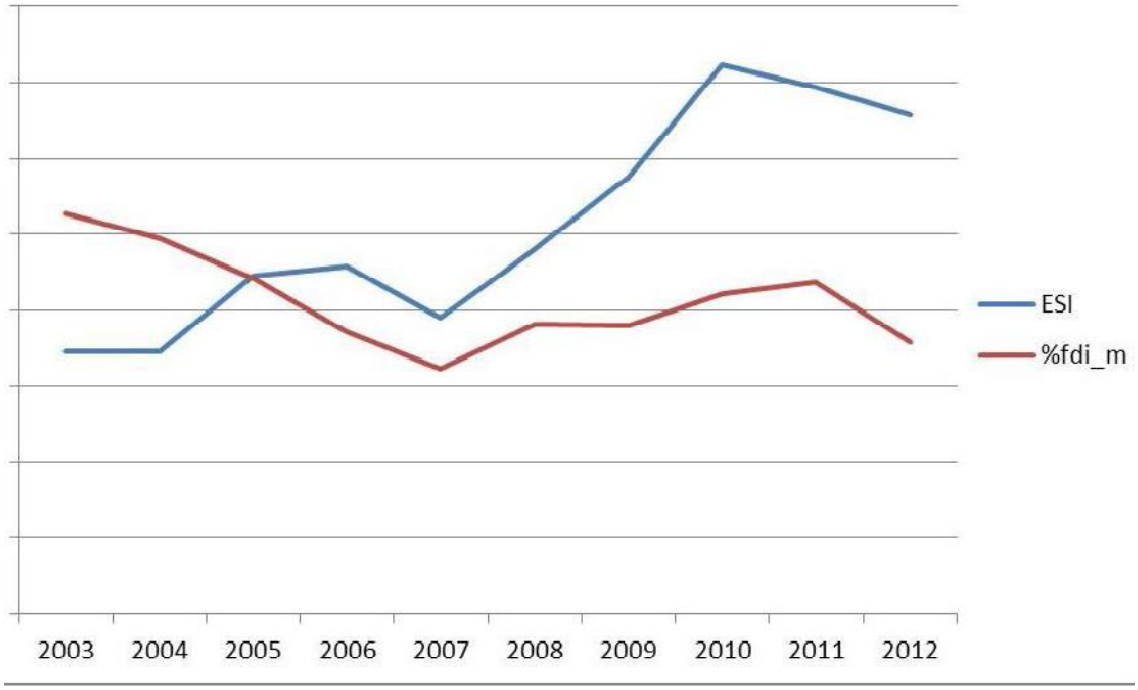
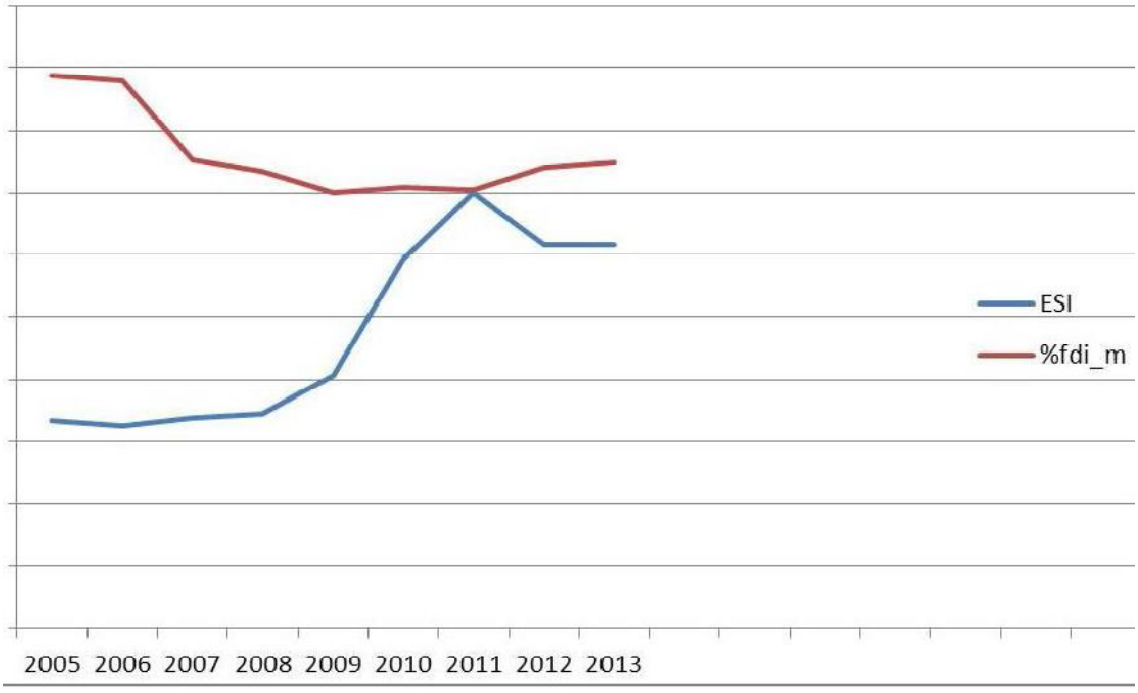


Figure-5 ESI and inflow of FDI in manufacturing: JAPAN



Findings:

It was expected that strong environmental policy stringency of developed countries reduces the flow of FDI in manufacturing sector which is considered as consisting of polluting industries.

- In United States both ESI and Manufacturing FDI are raising but ESI is rising more sharply.
- In United Kingdom both ESI and Manufacturing FDI are following the same direction.
- In Japan ESI and Manufacturing FDI are following opposite direction, as expected.

So, regarding the impact of environmental policy stringency on inflow of FDI, the results are inconclusive.

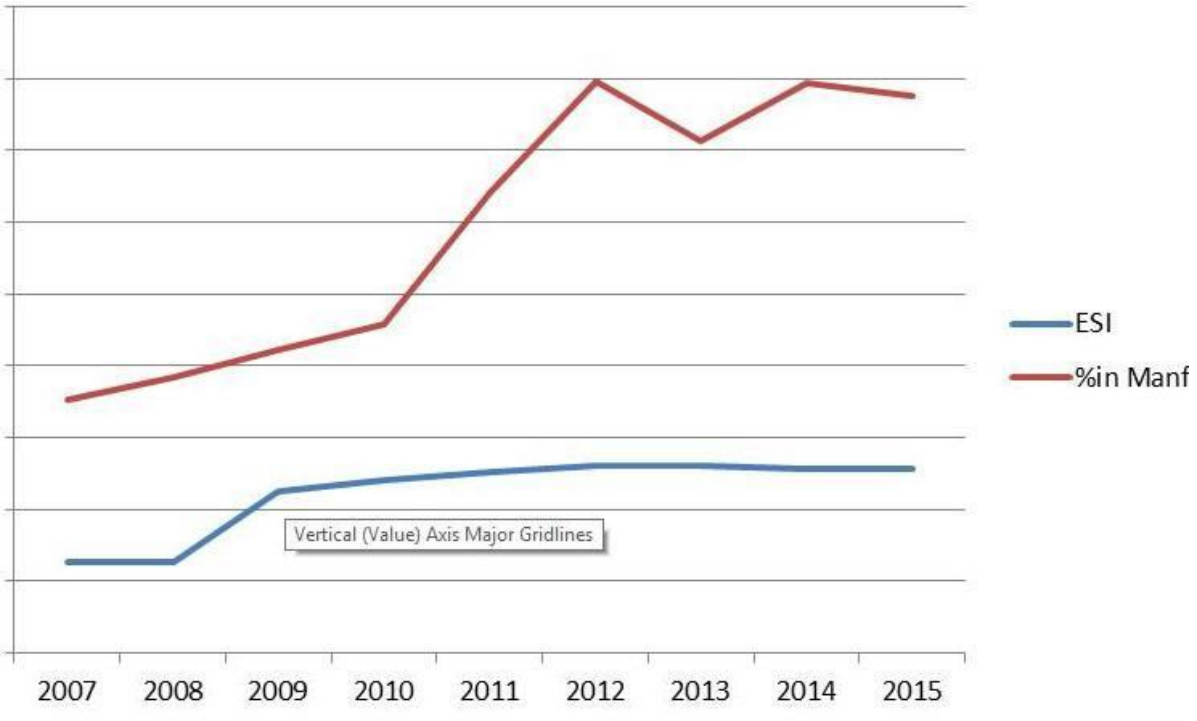
4.3 Does environmental policy stringency have an impact on inflow of FDI to India?

Manufacturing has emerged as one of the highest growing sectors in India. India has become one of the most attractive destinations for investments in the manufacturing sector. The Gross Value Added (GVA) at basic constant (2011-12) prices from the manufacturing sector in India grew 7.9 per cent year-on-year in 2016-17, as per the 2nd provisional estimate of annual national income published by the Government of India. Foreign Direct Investment (FDI) inflows in India's manufacturing sector grew by 82 per year-on-year to US$ 16.13 billion during April- November 2016.

Table-1 shows the flow of manufacturing FDI in India and also total FDI inflow during the period 2007-2015

Year	Total FDI inflow	FDI in manufacturing
2007	9307	1642
2008	19425	3726
2009	22697	4777
2010	22461	5143
2011	14939	4793
2012	23473	9337
2013	18286	6528
2014	16054	6381
2015	24748	9613

Figure-6: ESI and inflow of FDI in manufacturing: INDIA



Findings:

The figure reveals in case of India environmental policy stringency has no such major impact on manufacturing, since, the rise in Environmental policy stringency is associated with rise in FDI.

CONCLUSION:

From our analysis, what we find that results are inconclusive regarding the impact of environmental policy stringency on foreign direct investment. Since, the strong environmentally stringent policy in developed countries has no such major impact on inflow of foreign investment in dirty industries. For a developing country like, in spite of following environmentally stringent policy, it's impact on foreign investment towards manufacturing sector considered as dirty industries is negligible. So, relying fully on environmentally policy stringency for environment sustainability is not enough, policy makers should overlook on whether the policy measures towards environment are properly implemented or not and also considered on other factors necessary for making development sustainable like increasing the rights of civil society groups and local communities to monitor the quality of FDI, and hold investors accountable for their actions as well as need for capacity building with respect to the environmental policy framework.

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