

# Do Ecological Factors Determine Nationwide Performance of Supply Chain? Evidence from Thailand

Supar Wasesa<sup>#1</sup>, Amirul Syah<sup>#2</sup>

<sup>#1</sup>*Fakultas Ekonomi, Universitas Islam Sumatera Utara, Medan, Sumatera Utara, Indonesia*

*Corresponding author: E-mail: suparwasesa812@gmail.com.*

<sup>#2</sup>*Fakultas Ekonomi dan Bisnis, Universitas Muhammadiyah Sumatera Utara, Indonesia*

**Abstract-** Present study aims to investigate the impact of ecological factors; GDP growth rate (GGR), degree of openness (DOO), exchange rate (EXR) and balance of payment (BOP) on foreign direct investment (FDI). Study also examines the effect of FDI on the performance of nationwide supply chain (NSCP). Moreover, study examines mediating role of FDI on the relationship between GGR, DOO, EXR and BOP. For this purpose, study utilized the data of 123 ecologists of Thailand through an online questionnaire. Study applies structural equation modeling (SEM) for examining the empirical results. Study tests the reliability and validity of the data with the help of measurement model while structural model is used for testing the hypothesis. Results of the study show positive impact of DOO, GRR, EXR and BOP on FDI. Results further show significant and positive relationship between FDI and NSCP. Findings reveal that FDI significantly mediates the relationship between GGR, DOO, BOP and NSCB. While the relationship between EXR and NSCB is not mediated by FDI. Study suggested that companies have to start different investment programs for attracting the foreigners so that they can invest their money in the company.

**Keywords;** *Nationwide supply chain, GDP growth rate, Degree of openness, Exchange rate, Balance of payment, Thailand.*

## 1. Introduction

The management of environmental supply chain starts by planning the supply change and by estimating the environmental effects of different products and services with the life cycle approach. It is very challenging condition for the companies that are having a large number of sellers and sub-suppliers. In this regard, suppliers have to go through by the different phases [17]. Literature revealed that foreign direct investment (FDI) stimulates different monetary units of the concentration of recipient nation by various factors i.e., foreign exchange, innovation, capital arrangement, foreign trade, and through the enhancement of foreign markets [26]. FDI also plays a prominent role in the enhancement of nation's welfare and economic growth [21]. Financial researchers assured that the FDI increases the household investment

because it is linked with the advance and financial progress of any nation [8]. However, it requires definite level of supply chain activities. FDI increases the business activities in a country which in their turn having substantial effect on the supply chain of different goods and services [24].

Companies use different environmental tools while implementing the environmental obligation in their supply chain. For instance, United Nation's inclusive compact has developed various tools which includes some practical guidelines for the consistent progresses for assisting the companies so that they can incorporate the sustainability in the obtaining policies, and implement the inclusive compact values throughout the supply chain. Basically, UN's inclusive compact is a global supervision on the social obligation which consider environment as an important theme of social responsibility. It provides a complete guidance on the prevention of pollution, use of sustainable resources, climate change alleviation and the security and renovation of natural environment. In this regard, this compact might be a continent tool for companies for the improvement of collective environmental principles in their supply chains combined with other accountability aspects i.e., labor rights. Moreover, global social compliance program (GSCP) environmental module in another environmental tool which provides collective understanding regarding environmental requirements at employment site level through geographies and divisions. Life cycle assessing method (LCA) is a recognized method for measuring the environmental impact of various processes throughout the whole lifecycle of a particular good or service i.e., from raw material to production, consumption and disposal. LCA provides the basis for selecting the smartest procedures from a number of alternatives.

Literature revealed some studies that tested the influence of FDI on the financial growth. Results of the studies showed the direct influence of FDI on the financial growth of the developing nations [5, 1]. Here, supply chain plays a significant role in increasing the economic growth of nation through FDI. During the last decade, FDI becomes an important source of capital arrangements,

especially for the developing nations. Similarly, FDI plays a vigorous role in the financial progress of host nations as it is combined with the monetary approaches and exchange policies. FDI also positively contributes in increasing the performance of NSCP because FDI makes the easy access of raw material which promotes the supply of different product and services. Furthermore, literature revealed that increase in FDI results increase in the demand of goods and services which in their turn improves the activities of supply chain [31].

There are many factors which are having significant influences on FDI i.e., GGR, DOO, EXR and BOP. These factors significantly contribute in increasing or decreasing the FDI which ultimately affect the supply chain of different goods and services [2, 28]. Therefore, present study attempts to investigate the impact of these factors on FDI, and the impact of FDI on NSCP. In other words, present study tests the mediating role of FDI on the relationship between GGR, DOO, EXR, BOP and NSCP in the case of Thailand.

Remaining paper has following structure: Section 2 shows the review of existing literature and construction of hypotheses. Section 3 bids the data and methodology, section 4 is about empirical findings of the study, while section 5 concludes the study.

## 2. Literature Review

### GDP Growth Rate (GGR) and Foreign Direct Investment (FDI)

[10] examined the causal relationship between GDP and FDI by collecting the data from three developing nations i.e., Thailand, Malaysia and Chile over the period of 1969-2000. Study applied Toda-Yamamoto test for testing the causal relationship among variables. results of the study showed the bi-directional causality between FDI and GDP in Thailand and Malaysia while results revealed Uni-directional causality (from GDP to FDI) in the case of Chile. [33] utilized the data of china during the period of 1982-2016 and revealed the positive relationship between GGR and FDI. [14] also revealed the positive relationship between GGR and FDI by utilizing the data of India over the period of 2008-2017. [23]; [30] had done a valuable work. The study utilized the data of Malaysia during the period of 1990-2015 and investigated the influence of GDP on the FDI of tourism sector. Results of the study revealed the positive relationship between GDP and FDI. [11]; [12] utilized the data of eastern European economies for investigating the influences of GDP growth on FDI. Study applies ARDL model for testing the empirical results. result of the study showed the direct relationship between GDP growth and FDI. Similarly,

H<sub>1</sub>: “There is positive relationship between GDP growth rate and foreign direct investment”

### Degree of Openness (DOO) and Foreign Direct Investment (FDI)

[9] examined the relationship between DOO and FDI by utilizing the data of Malaysia. Result of the study showed the positive influence of DOO on FDI. [25] investigated the relationship between DOO and the FDI in manufacturing sector. For this purpose, study utilized the data of 5 developing nations and showed the positive effects of DOO in the FDI of manufacturing industry. [4] examined the relationship between government effectiveness, trade openness and FDI and revealed the positive and significant contributions of trade openness and government effectiveness in increasing FDI. Similarly, [22] also revealed the positive influence of trade openness on the FDI. Thus, it is assumed that:

H<sub>2</sub>: “There is positive relationship between degree of openness and foreign direct investment”

### Exchange Rate (EXR) and Foreign Direct Investment (FDI)

[16] examined the relationship between EXR and FDI. For this purpose, the study utilized the data of Japan and showed the positive relationship between EXR and FDI. Similarly, [27] also revealed the positive relationship between EXR and FDI. [28] collected the data of Pakistan during the period of 1982-2013 and examined the relationship between EXR and FDI. Study applied OLS regression model and found the positive association between EXR and FDI. [19] done a valuable work. The study utilized the data of Ghana and examined the influence of EXR regime on the inflows of FDI in Ghana. Results of the study showed the positive relationship between EXR regime and FDI inflow. [20] also indicated the positive relationship between EXR and FDI in Nigeria. Thus, it is proposed that

H<sub>3</sub>: “There is positive relationship between exchange rate and foreign direct investment”

### Balance of Payment (BOP) and Foreign Direct Investment (FDI)

[7] investigated the relationship between BOP and FDI and revealed the positive relationship between BOP and FDI. [15] also worked on the relationship between BOP and FDI. Author test that how the shortage of BOP affects FDI. Results of the study revealed the negative influence of BOP shortage on the FDI. [18] indicated the positive influence of BOP on the FDI. [13] examined the impact of GGR and BOP on FDI. For this purpose, the study utilized the data of Rwanda. Study applied OLS regression and showed the positive effect of GGR and BOP on FDI. So, it is proposed that:

H<sub>4</sub>: “There is positive relationship between BOP and FDI”

### Foreign Direct Investment (FDI) and Nationwide Supply Chain Performance (NSCP)

[29] examined the influence of FDI on the performance of supply chain. For this purpose, the study utilized the data of Indian SMEs over the period of 2000-2012. Results of the study showed the positive influence of FDI on the SCP. Results of the study suggested that increase in FDI results increase in the demand of goods and services which in their turn improves the activities of supply chain. [3] also examined the relationship between FDI and SCP by utilizing the data of MNEs. Results of the study revealed the positive relationship between FDI and SCP. Similarly, [32] conducted their research on the relationship between FDI and supply chain management. For this purpose, study collected the data from the industry of fashion industry. Study applied OLS regression and revealed the positive relationship between FDI and the management of supply chain. Therefore, it is assumed that:

H<sub>5</sub>: “There is positive relationship between foreign direct investment and supply chain performance”

### Mediating Role of FDI

Synthesizing the literature from above, it is concluded that all the variables are interlinked i.e., GGR, DOO, EXR and BOP have significant influences on FDI which in their turn significantly affect the NSCP. So, it is proposed that FDI plays a mediating role among the relationship among variables. Thus, it is assumed that:

H<sub>6</sub>: “Foreign direct investment mediates the relationship between GDP growth rate and nationwide supply chain performance”

H<sub>7</sub>: “Foreign direct investment mediates the relationship between degree of openness and nationwide supply chain performance”

H<sub>8</sub>: “Foreign direct investment mediates the relationship between exchange rate and nationwide supply chain performance”

H<sub>9</sub>: “Foreign direct investment mediates the relationship between balance of payment and nationwide supply chain performance”

## 3. Methodology

### Data and sample

Present study collected the data from 123 ecologists of Thailand. Data are collected through an online questionnaire survey. The URL of questionnaire was mailed to different ecologists of Thailand. Questionnaire is designed on the 5-type Likert scale, starts from 1=completely disagree to 5=completely agree. Questionnaire consists two section. Section 1 consist the information about the demographics of respondents i.e., their gender, age, qualification and experience. While section 2 contains items related to modeled variables i.e.,

this section contains 5 items of GGR, FDI, and BOP; 3 items of DOO; and 4 items of EXR and NSCP.

### Description of Variables

#### *GDP Growth Rate (GGR)*

The study uses GGR as an independent variable of the study. GGR is used to measure the speed of economic growth i.e., “how fast the economy is growing”. In other words, GGR measures the economic productivity of any nation.

#### *Degree of Openness (DOO)*

DOO is also used as an independent variable of the study. It is considered as a degree through which the national dealings take place. DOO is measured by the definite size of certified imports and exports with in a domestic economy.

#### *Exchange Rate (EXR)*

EXR is another independent variable of the study which is defined as the value of one currency in the terms of another currency.

#### *Balance of Payment (BOP)*

Study also used BOP as an independent variable. BOP is a statement of all negotiations made between the entities of one country and another over a definite period of time i.e., during a year or quarter.

#### *Foreign Direct Investment (FDI)*

Study used FDI as a mediating variable. FDI is defined as an investment, made by a firm of one country in another country.

#### *Nationwide Supply Chain performance (NSCP)*

NSCP is used as a dependent variable of the study. NSCP is defined as comprehensive supply chain activities i.e., the accessibility of product, on-time delivery of the products of raw material and inventory.

### Data analysis techniques

Present study used the software of smart PLS for data analysis as this is the most suitable software in the case of small data sets. Study applies the approach of structural equational modeling (SEM) for examining the empirical results. SEM consists of two models i.e., measurement model and structural model. Measurement model tests the reliability and validity of the data through confirmatory factor analysis (CFA), while structural model deals with the collinearity issues. Further, this model is obtained through bootstrapping process and tests the proposed hypothesis of the study. Study conducted path analysis for testing the direct and indirect effects of the independent variable(s) on the dependent variable.

**Model specifications**

Present study uses following econometric model for testing the proposed hypothesis of the study.

**Direct effects**

1.  $FDI = \beta_0 + \beta_1(GRR) + \mu$
2.  $NSCP = \beta_0 + \beta_1(FDI) + \mu$
3.  $FDI = \beta_0 + \beta_1(DOO) + \mu$
4.  $FDI = \beta_0 + \beta_1(EXR) + \mu$
5.  $FDI = \beta_0 + \beta_1(BOP) + \mu$

**Indirect effects**

6.  $NSCP = \beta_0 + \beta_1(GRR) + \beta_2(FDI) + \mu$
7.  $NSCP = \beta_0 + \beta_1(DOO) + \beta_2(FDI) + \mu$
8.  $NSCP = \beta_0 + \beta_1(EXR) + \beta_2(FDI) + \mu$
9.  $NSCP = \beta_0 + \beta_1(BOP) + \beta_2(FDI) + \mu$

Where: “NSCP is nationwide supply chain performance; FDI is foreign direct investment; GRR is GDP growth rate; DOO is degree of openness; EXR is exchange rate; BOP is balance of payment;  $\beta_0$  is intercept;  $\beta_1$ ,  $\beta_2$  are coefficients; and  $\mu$  is normally distributed error term”.

**4. Empirical Results**

**Descriptive statistics**

Table 1 shows the results of descriptive statistics of the study. Table shows mean, standard deviation, minimum and maximum values of the survey items. Result shows that survey is based on 26 items. Out of which, the response of 13 items vary from one to five; response of 4 items vary from two to five; response of 4 items vary from one to four; response of two items vary from two to four. The average response of participant varies from 2.324 to 3.833, shown by the mean values. The value of standard deviation varies from 0.345 to 1.193.

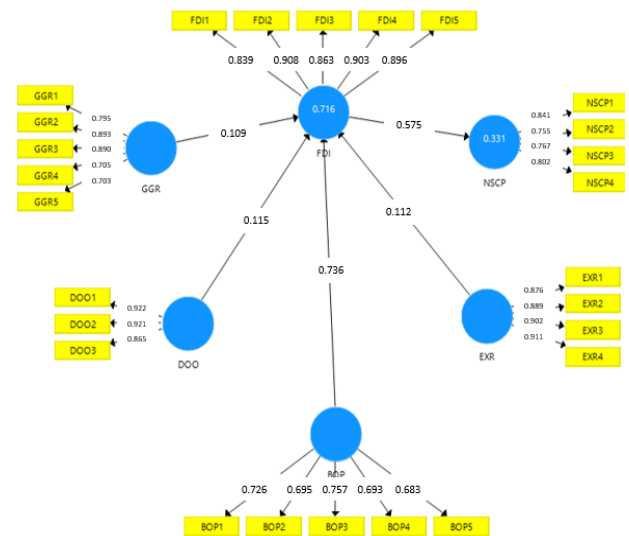
**Table 1. Descriptive Statistics**

Constructs	Mean	Min	Max	Standard Deviation
GGR1	2.324	1	4	0.345
GGR2	3.355	2	5	0.548
GGR3	3.475	1	4	1.435
GGR4	3.562	1	5	0.764
GGR5	3.456	1	5	1.346
DOO1	3.993	1	4	0.983
DOO2	3.283	1	5	0.356
DOO3	3.002	2	5	0.923
EXR1	3.354	1	5	1.845
EXR2	3.833	1	5	0.548
EXR3	3.274	1	5	1.435
EXR4	3.743	1	4	1.745
BOP1	4.432	2	5	0.344
BOP2	3.284	1	5	1.568

BOP3	3.026	1	5	1.457
BOP4	2.345	1	5	0.459
BOP5	2.364	1	5	0.467
FDI1	2.344	1	4	0.193
FDI2	3.225	2	5	1.568
FDI3	2.736	1	5	0.458
FDI4	2.364	1	5	0.938
FDI5	3.245	2	4	1.847
NSCP1	3.763	2	4	1.345
NSCP2	2.845	1	5	0.652
NSCP3	3.367	1	5	0.773
NSCP4	3.734	1	5	1.563

**Measurement model**

Measurement model of the study is shown in figure 1. Measurement model uses confirmatory factor analysis (CFA) for testing the reliability and validity of different items and constructs. Measurement model of the study is comprising on six latent variables, where GRR, DOO, EXR, and BOP are independent variables; FDI is mediating variable; and NSCP is the dependent variable of the study. Model tests the convergent validity of each item and construct with the help of loading values and AVE respectively; model tests the reliability of each construct with the help of Cronbach’s alpha; finally, model tests construct validity with the help of AVE.



**Figure 1. Measurement Model**

**Convergent validity of items**

Table 2 shows the loading value of each item which are used to test the convergent validity. Loading value of each item must exceeds 0.4. for satisfying the condition of convergent validity. The outcomes of Table 2 shows that the loading value of each item exceeds 0.4. i.e., the loading value of GGR1, GGR2, GGR3, GGR4, GGR5, DOO1, DOO2, DOO3, EXR1, EXR2, EXR3, EXR4, BOP1, BOP2, BOP3, BOP4, BOP5, FDI1, FDI2, FDI3, FDI4, FDI5, NSCP1, NSCP2, NSCP3, NSCP4 is 0.795,

0.893, 0.890, 0.705, 0.703, 0.922, 0.921, 0.865, 0.876, 0.889, 0.902, 0.911, 0.726, 0.695, 0.757, 0.693, 0.683, 0.839, 0.908, 0.863, 0.903, 0.896, 0.841, 0.755, 0.767, and 0.802 respectively. Thus, it is verified that convergent validity is present in each item if the construct.

**Table 2.** Convergent Validity of constructs

Constructs	GG R	DO O	EX R	BOP	FDI	NSC P
<i>GGR1</i>	0.795					
<i>GGR2</i>	0.893					
<i>GGR3</i>	0.890					
<i>GGR4</i>	0.705					
<i>GGR5</i>	0.703					
<i>DOO1</i>		0.922				
<i>DOO2</i>		0.921				
<i>DOO3</i>		0.865				
<i>EXR1</i>			0.876			
<i>EXR2</i>			0.889			
<i>EXR3</i>			0.902			
<i>EXR4</i>			0.911			
<i>BOP1</i>				0.726		
<i>BOP2</i>				0.695		
<i>BOP3</i>				0.757		
<i>BOP4</i>				0.693		
<i>BOP5</i>				0.683		
<i>FDI1</i>					0.839	
<i>FDI2</i>					0.908	
<i>FDI3</i>					0.863	
<i>FDI4</i>					0.903	
<i>FDI5</i>					0.896	
<i>NSCP1</i>						0.841

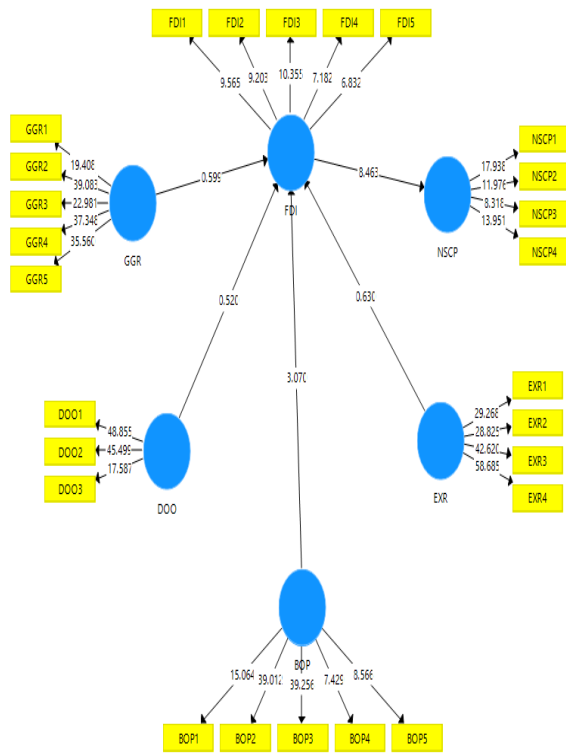
<i>NSCP2</i>						0.755
<i>NSCP3</i>						0.767
<i>NSCP4</i>						0.802

### Construct Validity and Reliability

Table 3 (Part 1) shows the results of reliability and validity of each construct. Value of Cronbach alpha is used to test the reliability if the data. the value of Cronbach alpha must be greater than 0.5 for satisfying the condition of reliability and internal consistency. Table shows that the value of CBa exceeds 0.5. i.e., the value of CBa for GGR, DOO, EXR, BOP, FDI and NSCP is 0.984, 0.834, 0.973, 0.945, 0.794 and 0.883 respectively. Thus, it is concluded that the data of each construct is reliable and internally consistent. Composite reliability tests the construct validity. the value of CR must exceed 0.5 for satisfying the condition of construct validity. Table shows that the value of CR for each item exceed 0.5 i.e., the value of CR for GGR, DOO, EXR, BOP, FDI and NSCP is 0.883, 0.924, 0.811, 0.794, 0.835 and 0.724 respectively. Thus, it is verified that construct validity is present. AVE tests the convergent validity of each construct. value of AVE must exceed from 0.5 for satisfying the condition of convergent validity. table shows that the convergent validity of AVE for each item is greater than 0.5 i.e., the value of AVE for GGR, DOO, EXR, BOP, FDI and NSCP is 0.773, 0.852, 0.817, 0.825, 0.742 and 0.820 respectively.

Table 3 also shows the results of discriminate validity. Present study uses former-larker criteria for testing the discriminate validity of the data. This criterion tests the discriminate validity with the help of correlation matrix. According to these criteria, the diagonal values of the correlation matrix must be greater than the remaining values. Outcomes of table demonstrates that the all the diagonal values i.e., 0.896, 0.893, 0.882, 0.825, 0.875, 0.872 (shown in bold) are greater than 0.734, 0.730, 0.712, 0.587, 0.634, 0.772, 0.734, 0.611, 0.574, 0.634, 0.535, 0.735, 0.673, 0.655, 0.573 (remaining values). So, it is verified that discriminate validity is present in the data.

Table 3 (Part 2) shows the results of correlation matrix which is used to test the problem of multicollinearity in the data. Results of the table shows that the highest value of correlation is 0.224 which is in between NSCP and EXR and the lowest value of correlation is 0.034 which is in between FDI and BOP. As all the values (shown in table 3 part 1) are less than 0.5. Thus, there is no problem of multicollinearity in the data.



**Table 3.** Construct validity and reliability, discriminate Validity and Multicollinearity

Part 1: Construct Validity, Reliability and Discriminate Validity										
Variable	a <sup>c</sup>	b <sup>c</sup>	c <sup>a</sup>	Variable	GGR	DOO	EXR	BOP	FDI	NSCP
<b>GGR</b>	0.983	0.788	0.733	<b>GGGR</b>	0.886	0.793	0.882	0.734	0.875	0.875
<b>DOO</b>	0.834	0.592	0.852	<b>DOO</b>	0.734	0.893	0.723	0.730	0.875	0.875
<b>EXR</b>	0.973	0.811	0.817	<b>EXR</b>	0.734	0.723	0.882	0.730	0.875	0.875
<b>BOP</b>	0.945	0.799	0.825	<b>BOP</b>	0.734	0.730	0.634	0.825	0.875	0.875
<b>FDI</b>	0.794	0.838	0.742	<b>FDI</b>	0.886	0.793	0.882	0.734	0.875	0.875

		5			7			3		
<b>NSCP</b>	0.883	0.207	0.820	<b>NSCP</b>	0.743	0.357	0.735	0.573	0.573	0.883

**Part 2: Multicollinearity**

Variable	GGR	DOO	EXR	BOP	FDI	NSCP
<b>GGR</b>	1					
<b>DOO</b>	0.125	1				
<b>EXR</b>	0.034	0.118	1			
<b>BOP</b>	0.143	0.023	0.153	1		
<b>FDI</b>	0.118	0.173	0.073	0.034	1	
<b>NSCP</b>	0.037	0.167	0.244	0.132	0.145	1

**Note:** “a: Cronbach Alpha, b: Composite Reliability, c: Average Variable Extracted”

**Structural Model**

Structural model of the study is shown in figure 2. After getting assured that data are valid and reliable. Study used structural model for testing the hypotheses. Structural model is obtained with the help of bootstrapping process which deal with the collinearity issues.

**Figure 2.** Structural Model

**Path Analysis**

Table 4 shows the results of path analysis. Table is comprising on two panels i.e.; panel A and Panel B. Panel A tests the direct effect of the Independent variables while panel B tests the mediating effects.

Panel A shows that the Path coefficient of GGR (0.109) in model 1 is positive and significant at the level of 1% and shows the significant relationship between GGR and FDI. Results show that 1-unit increase in GGR tends to increase FDI by 0.109 units. Thus, hypothesis 1 is accepted. Path coefficient of DOO (0.115) in model 2 is significant at the level of 5%, revealing that 1-unit increase in DOO tends to increase FDI by 0.115 units. Here, Hypothesis 2 is also supported. Path coefficient of EXR (0.112) in model 3 is significant at the level of 10%, showing that 1-unit increase in EXR tends to increase FDI by 0.112 units. Here, hypothesis 3 is also supported. The coefficient of BOP (0.736) in model 4 is significant at the level of 5%, depicts that 1-unit increase in BOP tends to increase FDI by 0.736 units. hence, hypothesis 4 is also accepted. The coefficient of FDI (0.575) in model 5 is significant at the level of 1%, showing that 1-unit increase in FDI tends to increase NSCP by 0.575 units. Therefore, hypothesis 5 is also accepted.

Panel B shows that the path coefficient of GGR (0.279) in model 6 is significant at the level of 10%, showing that



1-unit increase in GGR indirectly increase 2.279 units of NSCB. Result shows that FDI significantly mediated the relationship between GGR and NSCB. Thus, hypothesis 6 is also accepted. Path coefficient of DOO (0.202) is also significant at the level of 10%, showing that 1-unit increase in DOO increases 0.202 units of NSCB indirectly. Result shows that FDI also mediated the relationship between DOO and NSCB. So, Hypothesis 7 is also accepted. Path coefficient of EXR (0.197) is insignificant, showing that FDI does not mediate the relationship between EXR and NSCB. Therefore, Hypothesis 8 is rejected. Path coefficient of BOP (0.256) is significant at the level of 5%, showing the significant indirect effects of BOP on NSCB. Particularly, 1-unit increase in BOP increases 0.256 units of NSCB indirectly. Results verified the mediating role of FDI on the relationship between BOP and NSCB. Hence, hypothesis 9 is also supported.

**Table 6.** Path Analysis

Panel A: Direct effects					
Hypothesis /Model	Model	Coefficient	SE	P. V.	Decision
1	GGR→FDI	0.109	0.674	0.000a	Supported
2	DOO→FDI	0.115	1.875	0.036b	Supported
3	EXR →FDI	0.112	1.933	0.073c	Supported
4	BOP→FDI	0.736	1.623	0.035b	Supported
5	FDI→NSCP	0.575	1.986	0.000a	Supported
Panel B: Indirect effects/Mediation					
6	GGR→FDI →NSCB	0.279	0.043	0.064c	Supported
7	DOO→FDI →NSCB	0.202	0.143	0.074c	Supported
8	EXR→FDI →NSCB	0.197	0.117	0.173	Not-Supported
9	BOP→FDI →NSCB	0.256	1.364	0.042b	Supported

Note: "a, b and c indicate level of significance at 1, 5 and 10 percent, respectively"

## 5. Conclusion and Discussion

The management of environmental supply chain starts by planning the supply change and by estimating the environmental effects of different products and services with the life cycle approach. It is very challenging condition for the companies that are having a large number of sellers and sub-suppliers. In this regard, suppliers have to go through by the different phases. Literature revealed that foreign direct investment (FDI) stimulates different monetary units of the concentration of recipient nation by various factors i.e., foreign exchange, innovation, capital arrangement, foreign trade, and through the enhancement of foreign markets. Therefore, present study examines the association between ecological factors and nationwide supply chain. Furthermore, study also tests the mediating role of FDI on the association between GGR, DOO, EXR, BOP and NSCD.

For this purpose, the study utilized the data of 123 ecologists of Thailand. Data are collected through an online questionnaire survey. Study applies structural equational modeling (SEM) for investigating the empirical results of the study. SEM contains two models i.e., measurement model and structural model. Study tests the reliability and validity of the data with the help of measurement model while structural model is used for testing the proposed hypotheses of the study. Finally, path analysis is conducted for obtaining the direct and indirect coefficients.

Results of the study shows the positive impact of DOO, GRR, EXR, and BOP on FDI. Results are consistent with [33, 15, 29, 23, 13] Results further show the significant relationship between FDI and NSCP. Results are consistent with [29, 3]. Moreover, the outcomes of the study depict that FDI significantly mediates the relationship between GGR, DOO, BOP and NSCB. While the relationship between EXR and NSCB is not mediated by FDI.

### Implications of the Study

Present study also offers some implications: First, the study suggested that different companies have to start different investment programs for attracting the foreigners so that they invest their money in the company. Secondly, companies should maintain friendly relations with the foreigner investors.

### References

- [1] Q. M. Adnan Hye and F. Islam, "Does financial development hamper economic growth: empirical evidence from Bangladesh," *Journal of Business Economics and Management*, Vol. 14, No. 3, pp. 558-582, 2013.
- [2] G. Akhmat, K. Zaman, and T. Shukui, "Impact of financial development on SAARC'S human

- development*," *Quality & Quantity*, Vol. 48, No. 5, pp. 2801-2816, 2014.
- [3] A. Alam and P. K. Bagchi, "Supply chain capability as a determinant of FDI," *Multinational Business Review*, 2011.
- [4] M. A. Alshammari, M. A. Hammoudeh, and M. Pavlovic, "Governance, regulations, trade openness and FDI inflows: Empirical study," *International Journal of Economics and Finance*, Vol. 7, No. 12, pp. 44-58, 2015.
- [5] S. Amar, Idris., I. Pratama, and Anis, A. "Exploring the link between income inequality, poverty reduction and economic growth: An ASEAN perspective," *International Journal of Innovation, Creativity and Change*, Vol. 11, No. 2, pp. 24-41, 2020.
- [6] M. Bilawal, M. Ibrahim, A. Abbas, M. Shuaib, M. Ahmed, I. Hussain, and T. Fatima, "Impact of exchange rate on foreign direct investment in Pakistan," *Advances in Economics and Business*, Vol. 2, No. 6, pp. 223-231, 2014.
- [7] M. Bussiere, "Balance of payment crises in emerging markets: how early were the 'early' warning signals?," *Applied Economics*, Vol. 45, No. 12, pp. 1601-1623, 2013.
- [8] L. Cavallari and S. d'Addona, "Nominal and real volatility as determinants of FDI," *Applied Economics*, Vol. 45, No. 18, pp. 2603-2610, 2013.
- [9] S. C. Chang, (2007). "The interactions among foreign direct investment, economic growth, degree of openness and unemployment in Taiwan," *Applied Economics*, Vol. 39, No. 13, pp. 1647-1661.
- [10] A. Chowdhury and G. Mavrotas, "FDI and growth: What causes what?," *World Economy*, Vol. 29, No. 1, pp. 9-19, 2006.
- [11] K. Cicak and P. Soric, "The interrelationship of FDI and GDP in European transition countries," *International Journal of Management Science and Business Administration*, Vol. 1, No. 4, pp. 41-58, 2015.
- [12] Y. Hakimah, I. Pratama, H. Fitri, M. Ganatri, and R. A. Sulbahrie, "Impact of intrinsic corporate governance on financial performance of Indonesian SMEs," *International Journal of Innovation, Creativity and Change*, Vol. 7, No. 1, pp. 32-51, 2019.
- [13] J. Hakizimana, "The relationship between Foreign Direct Investment (FDI) and GDP per capita in Rwanda," Available at SSRN 2598413, 2015.
- [14] A. Jamal and M. A. Bhat, "Examining the relationship between economic growth, FDI and trade: VAR and causality analysis," *IASSI Quarterly*, Vol. 38, No. 1, 2019.
- [15] Y. Jeon, "Balance-of-payment constrained growth: the case of China, 1979-2002," *International Review of Applied Economics*, Vol. 23, No. 2, pp. 135-146, 2009.
- [16] K. Kiyota and S. Urata, "Exchange rate, exchange rate volatility and foreign direct investment," *World Economy*, Vol. 27, No. 10, pp. 1501-1536, 2004.
- [17] D. M. Lambert and M. C. Cooper, "Issues in supply chain management," *Industrial Marketing Management*, Vol. 29, No. 1, pp. 65-83, 2000.
- [18] H. Nishi, "Balance-of-payments-constrained cyclical growth with distributive class conflicts and productivity dynamics," *Metroeconomica*, Vol. 70, No. 4, pp. 620-640, 2019.
- [19] P. A. Nyarko, E. Nketiah-Amponsah, and C. Barnor, "Effects of exchange rate regimes on FDI inflows in Ghana," *International Journal of Economics and Finance*, Vol. 3, No. 3, pp. 277-286, 2011.
- [20] T. S. Osinubi and L. A. Amaghionyeodiwe, "Foreign direct investment and exchange rate volatility in Nigeria," *International Journal of Applied Econometrics and Quantitative Studies*, Vol. 6, No. 2, pp. 83-116, 2009.
- [21] G. H. Popescu, "FDI and economic growth in Central and Eastern Europe," *Sustainability*, Vol. 6, No. 11, pp. 8149-8163, 2014.
- [22] S. S. Ramanayake and K. Lee, "Does openness lead to sustained economic growth? Export growth versus other variables as determinants of economic growth," *Journal of the Asia Pacific Economy*, Vol. 20, No. 3, pp. 345-368, 2015.
- [23] I. M. A. Rashid, S. Ibrahim, I. H. A. Samah, H. Hamzah, and A. S. Kamaruddin, *The role of tourism size, GDP and FDI in Tourism Sector to Reduce Poverty in Malaysia*. In ICRTEMMS Conference Proceedings (Vol. 685, No. 690, pp. 685-690). Swarna Bharathi Institute of Science and Technology, 2018.
- [24] S. Schaltegger, R. Burritt, P. Beske, and S. Seuring, "Putting sustainability into supply chain management," *Supply Chain Management: An International Journal*, 2014.
- [25] K. Sekkat and M. A. Veganzones-Varoudakis, "Openness, investment climate, and FDI in developing countries," *Review of Development Economics*, Vol. 11, No. 4, pp. 607-620, 2007.
- [26] S. Seuring, "A review of modeling approaches for sustainable supply chain management," *Decision Support Systems*, Vol. 54, No. 4, pp. 1513-1520, 2013.
- [27] H. Sharifi-Renani and M. Mirfatah, "The impact of exchange rate volatility on foreign direct investment in Iran," *Procedia Economics and Finance*, Vol. 1, pp. 365-373, 2012.
- [28] M. B. Sibuea, S. R. Sibuea, A. Pratami, I. Pratama, and R. Nasution, "Is business friendliness enhancing energy consumption in the ASEAN region?," *Journal*



- of Security and Sustainability Issues Vol. 9, No. M, pp. 409-419, 2020.
- [29] S. Singha and B. Kumar, “*Globalization through FDI and performance evaluation of MSMEs in India: Finding evidences from policies, linkages & performances of MSMEs*,” *Our Heritage*, Vol. 68, No. 30, pp. 3273-3285, 2020.
- [30] C. W. Utami, Y. M. P. Sumaji, H. Susanto, F. Septina, and I. Pratama, “*Effect of supply chain management practices on financial and economic sustainable performance of Indonesian SMEs*,” *Int. J Sup. Chain. Mgt*, Vol. 8, No. 1, pp. 523-535, 2019.
- [31] A. Y. Yalta, “*Revisiting the FDI-led growth hypothesis: The case of China*,” *Economic Modelling*, Vol. 31, pp. 335-343, 2013.
- [32] T. Yamaguchi and H. Yoshida, *Fast retailing: an analysis of FDI and supply chain management in fashion retailing*, Bachelor Thesis, Henley University of Reading, 2011.
- [33] Y. Zhang and S. Zhang, “*The impacts of GDP, trade structure, exchange rate and FDI inflows on China's carbon emissions*,” *Energy Policy*, Vol. 120, pp. 347-353, 2018.