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Review of Economic Freedom Impact on FDI: New Evidence from Fragile and Conflict Countries

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Abstract

The present thesis aims at investigating the macroeconomic impact of economic freedom on foreign direct investments inflows in both global and regional panel analysis concerning 156 countries through the periods of 1995-2013. Unlike existing literature, it includes often neglected nations such as Fragile and Conflict-Affected states, Sub-Saharan, Oceania, and Post-Soviet countries. This present study investigates not only the global impact of economic freedom on FDI inflows but also makes regional analysis. The paper finds a positive impact of economic freedom on FDI under fixed-effects model in global case where a unit change in economic freedom scales FDI inflows up to 0.0835 units. More specifically, all 9 regions also refer to positive and significant impact of economic freedom on FDI. The highest impact is recorded in European countries, whereas the lowest ones are documented in Oceania and Fragile-Conflict affected states.

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1. Introduction

The research intends to validate the existing literature on the link between FDI and economic freedom using more current data and large sample size. We study this for nine (9) main regions in order to give a comprehensive comparison. The study also goes beyond by including often neglected, fragile and conflict countries which emerge a gap in the current literature because of lack of data and inconsistencies in data calculation and gathering.

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FDI of Arab countries have negatively been affected by recent instabilities and conflicts, i.e. Arab Spring, this country as well other neglected countries in Oceania, Asia, Latin America and Sub-Sahara are often marginalized and excluded from studies which emerge a gap in literature.

In this study, we attempt to fill this gap by including these fragile-conflict affected states as well as often neglected Post-Soviet. Beside the global analysis of 156 countries through the periods of 1995-2013, the study also gives a sight to the region-based interaction of FDI inflows with economic freedom level of the sample countries.

This study is organized as follow, section one deals with the introduction that indicates the general of the topic underground. The section two deals with the theoretical and empirical approaches of the current literature. In the third section, our focus is on the methods that are used to conduct the research. The section four provides the empirical findings of our research as well the implications of the results. We finally provide a comprehensive conclusion.

2. Literature Review

Rapid changes in technologic innovations facilitate access information and easiness of data; provide high speed of data availability. Foreign Direct Investment (FDI) is described as the process through which an individual residing in one country holds an ownership in a company of another country through acquisition, merger, licensing or building of new facility. FDI is however different from other forms of indirect investment such as portfolio investment (bond, stocks, Treasury bills) because it involves more commitment of the investors. In addition, according to OECD, FDI is referred as an investment made by a resident entity in one economy with the purpose of holding a long term interest in an institution located in another country. The ownership referred here should at least be 10% of the voting right which shows the power and authority of the investor. (OECD).

FDI is very crucial for countries because it helps in accumulating capital as source of investment, creates job, increase competition in a country and the biggest of all transfers technology to the host country. FDI is regarded as an engine for growth in the host country and hence has a significant importance.

An extensive empirical literature exists on macroeconomic impact of economic freedom and its components on FDI. For instance, Sambharya and Rasheed [1] (2015) examine the macroeconomic effects of economic and political freedom on FDI inflows in 95 host countries in a panel data analysis through the periods of 1995-2000. Their results suggest before benefiting from FDI inflows, countries need to emphasize on a better economic management in terms sound monetary policy, fiscal burden, and banking and finance. Additionally they advocate that less government participation into an economy, strong property rights, low prevalence of informal markets, and less corruption are desirable for more FDI inflows.

Supplementary, Pearson et al.[2] (2012) investigate the impact of economic freedom and growth on FDI in state levels, indifferent to most studies that consider determinants of FDI inflows into United States as a country. They use a panel data analysis of 50 states through the period of 1984-2007 employing random-effects model. They find that both growth and economic freedom have significant positive impact on FDI in all states. However, the authors also explore that per capita income and unemployment rate cause negative impact on FDI. They address these relations to the fact that states with higher per capita income repel FDI inflows since higher income implies higher wages, and high unemployment rate is positively associated with crime ratio, thus discourages investors' interests.

Likewise Bengoa and Sanchez-Robles [3] (2003) also examine the interplay between economic freedom, growth, and FDI inflows using a panel data analysis of sample of 18 Latin American countries from 1970-1999. They observe that economic freedom remains positive and significant both in fixed- (0.0043) and random-effects (0.0046) regression models deriving similar coefficient magnitudes which imply their robustness. On the other hand, the impact of growth on FDI appears significant only in fixed-effects model with magnitude of 0.01. Eventually, they

conclude that both economic freedom and growth in host countries generate benefits on FDI inflows only if there is a sufficient human capital accompanied by economic stability and liberalized markets.

Furthermore, Asiedu [4] (2006) studies the role of natural resources (export of oil, gold and others), government policy (human capital in terms of literacy rate, quality of infrastructure, and inflation rate), market size (income per capita), institutions (rate of corruption and rule of law) and political instability (number of coup, assignations and revolutions) on FDI in a panel data analysis of 22 African countries from 1984 to 2000. She employs Hausman test and finds that the random-effects model generates biased estimators. Preferring the fixed-effects model she exhibits that a unit change in openness of economy alters FDI by 0.20 units when policy variable is proxied with human capital (literacy rate), and by 0.23 units when it is proxied with infrastructure investments (landline phone penetration) of the country. Here, she specifies that an increase in FDI does not always indicate amplification in economic growth, because she addresses an ambiguous empirical relation of these two in literature as some studies that stipulate augmentations of economic growth with certain conditions such as when the host country has higher quality education (Borensztein et al.,[5] 1998); optimal income level (Lund,[6] 2010); or well-established financial markets and regulations (Carkovic and Levine,[7] 2005).

Besides, Fofana[8] (2014) measures the influence of economic freedom components on FDI in 25 Western European and 26 Sub-Saharan countries through 2001-2009 where he discovers that the aggregate index of economic freedom is not a significant explanatory of FDI for African case, but European countries. He proxies economic freedom with three institutional variables such as "the size of the economy", "the size of the population", and "the legal system and rule of law"; and with three regulatory variables such as "size of government", "freedom of international trade", and "regulations of labor, credit, and business". As a results he observes that only "legal system and rule of law" variable appears significant in African sample, where it fails to be significant in European sample. More specifically, the author also discovers positive links between GDP and FDI, and Population and FDI; meanwhile he finds negative association of Natural Resources and FDI in fixed-effects model with cross-section dummy variables where he accounts 94% of variation in FDI. He addresses it to the current stage of this region which is in the development process. Besides he also admits that insufficient observation number is another restriction of his study which leads to insignificant results. Nonetheless, he finds plausible results for European sample where economic freedom, i.e. that is proxied by "size of government", "freedom of international trade", and "regulations of labor, credit, and business", appears statistically significant determinant of FDI. He also explores very similar results as African case with fixed-effects model that includes cross-section dummy variables. The only difference between cases appears as disappearance of significant impact of population on FDI in European sample.

On the other hand, Quazi [9] (2007) investigates the collision of economic independence on the flow of foreign investment in a panel data regression for seven major East Asian countries over 1995-2000 periods, employing both fixed- and random-effects models. Initially he examines the full sample where 70% of FDI is explained by its first lag, political instability, and market size variables in random-effects model. But both in random-effects and GLS models the economic freedom fails to be significant. However when he adds a dummy variable for China, a country in sample that requires a exceptional attention due to being magnet for FDI, both random-effects and GLS models estimate significant but negative impact of economic freedom on FDI. Indeed this negative coefficient implies positive impact on FDI. Because he proxies the economic freedom variable with domestic investment climate that is constructed on a scale of 1 to 5, where 1 indicates set of policies most favorable to economic freedom, and 5 represents policies with least conducive. The outcomes unveil that the dummy variable tends to be very significant with a magnitude of 3.07 in the fixed panel and 3.43 in the random panel. In addition all other explanatory variables (change in the volume of FDI inflows, political stability, market size and level of profit in investment) turn out to be significant except quality of infrastructure and human capital. He concludes that investment flows to China more than other countries in the sample because of the huge natural resources, its cheap labor cost, also the geographic proximity to Hong Kong and Taiwan, the recent forms in the economic sector are also other factors. Moreover when he considers taking the China out of the sample, he finds quite similar (a bit larger) negative and significant coefficient for economic freedom as the case of dummy variable, and makes similar interpretations. But he

emphatically states that the sample countries still encounter regional bias in terms of FDI which is definitely favorable for China.

In another regional study Mohamed and Sidiropoulos[10] (2010) look at the determinants of FDI in 12 MENA (Middle East North African countries) where their find in line results with the traditional literature of economic freedom and FDI. To capture more variations in FDI, they include domestic, financial, institution, policy, and other external variables into fixed-effects model, and compare estimations of MENA countries with other developed ones. They proxy domestic factors with market size (logarithm of GDP); financial factors with national stock index; institutional factors with investment profile and corruption levels; policy factors with inflation rate and government spending; and external factors with global liquidity and trade freedom. As a result they find out that the FDI is largely determined by the market size and trade freedom which generate coefficient of 98.15 and 12.43, alongside with minor determinants such as investment profile, corruption level, inflation rates, government spending, natural resources, and growth expectation. Unlike to these results, in case of MENA countries the trade freedom turns out insignificant. Indeed it might be due to political instabilities and conflicts in this region. Latterly, Chaib and Siham[11] (2014) also address to the same issues by referring importance of institutional quality and political stability in order to attract FDI in Algeria.

3. Methodology, Theory and Hypothesis

This study examines the macroeconomic impact of economic freedom on the foreign direct investment (FDI) inflows over the globe. The initial sample size was comprised of 189 countries over the period of 1995-2013. However due to unavailability of macro data for 33 countries, the sample size decreased to 156 countries.

The freedom of economic activity of the country is proxied by Economic Freedom Index (EDI) which is formed by Business Freedom Index (BFI), Trade Freedom Index (TFI), Investment Freedom Index (IFI), and Financial Freedom Index (FFI). The data for these indexes are gathered from online database of Heritage Foundation. We also investigate magnitude of FDI and EFI interaction on the regional basis holding the control variables such as GDP growth, Import and Export per GDP, Trade per GDP, Inflation, and Interest rates. The data for these variables are derived from online database of World Bank. Unlike to prior literature our study pursues the analysis with larger sample where often neglected nations such as fragile and conflict-affected states, sub-Saharan areas, and Oceania countries are also captured. Meantime with panel data analysis, we explore both fixed- and random-effects approaches, as well as a pooled regression of EFI on FDI.

Following Bengoa and Sanchez-Robles[12] (2003) approach, we extend their model by including macro control variables into the model as below.

$$FDI_{at} = \beta_0 + \beta_{1at}\mathrm{EFI}_{at} + \sum_2^7 \beta_{jat}\mathrm{M}_{jat} + \varepsilon_{at} \quad (1)$$

Where FDI is foreign direct investment inflows of country “a” as percentage of its GDP at time “t”; c is a intercept; and M stands for six macro control variables of country “a” at time “t” respectively. Hence, “Ɛ” represents the residual term of the model.

Table 1. Descriptive Statistics of Data

	Mean	*Median*	*Max.*	*Min.*	*Std. Dev.*	*Skewness*	*Kurtosis*	*Observations*
FDI (% of GDP)	4.51	2.71	430.64	-57.43	10.54	24.28	922.71	2963
GDP Growth (%)	4.19	4.05	149.97	-62.08	6.12	7.24	160.79	2963
Import (% of GDP)	46.39	40.12	424.82	7.70	29.17	3.77	31.38	2963
Export (% of GDP)	41.89	36.22	230.27	1.00	28.15	2.68	14.61	2963
Trade (% of GDP)	88.27	77.42	531.74	5.00	54.29	2.93	16.51	2963
Inflation (%)	15.19	5.12	5399.51	-32.81	123.61	32.92	1305.47	2963
Interest (%)	8.82	5.45	203.38	-2.59	12.60	6.39	66.44	2963
EFI (%)	58.95	59.10	90.50	15.00	11.56	-0.28	3.45	2963

*** EFI is Economic Freedom Index, BFI is Business Freedom Index, TFI is Trade Freedom Index, IFI is Investment Freedom Index, and FFI is Financial Freedom Index.

To find out the best model for our panel data, we shall look to consistency and efficiency of GLS estimators through cross-section fixed (FE) and random effects (RE). Both of these models have potential advantages –as well as disadvantages– in their selection. The FE model assumes heterogeneity among all entities by allowing having their own intercept values. However while this intercept differs among entities, it does not change over the time. Therefore FE model generates unbiased estimates of βi, but it may suffer from high variance due to a larger variation between samples (country) to sample. In this case, our model with FE specification becomes as below.

$$FDI_{at} = \beta_0 + \sum_1^{156} \alpha_{ia} D_{ia} + \beta_{1at} EFI_{at} + \sum_2^7 \beta_{jat} M_{jat} + \varepsilon_{at} \quad (2)$$

Where Da is a dummy variable which equates 1 for the country "a", and zero for others in the sample. We also could include a fixed effect for period by considering a dummy variable for years as "Dt" only in case when the period is different for countries in the sample.

On the other hand, the RE model heals the high variance problem by generating estimates closer, on average, to the true value of any particular country as below.

$$FDI_{at} = \beta_{0a} + \beta_{1at} EFI_{at} + \sum_2^7 \beta_{jat} M_{jat} + \varepsilon_{at} \quad (3)$$

$$\beta_{0a} = \beta_0 + \omega_a \qquad \text{Where } \omega_a \sim N(0, \sigma^2)$$

When the β_{0a} is plugged into first equation model, it becomes as below.

$$FDI_{at} = \beta_0 + \beta_{1at} EFI_{at} + \sum_2^7 \beta_{jat} M_{jat} + \omega_a + \varepsilon_{at} \quad (4)$$

$$FDI_{at} = \beta_0 + \beta_{1at} EFI_{at} + \sum_2^7 \beta_{jat} M_{jat} + u_{at} \quad (5)$$

where $u_{at}=\omega_a+\varepsilon_{at}$

However, due to potential correlation between covariates of explanatory variables and ωa the (β1-7) estimates of RE model are often biased. Unlike FE model, it captures both "within" and "between" deviations, and allows all entities to have a common mean value for intercept. With other words, the dummy variable "Da" -was a part of intercept in the FE- becomes a part of error "εa" in the RE model.

A prior to researcher's preference in trade-off between bias and variance, it is more logic to exhibit the dataset and characteristics of the sample. Besides there are few statistical tests that might be a guideline (table 3) in selection an appropriate model. According to this, initially two tests are employed: the Redundant Fixed Effects (RFE) and Breusch-Pagan Lagrange Multiplier (BP LM) tests to find out whether our panel data contain respectively a fixed effect and a random effect. In special case when both fixed and random effects are observed the Hausman test is recommended which is modelled as below.

$$H = (\beta_i - \beta_0)'(\mathrm{Var}(\beta_i) - \mathrm{Var}(\beta_0))^{\rho}(\beta_i - \beta_0) \quad (6)$$

Where ρ is pseudoinverse

The H0 specifies that both β0 (FE estimator) and β1 (RE estimator) are consistent, but β1 is efficient while β0 is not. The alternative hypothesis indicates that only β0 is consistent, and β1 is not. However Bell and Jones[13] (2015) criticize this analysis by stating that it is not a test of FE versus RE, but it is a test of the similarity of within and between effects. They assert that a RE model which accurately specifies the within and between effects will produce identical results to FE, regardless of the result of a Hausman test. They question the validity of FE model by accusing it as "*between effects, other higher-level variables and higher level residuals, none of which can be*

estimated with FE, should not be dismissed lightly; they are often enlightening, especially for meaningful entities such as countries. For these reasons, and the ease with which they can now be fitted in most statistical software packages, RE models are the obvious choice".

Table 2. Fixed- and Random-Effects Model Selection

Redundant Fixed Effect Test	Breusch-Pagan LM Test	Concluded Model
H_0 is not rejected (No fixed effect)	H_0 is not rejected (No random effect)	Data are poolable (Pooled OLS)
H_0 is rejected (Fixed effect)	H_0 is not rejected (No random effect)	Fixed Effect Model (LSDV or GLS)
H_0 is not rejected (No fixed effect)	H_0 is rejected (Random effect)	Random Effect Model (GLS)
H_0 is rejected (Fixed effect)	H_0 is rejected (Random effect)	(1) Both Fixed and Random Effect Models (2) Hausman Test (recommended)

In addition to those theoretical considerations, many researchers (Kinney and Dunson[14], 2007; Park[15], 2009; Bondell et al[16]., 2011; Clark and Linzer[17], 2014; Bell and Jones[18], 2015) suggest to account practical and technical grounds in decision stage. They recommend evaluating the sample characteristics and objectives in trade-off between fixed and random-effects model selection. They argue that fixed-effects model makes sense under these 2 conditions. The first, if all entities (groups) in the sample are functionally identical. Second, if the goal is to assess common effect magnitude only for sampled entities, but not to generalize it to other entities.

On this basis, we assume that the model which would represent our panel data is more likely to be RE, as countries (entities) in the sample are not functionally identical, and this empirical study aims to generalize the findings to other entities. Moreover RE is more attractive in the panel analysis of a sample with large number of entities but short time periods.

4. Findings, Analysis and Discussion

Lest a unit root problem, we shall check for stationarity of our input variables under Augmented Dickey-Fuller (ADF) test with regression equation as below.

$$\Delta Ln(z_t) = \alpha + \delta T + \rho Ln(z_{t-1}) + \sum_{i=1}^{k} \beta_i \Delta Ln(z_{t-i}) + e_t \qquad (7)$$

where $\Delta Ln(zt)$ is the first difference of variable; α is intercept; T is trend; k is lag length; $\Delta Ln(zt\text{-}1)$ is lag differences, et is White Noise residual term. The ADF hypothesizes the ρ whether it is zero or not. In case ρ is not zero, then it implies that the variable has unit root problem.

The table 3 below presents output of ADF analysis, where all variables appear stationary at level. Equally, the Durbin-Watson values imply that there is no any autocorrelation problem as they are close to 2.

Table 3. Output of ADF Analysis

Variables	Level + Intercept		
	ADF	Lag	DW
FDI	-54.09***	0	2.00
Growth	-24.41***	3	2.00
Imports	-24.13***	4	1.99
Exports	-52.03***	0	2.00
Trade	-24.77***	4	1.99
Inflation Rate	-54.32***	0	2.00
Interest Rate	-19.09***	4	1.99
EFI	-23.80***	4	1.98

***** The lag in the table is obtained with Akaika Information Criterion (AIC) with maximum lag length 4.

***** DW presents Durbin-Watson value of analysis.

4.1. Selection of an Appropriate Model

The table 5 presents the results of RFE, BP LM, and Hausman tests which are applied to specify an appropriate model for our panel data. In EFI model, where dependent variable FDI is regressed with independent control variables and EFI, RFE test rejects the null hypothesis which makes the pooled model inappropriate, but the FE model. On the other hand, the BP LM test indicates that the RE model is also appropriate. Indeed, this is a special case where either FE and RE models can be used, or the Hausman test can be utilized to choice one of these two models.

Table 4. Model Selection

	Redundant Fixed Effect Test	*Breusch-Pagan LM Test*	*Hausman Test*	*Decision*
EFI Model	15.3125 (0.0000)	158.4657 (0.0000)	65.7354 (0.0000)	FE model is appropriate.

***** In EFI Model the dependent FDI is regressed with control variables (growth, import, export, trade, inflation, and interest rate) and Economic Freedom Index.
* Null hypothesis of Redundant Fixed Effect Test is no unobserved heterogeneity (no fixed effect) in the model, so pooled model should be used.
* Null hypothesis for Breusch-Pagan LM Test is no random effect in the model.
* Null hypothesis for Hausman Test is random effect model is unbiased.
* The Redundant Fixed Effect and Breusch-Pagan LM tests show T statistics, whereas the Hausman tests shows Chi-square statistics alongside with probability values in parentheses.

In the decision-making stage, the Hausman test reveals that estimators of RE model are biased. The analysis suggests the FE as an appropriate model for our data. Nonetheless we decide to utilize both models as our sample characteristics make the RE more attractive -countries (entities) in the sample are not functionally identical; purpose of the study is generalizing the findings to other entities too; and large number of entities (156) alongside with short time period (19)- than the FE.

4.2. Main Results

The table 6 presents the main results of this study, where findings reveal that EFI has positive and significant impact on FDI under both FE and RE models. The magnitude of this impact considerably changes between two FE models which are estimated with GLS and LSDV methods. However the change is relatively smaller between FE (GLS) and RE.

We wish to clarify some issues before proceeding to our analysis of results. Although this study is similar to many investigations that aim to determine the factors that influence FDI inflows or better say the determinants of foreign direct investment, the main emphasis of the research is on the influence or impact of economic freedom on foreign investments flows. Economic freedom as shows by many empirical studies Pearson et al. (2012), Bengoa and Sanchez-Robles (2003), Asiedu (2006) is one of the determinants of foreign direct investment inflows. Therefore this investigation aims at measuring the power of economic freedom on FDI inflows at continent or regional level and more especially for often neglected and conflict regions.

Table 5. Main Results

	FE (GLS)	**FE (LSDV)**	**RE**	**Pooled**
C	-3.4366***	-9.2425***	-6.1377***	-5.2757***
Growth	0.0312***	0.0061	0.0665**	0.1173***
Import	0.0574***	0.1465**	0.1282**	0.1215**
Export	-0.1070***	-0.1942***	-0.1167*	-0.0575
Trade	0.0713***	0.1175*	0.0691	0.0389
Inflation Rate	-0.0009	0.0002	0.0014	0.0022
Interest Rate	-0.0139***	-0.0239	-0.0213	-0.0178
EFI	0.0593***	0.0835***	0.0575***	0.0469***
R-squared	0.6179	0.3059	0.1462	0.1908
F-Prob.	0.0000	0.0000	0.0000	0.0000
Durbin-Watson	1.1685	1.8783	1.7694	1.6541

*: Significant at 10% level, **: Significant at 5% level, ***: Significant at 1% level.
***** GLS: Generalized Least Squares (with weights) * LSDV: Least Squares with Dummy Variables

More specifically, the R2 of FE (GLS) model implies that 61.79% of variation in FDI is accounted by EFI and control variables. Meantime all variables, except inflation rate, appear statistically significant at 1% level. The positive magnitudes of estimates of GDP growth, Imports, Trade, and EFI respectively as 3.12%, 5.74%, 7.13%, and 5.93%, reveal that these variables have positive impact on FDI. Particularly, the role of control variables is blatant. A unit increase in imports creates 5.74% increase in FDI, whereas a unit increase in exports shrinks FDI by 10.70%. The roles of inflation and interest rates also make sense as their unit increase diminishes FDI by 0.09% and 1.39% respectively. But the estimate of inflation rate fails to be statistically significant in this model.

In the FE (LSDV) model R2 drops to 30.59%, whereas the coefficient of EFI has increased to 0.0835 while it preserves its significance at 1% level. Equally, intercept, imports, exports, and trade preserve their significances while their magnitudes are increased. Only growth and interest rate variables' significance statuses have changed in this model.

However, the R2 values in the RE and pooled models have got even worse as they drop to 14.62% and 19.08% respectively. The estimates of EFI in RE model (0.0575) is quite similar to FE (GLS) one (0.0593), where a unit increase in EFI augments the FDI by 5.75%. Here, growth becomes significant while trade and interest rate lose their significance. On the other hand, there is no remarkable difference between RE and pooled models, except considerable changes in magnitudes of growth (from 0.0665 to 0.1173) and exports (from -0.1167 to -0.0575). Meantime the export becomes insignificant in the pooled model.

To conclude, we heavy rely on estimates of FE (GLS) as earlier applied model selection tests points out that both FE and RE are consistent, but Hausman test indicates that estimates of RE is baised. Therefore, we consider both FE models GLS (0.0593) and LSDV (0.0835), but the GLS appears more appropriate one which accounts much greater variations of FDI.

4.3. Regional Results

The regional analysis helps us to compare the nine (9) regions included in this study. It gives us not only an overview of the impact of economic freedom on FDI inflows but also goes beyond by providing a comprehensive comparison of these regions. The table 7 presents regional results of our panel study analysis where pooled, FE, and RE models are used on the basis of aftermath of RFE and Hausman tests. In case of Europe the pooled model appears more appropriate according to the RFE test result. Here, the 12.97% of variation in FDI is accounted by control variables and EFI, where the EFI gets coefficient of 0.1703 that is significant at 1% level. It indicates that a unit increase in EFI augments the FDI by 0.1703. Indeed this is the highest magnitude of EFI among all studied regions. Meantime, import and export variables also get positive estimates which are significant at 5% level. These two variables have unit relationship with FDI. On the other hand, growth and inflation rate fails to be significant surprisingly. Moreover interest rate is inversely related with FDI as a conjecture; however the trade variable appears ambiguous as the model records negative relationship between trade and FD.

It is arguably revealed that economic freedom has positive and significant impact in all nine regions and more this result remains unchanged for the entire model. The European region records the highest impact of economic freedom on FDI inflows as a 1% increase in economic freedom, positively change FDI inflows by 17% and approximately 11%,6%,9%,7%,3%,4%,13% and 9% in Asia, Africa, North America, Latin America, Oceania, fragile regions, Sub-Saharan ,Post soviet union countries respectively.

Secondly, the RFE and Hausman tests suggest the FE model for Asian case where 67.31% of FDI is explained by input variables. Here, EFI generates a coefficient of 0.1184 at 1% significance level, as well as growth and inflation rate variables become significant. The negative impact of inflation and interest rates on FDI make sense as foreign investors wish these two variables to be lesser and stable to initiating or continuing their investment activities in that country. Moreover the analysis reveals that GDP growth has a significant (0.2031) on FDI, which is also desirable for foreign investors.

Likewise, in case of Africa, the significant positive impacts of GDP growth, Trade, and EFI on FDI are recorded, whereas export and interest rate variables generate negative coefficients. But the impact magnitude of EFI is relatively lesser than EU and AS cases. Here a unit increase in EFI enlarges FDI by 0.0646 units, and all together independent variables account 50.67% variation of FDI. On the other hand, FDI is highly sensitive to the trade activities in African regions; therefore the model derives a significant and positive coefficient (0.2383) for trade. On the contrary, exports create a negative impact on FDI with coefficient of -0.3305. The reason of this remarkable impact might be associated with inflow and outflow activities, as well as instable and weak political and institutional status of most exporter countries in this region, thus it repels the international investors.

Unsurprisingly, RFE and Hausman tests point out that RE model is appropriate one both in cases of North and South America as these contiguous regions have more similarities in their economic culture. However estimates have quite different magnitudes as well as significances. While in NA model the growth, import, and EFI generate significant positive impact on FDI, in LA model growth becomes insignificant preserving import and EFI, but instead export variable becomes significant. In a word, this finding indicates that NA countries can easily attract foreign investments depending on their GDP growth rate, while this is not case for LA countries. Instead, LA countries attract foreign investment with their export activities. Ambiguously the trade generates a negative coefficient in LA model which was case for EU model as well. On the other hand, results of inflation and interest rates in the NA model are in line with expectations. Any amplification effects in both will deter foreign investments. More importantly openness of economy (EFI) has more value on the basis of FDI in NA than in LA. Lastly, all together the control variables and EFI account 48.07% of FDI in NA and 13.80% in LA.

Table 6. Regional Results

	EU	**AS**	**AF**	**NA**	**LA**	**OC**	**FC**	**SS**	**PS**
C	-15.5029***	-9.9336***	-3.8066***	-6.2759***	-3.4014**	-6.2316***	-3.4800***	-4.5764*	-6.0317***
Growth	0.1227	0.2031***	0.0246*	0.1604***	0.0362	0.1607***	0.0331***	0.3209***	0.1251***
Import	1.0049**	-0.1740	-0.0572	0.1513***	0.3166***	0.0102	0.0402***	0.0801	0.3664**
Export	0.9926**	-0.4235	-0.3305***	-0.0219	0.1271*	-0.1231***	-0.0650**	-0.4661***	0.1363
Trade	-0.8900*	0.3767	0.2383***	-0.0120	-0.1962**	0.1583***	0.0591***	0.1707**	-0.2032
Inflation Rate	0.0117	-0.1184***	-0.0009	-0.0949*	-0.0068	-0.0451*	-0.0009	-0.0948***	-0.0016
Interest Rate	-0.1011*	-0.0979**	-0.0203**	-0.1999***	-0.0061	0.0442*	-0.0061	-0.0027	-0.0022
EFI	0.1703***	0.1184***	0.0646***	0.0929***	0.0792***	0.0360*	0.0458***	0.1399***	0.0975***
RFE Prob.	0.4374	0.0000	0.0000	0.0008	0.0000	0.0000	0.0000	0.0000	0.0000
Hausman Prob.	0.1161	0.0182	0.0000	0.7715	0.1187	0.0000	0.0000	0.0000	0.0000
Model Decision	Pooled	FE	FE	RE	RE	FE	FE	FE	FE
R-squared	0.1297	0.6731	0.5067	0.4807	0.1380	0.7852	0.4836	0.6835	0.5354
F-Prob.	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

***: Significant at 10% level, **: Significant at 5% level, ***: Significant at 1% level.**

***** RFE Prob: Probability value of Redundant Fixed-Effects Test where H_0: Pooled model is appropriate and H_1: FE model is appropriate

* Hausman Prob: Probability value of Hausman Test where H_0: RE model is appropriate and H_1: FE model is appropriate

* EU: Europe; AS: Asia; AF: Africa; NA: North America; LA: Latin America; OC: Oceania; FC: Fragile-Conflict States; SS: Sub-Saharan countries; PS: Post-Soviet countries

Unquestionably the most interesting parts of this study are the cases of Oceanian, Fragile-Conflict, Sub-Saharan, and Post-Soviet states. To our knowledge these regions are either never or rarely analyzed. Therefore with this study we fill this room. The aftermath of analysis shows that in all these cases the EFI generates positive and significant coefficients. This significance is relatively lesser in case of OC than others. Meantime, coefficients indicate that in this region the impact of EFI on FDI is the weakest one with 0.0360. It might be due to less attractiveness of Oceanian countries. More interestingly, Fragile-Conflict states follow it with the second weakest impact with estimates of 0.0458.On the contrary, the SS and PS regions generate considerable high coefficient of EFI showing that the EFI plays important role in attracting foreign investments to these regions. But the role of control variable is not neglectable. Especially, GDP growth appears as locomotive of FDI as it generates significant coefficients of 0.16.07 in OC, 0.3209 in SS, and 0.1251 in PS. As well as, the role of trade in OC and SS is also remarkable. It

implies that a unit increase in trade triggers a raise in FDI by 0.1583 units in OC, 0.0591 units in FC, and 0.1707 units in SS zone.

Puzzlingly, the analysis shows that export variable has negative impact on FDI in regions of OC, FC, and SS, which was the case for NA as well. As conjecture, it should be positively correlated as in case of EU. Because

FDI and exports, as vicious circle, feed each other. But here, we believe that it is more related with limitation of human and institutional rights which are motivated by weak political status in these regions. Especially export activities are mainly depend on natural resources and held by state owned firms. Indeed this itself demonstrates how the economic activities are monopolized by government. Therefore, we believe that the magnitude of exports actually indicates the limitations of institutional rights in that region.

To summarize all cases, the study perfectly demonstrates remarkable impact of EFI on FDI as in all cases it generates positive estimates at 1% significance level, except OC which is significant at 10% level. More interestingly the sensitivity of FDI on EFI is relatively less in OC and FC states, and high in EU, SS, and AS regions.

5. Conclusion

The study investigates the impact of economic freedom on FDI inflows globally taking into account often neglected regions such as Sub-Saharan, Post-Soviet, and Conflict-Affected countries in a panel data analysis. The global analysis shows that FDI is largely affected by domestic and external (import and export) trades, as well as economic freedom level of the countries in fixed-effects model. Although random-effects model generates quite similar results, the Hausman test implies that they are baised.

On the regional basis, the analysis derives significant coefficients for economic freedom variable, but indifferent in magnitudes. In European sample EFI obtains the largest magnitude of economic freedom with pooled model where a unit increase in EFI augments FDI by 0.17. The Sub-Saharan sample follows it with 0.14 impact estimation, which is generated under fixed-effects model, implying crucial importance of EFI in the region. Indeed EFI alongside with control variables account 68.35% variation in FDI which is just 13% in European sample.

The third largest EFI impact is obtained by Asian sample where a unit increase amplifies FDI by roughly 0.12 under fixed-effects model, and accounts 67.31% of variation in FDI. Equally, Post-Soviet states as one of often neglected regions records the fourth largest EFI impact with 0.0975 followed by North American region with 0.0929 under fixed- and random-effects models respectively. Interestingly inflation and interest rates as well as domestic trade and export appear insignificant for Post-Soviet states as they are restrictive and closed economies. They mainly attract FDI with import and economic growth. However, the North American region besides Asian countries appears as the top two well-established markets as they are keenly sensitive to almost all control variables. Particularly, the relationship of inflation and interest rates with FDI obvious that one with basic economy knowledge would know that they are strict inverse related with FDI. Unfortunately, this conjecture is satisfied only by Asian and North American samples.

On the other hand, Latin American and African samples generate EFI coefficients of 0.079 and 0.065 with random- and fixed-effects models respectively. However explanatory power of Latin American sample is barely 13.8% which was the same case for European sample. Indeed this implies that the main motivators of FDI are omitted in the Latin American and European models. Therefore, for further research one should consider variables such as political stability, corruption level of the country, institutional rights, financial market and employment regulations, as well as the country's credit rates, in order to account more than 80-90% of variations in FDI.

Lastly, the Oceanian and Fragile-Conflict affected states generate the lowest but significant EFI coefficients of 0.036 and 0.046 respectively both with fixed-effects model. The low level of impact might be due to their regional

biases. They regions generally have the lowest level of democracy and institutional rights, but the highest level of political and financial uncertainty. Moreover the R-square of Oceanian sample appears as the highest one (78.52%), which implies, unlike to other regions, FDI inflows are primarily determined by EFI and control variables, and less significant to aforementioned omitted variables.

To conclude, to our knowledge, Oceanian and Post-Soviet countries alongside with Fragile-Conflict affected states have never been subjected to such analysis as estimating impact economic freedom on FDI before. Therefore, this study brings a noteworthy contribution to the current literature.

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