

# Promoting Inclusive Economic Relations toward Sustainable Development in Asia

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## Abstract

Sustainable foreign direct investment (FDI) and international trade are key components of sustainable development. Trade helps countries to achieve a more efficient allocation of scarce resources in accessing environmental goods, services and technologies. FDI is also used as a major element to achieve sustainable development, by providing stronger stimulus to economic growth than other types of capital inflows.

The history of economic relations between oil exporting countries and non-oil exporting countries has witnessed mostly inter-industry trade, in which the terms of trade (TOT) of oil exporting countries has been deteriorating during recent decades. Additionally, FDI flows to oil exporting countries have partly led to more pollutant production in oil exporting countries, with no technology transfer. However, the optimal relations would apply sustainability in economic relations through a higher rate of intra-industry and a higher rate of FDI-technology based- inflows from oil importing countries to oil exporting countries. For instant, in oil exporting countries, if host-country demands for environmental quality increases as incomes rise, then eventually environmental damage will begin to fall based on the environmental Kuznets curve argument.

The objective of this paper is to show that expanding inclusively trade in goods and services as well as FDI inflows are both major keys of sustainable development in Asia for both blocks of oil-exporting and oil-importing countries.

**Keywords:** Sustainable FDI, Sustainable International Trade, Oil Exporting and Oil importing Countries, Asia.

**JEL Classification:** F21, Q01, Q55

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## **1- Introduction**

In recent decade, the world has seen a steady increase in the importance of international trade and investment especially FDI for the global economy. While Since 1980, the global economy has inclusively tripled, world trade has grown a higher rate than that of economic growth. Renewed efforts to spur growth in trade and FDI offer major opportunities but also many challenges for achieving sustainable development, meeting the Sustainable Development Goals (SDGs), and contributing to a shift to greener economies. There is no doubt that inclusive patterns of trade and investment are important keys to achieve SDGs.

In today world economy, the resultant complex linkages between trade, environment and development are all set to redefine future economic leadership. Important amongst others is the economics that is emerging from the relationship between trade opening and the environment. Though, there is now no debate on opening trade for higher growth, its environmental impact has often remained controversial in all nations (Kaur, 2014).

Indeed, sustainable trade, sustainable FDI and green global value chains offer crucial means for countries to prosper and to grow sustainably. If accompanied by appropriate environmental and social policies and incentives, trade can generate economic opportunities and decent employment while reducing environmental risks and ecological scarcities. Countries should focus on enhanced production capacity, use and exchange of environmentally sound technologies, goods and services, increased resource efficiency, and reduced environmental and resource impacts to make trade and investment more sustainable.

Foreign direct investment (FDI) is also a source of economic and sustainable development, income growth and employment. FDI can bring huge spillovers arising from capital inflows, technology transfer, market access and export promotion to host country. In particular, it appears that the globalization and regionalization of the international economy have made FDI incentives more interesting and important for national governments. According to the literature, FDI has been an important promoter of inclusive growth in its own right. In effect, FDI is argued to increase the level of domestic capital formation. This also implies producing on large scale which in turn results in benefits of economies of scale and specialization and also increasing export and employment opportunities (Agosin and Mayer, 2000).

Therefore to achieve sustainable development, countries should focus on green and sustainable trade and FDI to promote growth and development in accompanying to environment protection. Empirically, we examine the role of international trade and foreign direct investment in achieving sustainable development, using data of selected Asian countries, and particularly we focus on better and inclusive economic relations between both Asian oil-exporting and oil-importing countries to imply deeper cooperation for more sustainability.

This paper is organized in 6 sections. Section 2 presents conceptual discussion on sustainable development and measurement of sustainable development is shown in Section 3. Section 4 specifies a framework to the sustainable development model for the selected Asian countries. Section 5 analyzes the empirical results which are obtained through model estimation. Section 6 finally concludes and presents the relevant policy remarks.

## **2. Conceptual Discussion on Sustainable Development**

Sustainable development meets the needs of the present generation without compromising the ability of future generations to meet their own needs (Brundtland report, 1980). It is a multidimensional concept aimed equally environmental component in sustainable consumption of natural resources, protection of environment factors, health care for population, the social side by equality, quality of life, stop poverty and inclusive trade and investment relations among nations. All these are equal parts of the new development, whose objectives were set out along time in documents on the topic sustainable development. In addition, overall goal of sustainable development is long-term stability of the economy and environment and this is only achievable through integration of economic, environmental and social concerns. In this respect, economic integration implies two major factors:

The economic experts and investment environment analysts have been arguing in recent years that the economies around the world are entering into a new generation investment environment for achieving sustainable development. Particularly many developing economies have put their efforts to mobilize investment to ensure that it contributes to sustainable development as a priority. The emerging new generation investment policies take place inclusive growth and sustainable development at the core of efforts to attract and benefit from investment (UNCTAD, 2012, Nagaraja, 2013).

FDI is attracted by developing countries to achieve economic growth and development and it is considered as a tool for earning technology spillovers and transferring resources across national borders (Asiedu, 2003). However, economic theories of sustainability imply that economic growth and the proliferation of FDI will exacerbate existing unsustainable patterns of development unless matched by more efficient use of natural resources. FDI should operate properly against constraints in order to preserve environmental functions (UNTAD, 2002).

In the contemporary globalized economy, environmental functions are reinforced by the main factors of globalization, primarily by foreign direct investment and trade as tools for the realization of the multinational corporation investment activities. Given that multinational corporations are primarily driven by the need to satisfy shareholders' expectations in their investment activities, i.e. to maximize returns on concrete investments, the concern is amplified regarding the identification of that foreign direct investment and export generates inclusive economic growth in host countries (Petrović-Randjelović, 2007).

In summary and according to investment process, FDI is assumed to argument domestic capital thereby stimulating the productivity of domestic investment which results to sustainable economic growth and development (Blomstrong et al., 2000 and Idoko et al., 2014).

Trade has also been specifically identified as an important factor for inclusive and sustainable economic growth and productive employment. It is essential for connecting countries to global value chains, finance, and foreign investment. Trade policies will also play a major role in protecting ecosystems and halt biodiversity loss. In addition, safe, accessible, and environmentally friendly transportation will be a key role in making human settlements safe and inclusive and for making trade more sustainable (UNEP, 2015).

From both economic theory and experience, it is clear that opening up to trade generates winners and losers. It is therefore essential that policies are put in place to facilitate the adjustment of different groups to trade liberalization. Such policies include strengthening

social safety nets. For example, unemployment benefits schemes, enhancing skills and human capital development through education, and training and the promotion of labor mobility. The aim in doing so is to assist governments, multilateral institutions and private sector investors in their decision-making, helping them identify and promote sustainable trade practices that will contribute to inclusive economic growth across the region (Tipping and Wolfe, 2015).

Consequently, sustainable trade means participating in the international trading system in a way that supports the long-term domestic and global goals of economic growth, environmental protection, and strengthening social and human capitals.

### 3. Measurement of Sustainable Development

Several efforts have been made to develop indicators of sustainable development, based on the premise that sustainable development requires non-declining physical, natural, human and social capital per person (Arrow et al., 2003). Therefore, one proxy for sustainable development is Adjusted Net Savings which has been introduced by Bolt et al. (2002), and reported by World Bank. Adjusted Net Savings (ANS) is an indicator of sustainability and provides national-level decision makers with a simple indicator of how sustainable their country's investment policies are. The ANS framework takes the broader view that natural and human capital are assets upon which the productivity and therefore the remarking of the well-being of a nation (Bolt et al., 2002).

The ANS results from solving this optimization problem. It is identified as the investment (in produced and human capital, from which the value of depletion of natural resources and accumulated pollutants is deducted) that sustains intertemporal welfare maximization. This concept of sustainability is thus in line with Pezzey (1989) who defines sustainability as a non-declining value of utility. A negative ANS at a point in time means that future utility is unavoidably be less than current utility over some period and indicates that the economy is on an unsustainable path (Hamilton and Clemens, 1999).

The adjusted net saving aims to give an account of the net creation or destruction of the national wealth, based on a yearly basis. In the ANS, wealth is enlarged to include, besides produced assets, natural resources, environmental quality and human capital. ANS has been considered as a proxy for sustainable development outcomes, based on the principles of environmental accounting or green national accounts that have been found to be significantly correlated with aggregate welfare (Gnegne, 2009)

The ANS is derived from standard national accounting measures of gross national savings by following four types of adjustment. First, estimates of the consumption of fixed capital are deducted to obtain net national savings. Second, current non-fixed capital expenditures on education are added to reflect the investment in human capital. Third, estimates of the depletion of different natural resources are subtracted to indicate the decline in asset values associated with their extraction and harvest. Eventually, global pollution damages from carbon dioxide emissions are deducted (Bolt et al., 2002; Stiglitz et al., 2009).

The World Bank has defined and calculated the ANS for 209 countries. The adjusted net savings rate is calculated as:

$$ANS_{it} = \frac{(GS_{it} - DEPC_{it}) + EE_{it} - RRD_{it} - CD_{it}}{GNI_{it}} \quad (1)$$

where  $ANS_{it}$  denotes Adjusted Net Savings Rate, a proxy for sustainable development,  $GS_{it}$  is Gross National Saving,  $DEPC_{it}$  denotes Depreciation of produced capital,  $EE_{it}$  is expenditure on education,  $RRD_{it}$  is a Rent from depletion of natural capital,  $CD_{it}$  shows Damages from carbon dioxide emissions and  $GNI_{it}$  denotes Gross National Income at market prices. To have a dependent variable that is free of the income metric we consider per capita ANS (Carbonnier, 2011, Carbonnier and Wagner, 2012 and Thiry and Cassiers, 2010). To use  $ANS_{it}$  for analysis, we collect data from the World Bank website<sup>3</sup>.

#### 4. The Model

According to the theoretical literature, discussed by Idoko et al. (2015) sustainable development is a function of foreign direct investment, inflation, balance of payment and exchange rate:

$$SusDev = F(FDI, INF, BOP, EXR) \quad (1)$$

where  $SusDev$  indicates the proxy of ANS sustainable development,  $FDI$  shows inflation and  $BOP$  and  $EXR$  are balance of payment and exchange rate, respectively. Following Idoko et al. (2012), we study the effects of FDI and trade on sustainable development, Foreign Direct Investment comes from abroad with various spillovers to the host country. FDI will get to countries that pay higher return on capital. Since FDI comes into a country to enable it for a better economy, it would boost the economic growth but there is doubt about its effect on environment and sustainable development. Inflation rate (INF) defines the movement of prices of goods and services in any given economy. This is defined as the rate of change in domestic price level in which it should be equal to the constant term. Balance of Payment (BOP) is a record of transaction between a resident of a country and the rest of the world. If a country's balance of payment is good, it would reflect in a nation's sustainable development. Exchange rate (EXR) is the charge for exchanging currency of one country for the currency of another. A higher exchange rate would attract low FDI, while a lower exchange rate indicates that an economy is doing well which may lead to attracting FDI which in turn makes a country have a better sustainable development due to more attraction of FDI inflows and decrease FDI outflows. The functional form of equation (1) is written in as;

$$SusDev_{i,t} = \alpha_0 + \alpha_1 ANS_{i,t-1} + \alpha_2 FDI_{i,t-1} + \alpha_3 INF_{i,t-1} - +\alpha_4 BOP_{i,t} + \alpha_5 EXR_{i,t} + U_{i,t} \quad (2)$$

The error term ( $U_{i,t}$ ) shows residuals in time  $t$  in country  $i$  and it is a random variable that has well defined probabilistic properties. To investigate the role of government, population and oil richness in sustainable development we develop the model as bellow:

$$ANS_{i,t} = \beta_1 ANS_{i,t-1} + \beta_2 GDP_{i,t-1} + \beta_3 RR_{i,t} + \beta_4 OilV_{i,t} + \beta_5 FDI_{i,t-1} + \beta_6 BOP_{i,t} + \beta_7 INF_{i,t} + \beta_8 EXR_{i,t} + \lambda_t + v_i + \varepsilon_{i,t} \quad (3)$$

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<sup>3</sup> <http://wdi.worldbank.org>

where  $ANS_{i,t}$  is the log per capita genuine savings of country  $i$  at time  $t$  as a proxy for sustainable development.  $ANS_{i,t-1}$  is the lagged dependent variable of per capita genuine savings of country  $i$ , indicating that the country follows the strategy of sustainability policy.  $GDP_{i,t-1}$  shows the lagged level of log per capita GDP to prevent the simultaneity problem of GDP in the model.  $POP_{i,t}$  indicates population growth and  $RR_{i,t}$  shows oil richness and it is export-based, a key indicator for both oil importing/exporting countries. It is a binary variable taking the value of one for oil exporting countries where a country's export is at least 5 percent of total export.

To develop the model to focus on the effect of oil price volatility on sustainable development in both oil exporting and oil importing countries we consider oil price volatility ( $OilV_{i,t}$ ). Oil price volatility has been given different definitions by different literature across disciplines. In relation to crude oil price, volatility is the variation in the worth of a variable, especially price as cited in (Busayo, 2013). Volatility is the measure of the tendency of oil price to rise or fall sharply within a period of time, such as a day, a month or a year (Ogiri et al. 2013). Empirically, we have calculated the standard deviation of the world oil price ( $OilV_{i,t}$ ), being added on sustainable development of both group countries.

## 5. Empirical Result

Prior to the model estimation (Equation3), it is possible to assess causality relationship between the sustainable development variable ( $ANS_{i,t}$ ) and its major determinants ( $RR_{i,t}$ ,  $OilV_{i,t}$ ,  $FDI_{i,t}$  and  $BOP_{i,t}$ ). This implies the importance of intracted effects of sustainability and major determinants in practice.

The Granger causality test is a statistical hypothesis test for determining whether one time series is useful in forecasting another, first proposed in 1969. This process for panel data proposed by Dumitrescu and Hurlin (2012) for testing Granger causality in panel data sets. The order *xtgcause* performed in computing the test statistic by Stata (14). By default, 1 lag is included (Lopez and Weber, 2017). The results of causality test are reported in Table (1) indicating that there are bilateral relationship between oil price volatility, resource richness, FDI and balance of payment and sustainable development. Such results imply interacted relationship between sustainability and these determinants in which it is necessary to specify framework to each country.

**Table (1): Causality Tests between Sustainable Development and its Determinants**

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<i>. xtgcause ANS OilV</i>		<i>. xtgcause OilV ANS</i>	
W-bar =	2.6668	W-bar =	3.1685
Z-bar =	4.7143 (p-value = 0.0000)	Z-bar =	6.1335 (p-value = 0.0000)
Z-bar tilde =	3.4495 (p-value = 0.0006)	Z-bar tilde =	4.5783 (p-value = 0.0000)
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<i>. xtgcause ANS RR</i>		<i>. xtgcause RR ANS</i>	
W-bar =	0.0000	W-bar =	0.0000
Z-bar =	-2.8284 (p-value = 0.0047)	Z-bar =	-2.8284 (p-value = 0.0047)
Z-bar tilde =	-2.5495 (p-value = 0.0108)	Z-bar tilde =	-2.5495 (p-value = 0.0108)
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<i>. xtgcause ANS FDI</i>		<i>. xtgcause FDI ANS</i>	
W-bar =	0.0000	W-bar =	2.1189
Z-bar =	-2.8284 (p-value = 0.0047)	Z-bar =	3.1648 (p-value = 0.0016)

Z-bar tilde = -2.5495 (p-value = 0.0108)

Z-bar tilde = 2.2172 (p-value = 0.0266)

*xtgcause ANS BOP*

W-bar = 0.0000

Z-bar = -2.8284 (p-value = 0.0047)

Z-bar tilde = -2.5495 (p-value = 0.0108)

*. xtgcause BOP ANS*

W-bar = 3.1144

Z-bar = 5.9806 (p-value = 0.0000)

Z-bar tilde = 4.4566 (p-value = 0.0000)

*Source:* Authors

To investigate the effects of major effective determinants on sustainable development in our sampling economies, we estimate Equations (2) and (3) using cross section data of the selected Asian countries<sup>4</sup> during 1995- 2015. The data used has been obtained from the World Bank website. Tables (2) and (3) summarize the empirical results of the sustainable development model of in Asian countries during 1996-2015. It is noted that estimation results for Equation 2 and Equation 3 are presented in 2 cases, respectively. According to Case I, Table (2) reports the empirical results in which  $FDI_{i,t-1}$  and  $BOP_{i,t}$  have significant and positive effects on sustainable development. This implies that FDI enables countries to have a boosting economy and to promote their sustainable development plans. A higher degree of sustainable development implies a brighter prospect for FDI. In addition, an improvement in country's balance of payment results in the sustainable development promotion and it not only would reflect in an economic development but also in environment situation. However, inflation rate and exchange rate do not have any significant impact on sustainable development.

**Table (2): Empirical results of SD model (Eq. 2) for Asian selected oil-exporting/importing countries, Case I (1996-2015)**

Variables	Coef.	Std. Err.	Z	P> z
Cons	17.67	.73	23.99	0.000
$FDI_{i,t-1}$	1.16	0.11	8.12	0.000
$INF_{i,t-1}$	-0.07	0.04	-1.64	0.101
$BOP_{i,t}$	0.152	.0783	1.94	0.000
$EXR_{i,t}$	0.0002	0.00028	0.97	0.33

$F_{Leamer} = 37.01$   
 $Prob > F = 0.0000$   
Wald chi2(7) = 80.07  
 $Prob > chi2 = 0.0000$   
LR chi2(15) = 150.93  
 $Prob > chi2 = 0.0000$

*Source:* Authors

<sup>4</sup> China, India, Indonesia, Iran, Iraq, Japan, Korea, Kuwait, Malaysia, Pakistan, Philippines, Qatar, Saudi Arabia, Singapore, Thailand and Turkey.

Table (2) reports initial estimate of SD model for selected Asian oil-exporting/importing countries, by which we investigate the effects of FDI, inflation, BOP and exchange rate on SD process of these countries. The results show that lagged FDI has a positive effect on sustainable development process. These results confirm significant and positive effect of FDI and explain that increasing FDI provides a signal of confidence in investment opportunities (Agosin and Mayer, 2000) to pave the path for development and it would support sustainable development if countries attract high quality and sustainable FDI. In this case it will improve the sustainability performance of domestic industry as well promote investment in key areas such as clean energy generation and recycling industries. Most important targets where FDI can go are green investments that generate an increase in clean energy production and clean tech innovation. Renewable energy development is one of the most important fields and the reduction of costs and increasing efficiency of renewable sources generates an important flow of FDI to this field and supports sustainable development. Further, if countries have to attain long term, inclusive and sustainable development patterns, they need to follow sustainable and green FDI.

The implication of the above results is that, foreign direct investment plays a very important role in achieving sustainable development and this justifies the need for the government to improve and develop on strategies towards encouraging an increase in FDI attraction if this increase can be achieved, it will further lead to sustainable development for the selected Asian countries.

Table (3) reports the estimates of augmented SD model (Eq. 3) for the selected Asian countries. The model indicates further important explanatory variables in which balance of payment (BOP) has significantly positive effect on sustainable development. This indicates that improvement in balance of payment plays a dominant role in achieving sustainable development since it makes positive contributions respectively to growth in providing further capital, goods and services flows.

In fact, international trade has become fundamental to economic development and it has helped to lift poverty in Asia. The flow of goods and services across borders can disrupt labor markets, accelerate environmental degradation, and contribute to worsening inequality. With the right policies to trade, these costs can be reduced, if not eliminated, and trade can become more sustainable. Then, all Asian countries should participate in international trading system in a manner that supports the long-term domestic and global goals of economic growth, environmental protection, and strengthening social capital to achieve sustainable development.

Exchange rate  $EXR_{i,t}$  has a significant negative effect on sustainable development plans in Asia. A higher exchange rate would attract a lower rate of FDI, while a lower exchange rate indicates that an economy is doing well which may lead to attracting FDI which in turn makes a country have a better sustainable development due to more attraction of FDI inflows and decrease FDI outflows.

Resource richness  $RR_{i,t}$  has a significant negative impact on sustainable development process to Asian countries. This result indicates that resource extraction affects sustainable development (Hamilton, 2004) but the coefficient indicates the high economic relevance of the resource-curse and it deteriorates the sustainable development and it highlights a clear

negative relationship between resource richness and sustainable development. This shows that natural resource extraction reduces genuine savings in both Asian oil-exporting and oil importing countries.

$OilV_{i,t}$  has also negative affect on sustainable development and it implies that oil price changes determines government expenditure level, rate of inflation, level of unemployment, which in turn determines the selected Asian countries especially in oil exporting countries. In oil exporting countries, the government relies heavily on oil revenue as the bulk of government revenue in the annual budget estimates. Continues decline in oil prices and total oil revenue calls for structural adjustment, leading to a structural break of the economy. The dependency of the oil exporting countries on oil makes price changes to have significant impact on sustainable development. Hence public sector in this country is very fragile to oil prices volatility; it negatively affects consumption, employment, investment and sustainable growth. In oil importing countries also oil price volatility is important factor which affect inclusive growth and sustainable development. It affects production, employment and GDP which are important for sustainable development. However, the effect is not as strong as oil-exporting countries. The lagged level of GDP also has a positive effect on sustainable development.

**Table (3): Empirical results of augmented SD model (Eq. 3) for selected Asian oil-exporting/importing countries, Case II (1996-2015)**

Variables	Coef.	Std. Err.	Z	P> z
Cons	13.72	4.81	2.85	0.004
$ANS_{i,t-1}$	0.45	0.57	7.91	0.000
$GDP_{i,t-1}$	0.0005	.0001	2.98	0.003
$RR_{i,t}$	-0.00092	.00029	-3.11	0.002
$OilV_{i,t}$	-0.001	0.0002	-4.49	0.000
$FDI_{i,t-1}$	1.10	0.14	7.73	0.000
$BOP_{i,t}$	0.29	.013	2.20	0.028
$INF_{i,t-1}$	-0.06	0.045	-1.39	0.163
$EXR_{i,t}$	-0.001	0.0003	-3.00	0.00037
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<i>Sargan test</i>	$chi2(160) = 8.19$		$Prob > chi2 = 0.865$	
<i>Arellano-Bond test</i>	$z = -1.4025$		$Prob > z = 0.1608$	
<i>Order (1)</i>	$z = -1.3175$		$Prob > z = 0.187$	
<i>Arellano-Bond test</i>	$z = -1.3175$		$Prob > z = 0.187$	
<i>Order (2)</i>				

Source: Authors

## 6. Conclusion

According to this paper's findings, the process on sustainable development in both oil Asian oil-exporting and oil-importing countries is affected by the major determinants of sustainability, mainly foreign direct investment and development process in Asia has suffering from volatilities in exchange rates and the world oil price as well as the balance of payment. The fact is that movement in the later variables is arising from trade and investment.

Hence, the implication of our findings is that to have a prolonged process of sustainable development in Asia in terms of higher quality in environment, both groups of Asian countries (oil-exporting and oil-importing countries) need to implement sustainable trade and sustainable FDI in such a way of more cooperation and integration.

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