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An Examination of Economic Liberalization Impact on Foreign Direct Investment in Selected Developing Countries

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Abstract— **According to literature, Economic liberalization is an important factor affecting foreign direct investment. Experience of developing countries resorting to liberalization policies also indicates that they absorb considerable foreign direct investment. Purpose of this paper is to examine the hypothesis which is "economic liberalization has a positive effect on foreign direct investment" as well as other major factors determining it. For this, we have pooled data for the developing countries during time period 1995-2004. The obtained results indicate that economic liberalization has a positive and significant effect on the foreign direct investment, while inflation has a negative and significant effect and both of them seem to be robust. Based the results obtained, if developing countries attempt to attract foreign direct investment, it should be more efficient to focus on economic liberalization and develop their infrastructure rather than just reducing wage. Also, regarding negative and significant effect of inflation on foreign direct investment, these countries should provide a stable environment to facilitate inflow of foreign direct investment.**

Keywords- Foreign Direct Investment, Economic Liberalization, Inflation, Infrastructures, Panel Model.

I. INTRODUCTION

Economic growth and development is one of most important goals of macroeconomic, and for reaching this goal, capital is always considered as the driver in all growth theories. Many of economists believe that most important obstacle in developing countries is capital shortage which in turn initiates from vicious circle of poverty. Specifically, in many countries, people suffer from chronic poverty, a lack of sufficient education, not having necessary specialization for production, and for these reasons, productivity of these countries is low which causes a low income, saving and investment, and little capital accumulation. This inability of capital accumulation is not compensated via constraining consumption because consumption itself is low due to insufficiency of income and saving. Then, the vicious circular repeats itself in these countries.

A special situation is observed for using foreign financial resources during last decades in developing countries. Specifically, their share of foreign direct investment (FDI) inflows in total FDI has increased from about 28.9 percent in 1970 to approximately 42.9 percent in 2009 [1]. In this line, countries with more preparations for FDI are more successful in absorbing it. Thus, economic liberalization is one of the approaches that the countries have used for absorbing FDI. Also, capital liberalization, existence of capital excess and its mobility in rich countries, decreasing of restriction on foreign investment in host countries, world growth and privatization policies in many countries as well as debt crisis, have increased world FDI from about 13 billion dollars in 1970 to approximately 1114 billion dollars in 2009 [1].

Present paper has examined the hypothesis which is "economic liberalization has a positive effect on FDI". It is noteworthy that there are few studies on the effect of economic liberalization on FDI. For example, Reference [2] has used a sample of Italian firms which have made investments in seven Central and East European countries. Based on this study the choice of FDI location is positively influenced by the extent of trade, financial and (weakly) market liberalization, and negatively related to the openness to foreign banks. Reference [3] has considered FDI determinants in parts of china. This study indicates that market size, labor productivity, economic openness and reforms have a positive and significant effect on FDI. On the other hand, effects of infrastructures and labor cost are not significant but with expected sign. Reference [4] has examined an impact of trade liberalization and exchange rate on FDI in MENA region. Based on this study, economic liberalization has always had a considerable effect on the FDI. Furthermore, other determinants including labor, infrastructures, political and economical stability have a considerable and positive effect on the FDI. Reference [5] have examined long run relation between FDI supply and macroeconomic variables such as GDP, inflation rate, exchange rate, interest rate, wage index and trade barriers' level in Spain. The research has concluded that GDP has related directly to FDI supply, and the other mentioned variables have related indirectly to FDI supply.

This paper is organized as follows: after introduction at part one, part two is devoted to literature review. At part three, model estimation and data analysis are presented. Conclusions are rendered at part four. References are given finally.

II. LITERATURE REVIEW

Factors influencing on FDI are extracted from both theoretical and empirical studies, as follows.

A. Determinants of FDI : Theoretical Studies

Theories about foreign investment existence or why countries are absorbing foreign investment, are mainly organized in two major categories. Theories of the first category concentrate especially on perfect competition and mainly assume nonexistence of any market failure so that the firms are not able to increase their market power via generating monopoly networks. These theories are explained within the framework of two theories namely differential rate of return theory and portfolio diversification theory. In former theory, FDI is a result of flowing capital from the country with low capital return to the country having high capital return. Then, firms which are assessing and deciding to invest equate marginal expected return to marginal cost of capital. Anyway, empirical studies have provided no robustness witness for above theory.

In the other hand, each firm is able to decrease its risk by investing in more than one country. If so, FDI is a way to diversify international assets. Also, the optimal portfolio of a rational investor is likely to carry both home and foreign securities. Based on this theory, the firms usually consider expected rate of return and risk in choosing existing projects. In spite of providing a little experimental support, this theory is more powerful than the former because it considers risk factor in moving capital.

Reference [6] has presented the first possible analysis about role of market structure and firm characteristics in determining FDI, namely *ownership advantages*. Hymers relates existence of multinational firms to market failures including structural failures and transaction costs. In the frame of first failure, factors including economies of scale, knowledge advantages, distribution network, product diversification and credit advantages create a firm's market power. With transaction costs, the firm finds substitution of domestic market with foreign market profitable. Industrial organization theory of foreign investment emphasizes on market imperfections. Based on this theory, foreign firm competing with domestic firms confronts disadvantages such as distant operating, different culture and language, different rules and technical standards and various preferences and in this situation, the foreigner will invest in domestic market only on the condition that it possesses or can create some advantages.

Locational advantages explain the factors determining the location of production outside its home country [7]. This theory explains FDI based on either nearness to the final market or low factor cost. However, this theory does not explain why a firm has to establish its presence abroad rather than license out its technology.

Based on *Internalization theory* [8] (Rugman 1986), FDI takes place as multinationals replace external markets with more efficient internal ones.

The most conclusive theoretical justification of FDI is provided by Dunning's OLI (Ownership, Location and Internalization) framework [9]. Following OLI, three basic conditions need to be satisfied for FDI. First, firms should possess distinct ownership advantages enabling them to compete efficiently with local counterparts. Second, host countries must possess locational advantages, which encourage foreign firms to serve local markets directly, rather than through exports. And finally, firms must have enough incentives for serving foreign markets through 'internal' networks, rather than through market-based arm's-length arrangements.

Dunning has used this approach for reasoning about distinct industrial structures of the five developed countries and assessing importance of local and ownership factors.
Reference [10] views FDI as a currency-area phenomenon. As much as currency of the country is more powerful, engaging in FDI will be more possible for firms of this country and it will be less possible for foreign firms to invest in the country. In the framework of this theory, countries with powerful money are becoming home and those with a weak base of money are becoming host countries.

Based on product life cycle theory, [11], products follow life cycle pattern. Specifically, the product is first exhibited as a new invention and innovation and finally is standardized. As the product reaches its maturity, because of fearing to lose market share and keeping rent from product development, firms react by investing abroad.

Presenting oligopolistic reaction theory, Reference [12] argues that in oligopolistic environment, investing abroad by a firm causes other firms to react in similar way to keep their market share constant. Thus, based on this theory, defensive investment is done by multinational enterprises in order to keep their share from domestic market.

B. Determinants of FDI : Empirical Studies

In addition to above mentioned theories, there are other theoretical and empirical reasons why firms may invest abroad.

An important factor that may have an impact on FDI is *economic liberalization*. Economic liberalization involves some measurements especially financial and trade liberalization, foreign exchange liberalization and privatization. During economic liberalization, the country liberalizes financial sector in order to utilize domestic saving, and proceeds to absorb foreign resources especially FDI. By loosing restriction on foreign capital inflows, financial liberalization may increase FDI [2]. Also, trade liberalization reduces multinational enterprises' product costs especially due to tariff barriers removal. Then, the firm's finished cost decreases and its activity becomes profitable finally. Off course, tariff has two different effects. If the strategy of host country is an import substitution, FDI will be a way of jumping over tariff wall. In contrast, if the strategy of this country is to develop export, FDI will be decreased by increasing tariff. Also, trade liberalization may increase FDI through technology and knowledge spill over to host country. Furthermore, trade liberalization expands market and then increases FDI inflows to host country [13].

Other important dimension of economic liberalization is related to exchange rate flexibility. Exchange rate is an important factor of profitability and efficiency of firms especially which involve foreign exchange market. Also, exchange rate influences transferred profit of foreign firm.

Net effect of this variable on FDI depends on share of inputs which are imported and share of products which are exported. Furthermore, reference [14] argues that exchange rate affects FDI in the case of capital market imperfections. In addition, reference [15] believes that exchange rate affects profits of FDI by influencing buying of the asset which is evaluated by domestic currency. Based on these theories, depreciation of host country's currency may increase domestic asset of foreign firms and raise FDI.

Privatization as other dimension of economic liberalization highlights market role against government role. It brings about competitiveness enhancement, raising partnership of all factors, making public institutions efficient and optimizing resources as well as decreasing economic role of the government. Then it creates a suitable ground for all agents including foreign investors, and therefore FDI increases in the country that runs the privatization plan. Also, privatization may be considered an important signal to all investors based upon the government is serious on opening economy, reducing its intervention, improving infrastructure and the investment climate. Experience of developing nations resorting to economic liberalization policies also indicates that they absorb considerable FDI. Also, several empirical studies indicate positive effect of privatization on FDI [2].

Studies indicate that another major factor for explaining FDI flows is *market size* and *growth rate* of host country [7]. Market size is an important factor for absorbing FDI, especially when the market size permits economies of scale for the investment which is a substitution for import. Also, when foreign investor searches market, market size and its growth is a determinant factor for locating investment. In all, greater market size, a larger number of the firms will exist and the firms will be able to capture more economies of scale and diversification.

Inflation is one more determinant factor that decreases competitiveness and then may reduce foreign investment. Furthermore, inflation rate is among indices indicating economic stability of a country and it is expected that its increase has a negative effect on FDI flows in to the country. High inflation rate indicates economic crisis, government inability or unwillingness for conducting stable economic policy.

Stable economical and *political environment* is an essential factor for absorbing FDI. The investor fears an economic outcome of investment via broad and unexpected changes even in the legal form. In this condition, the investors prefer to avoid foreign investment and to act locally. In other words, by increasing political risk, the firms are situated in a "waiting and seeing" position and which stops them from investing until they reach better economic conditions [16].

Another factor that has an effect on FDI is *labor cost.* Foreign investment is often absorbed by locations having suitable combination of local advantages [17]. In this line, access to low cost labor of host country can be an incentive for the foreigner to invest abroad. For instance, References [18] and [19] found that higher real average wages has a negative impact on FDI flows. Anyway, with respect to globalization, technological development, competitiveness pressures due to trade liberalization and complexities of production stages, having unskilled labor with lower return are not of any advantage, and it is important to give more attention to training labor power and their enhancing skill especially in manufacturing sector for absorbing FDI [20].

Infrastructures such as roads, ports and information systems are among effective factors for absorbing foreign investment. Powerful communicating networks which give updated and detailed information about labor, infrastructures and preferences to investors, enhance FDI inflows and facilitate decision making process for foreign investor. Some recent studies such as [2] and [19] have used this factor as one of FDI determinants.

III. MODEL ESTIMATION AND DATA ANALYSIS

In order to test empirically the impact of economic liberalization on FDI, we have pursued a panel data analysis. The sample we've considered is made up of a representative group of developing countries[1] and the temporal horizon is 1995-2005. Data sources are described in table (1). Most of these are standardized in the literature (e.g. [21]). Method of measuring FDI determinants in present research is also presented in this table.

Before anything further, it is suitable to consider FDI inflows' trend for selected developing countries and comparing it with economic liberalization situation of these countries. Table (2) presents FDI inflows and Heritage indices of selected developing countries during time period 1995-2005. Based on this table, FDI inflow has increased for most countries during the time mentioned. Considering economic liberalization indices of these countries, economic freedom wave is obvious among considered countries during time period 1995-2005. Thus, it seems that FDI inflow and economic freedom are in general becoming harmonious.

As stated above, economic liberalization stimulates FDI through reducing obstacles to inflow FDI in one hand and motivating foreign investment via increasing profit on the other hand. Accordingly, we have regressed inflows of FDI on a set of variables that could be conceivably related with the capacity of a particular nation to attract (or discourage) the entrance of foreign investment, one of them being the index of economic freedom. More in particular, we have explored the impact of economic freedom on FDI by means of estimating a panel over the years 1995-2005.

The underlying specification is a model of the form:[2]

$$FDI_{i,t} = \alpha_0 + \alpha_1 X_{i,t} + U_{i,t} \quad (1)$$

$$U_{i,t} = \mu_i + \lambda_t + V_{it} \quad (2)$$

Where $FDI_{i,t}$ represents the inflows accruing for the country i in year t, $X_{i,t}$ is a set of proxies of the determinants of FDI (market size, economic liberalization,

[1] The countries that encompass in sample are Brazil, Mexico, China, India, Egypt, Singapore, Malaysia, Thailand, Turkey and Iran.

[2] For more details see [22].

inflation, wage and infrastructures) detailed above, i indexes the countries in year t. Also, composite error term ($U_{i,t}$) consists of three components, μ_i which is cross section or individual-specific error component, λ_t which is time series error component and V_{it}, which is the combined time series and cross section component error.

One practical issue when carrying out panel analysis is to decide whether the panel estimation should be performed with fixed effects (FE) or random effects (RE). To make the appropriate choice we have employed the Hausman test [23]. As it is well known, Hausman proposes a test based on the hypothesis:

$$Cov(\mu_i, X_{it}) = 0 \quad (3)$$

Under the null hypothesis of zero covariance, the test is distributed as a χ_k^2 where k is the number of regressors. Comparison of the correspondent values of this test with the critical values of the χ_k^2 suggests that the null hypothesis of no correlation should be rejected at the 99% significance level for all regressions in Table (3). Therefore, appropriate procedure in these cases is the fixed effects' estimation.[3]

It is noteworthy that, comparison of the outcomes of both FE and RE estimations is a natural test of the robustness of the results. We can address the issue of sensitivity by means of the comparison of the results when estimating with fixed versus random effects. According to [23], if the model has been correctly specified and the null hypothesis of no correlation cannot be rejected, coefficients estimated by random effects should not differ much from those estimated by fixed effects.

Table (3) presents estimating results of FDI determinants in selected developing countries by panel model with fixed and random effects during 1995-2004. According to this table, estimated equation has overall significance at 1 percent level based on F statistic. In addition, determination coefficient of the regression is estimated 0.32. Also, Chow's F verifies a panel technique. Furthermore, we have used Fixed Effect (FE) method based on Husman test. Specifically, the Hausman test suggests that we can reject the null hypothesis of zero covariance between the regressors and the μ_i component of the error term at the significance of 99% level.

Based on table (3), coefficient of economic liberalization is significant at 1 percent level and has the expected sign. This result is expectable since economic liberalization is accompanied with policy sets such as tariff removal, privatization and exchange rate policies which have generally a positive effect on FDI. Based on this result, the hypothesis of present research is verified. In other words, economic liberalization has a significant and positive effect on FDI.

[3] Panel specific tests are done by using STATA software.

As mentioned above, the Hausman test suggests that we can reject the null hypothesis of zero covariance between the regressors and the μ_i component of the error term at the 99% level of significance. Let's assume though, that the Husman test was not performed correctly and that the null hypothesis of no correlation between the regressors and the μ_i component of the error term could not be rejected. Then, the right method would be estimation of random effects. It is interesting to notice that the index of economic freedom remains positive and significant even under this assumption. In addition, the point estimate in both cases is rather similar. Hence it can be regarded as a *robust* determinant of FDI. The same holds for inflation. Instead, other variables specially market size loose significance in the random effect estimation. In the terminology of [24], their correlation with FDI can be regarded as more *fragile*. Thus, GDP displays different values of the coefficient if random effects are pursued, and in some cases it loses significance. The same happens with the infrastructures. Summing up, the index of economic freedom and inflation seem to be robust, whereas GDP and the infrastructures appear as more fragile.

In sum, Coefficient of inflation variable is significant at 5 percent level and has a negative sign. This is not surprising since inflation reflects economic instability in one hand and increases production costs for foreign investor on the other hand. Furthermore, inflation may increase the risk of long run projects and thus decrease the profit for the foreigner. Coefficient of wage variable has an expected sign but no significance. It seems that the mentioned variables are more important determinants than wage in view of MNEs. Also, low wage labor is not of any advantage especially if it implies low labor productivity. Anyway, this result corresponds with other empirical studies (see [25]). Furthermore, coefficient of market size variable has a negative sign and is significant only at 10 percent level. It's mentionable that coefficient of above variable is almost zero confirming its trivial effect on FDI. Also, this variable is so fragile that the variable loses its significance if random effect is pursued. Furthermore, the result implies that market seeking motives may not be a robust finding in the selected countries.

IV. Conclusions

Capital is a driver of economic growth and development in all theories of growth. Based on this, one of the most important apprehensions is for policy makers to absorb adequate capital for financing projects. Then, absorbing FDI is not avoidable for developing countries because of their saving resource shortage compared with the capital needs. For this, they employ some economic reforms including economic liberalization in order to create suitable ground for FDI inflows.

The purpose of present paper is to examine economic liberalization impact on FDI in selected developing countries. For this, first we summarize some ideas about the potential determinants of FDI when choosing a particular host country. A review of the main hypothesis and the relevant literature suggests that the degree of economic

freedom in the host country could be a crucial determinant of FDI decisions. Next, we use pooled data and panel technique for countries including Brazil, Mexico, China, India, Egypt, Singapore, Malaysia, Thailand, Turkey and Iran during 1995-2005. Results verify the hypothesis of present research. In other words, in case of more liberalizing economy, more FDI is absorbed by the developing countries. This result is not surprising since economic liberalization moves the economy toward market economy and brings about optimum utilization of resources.

Based on other results, inflation has a negative and significant effect on the FDI of the developing countries. This result is expectable regarding that inflation rate is among indices indicating economic stability of a country and its increase has negative effect on FDI flows in to the country. Coefficient of market size is estimated near zero that indicates that it is less important than the main determinant factors such as economic liberalization and infrastructures in absorbing FDI for the considered countries. Also, infrastructures have an important role in absorbing FDI. Specifically, infrastructures such as roads, ports and information systems enhance FDI inflows, as it is expected. Result about wage indicates no significance for its coefficient. It seems that the mentioned variables are more important determinants than wage in view of MNEs.

Results obtained from this study have several policy implications for the future. Specifically, if developing countries are attempting to attract FDI, it would be more efficient to focus on economic liberalization and to develop their infrastructure rather than just reducing wage. Also, regarding negative and significant effect of inflation on FDI, these countries should provide a stable environment to facilitate inflow of foreign direct investment.

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TABLE I. METHOD OF MEASURING FDI DETERMINANTS IN PRESENT RESEARCH

Variable	Proxy	Symbol	Expected sign	Data source
Economic liberalization	Heritage Index	HERITAGE	+	Heritage Foundation
Market size	Gross National Income	GNI	+	WDI CD-Room
Inflation	Inflation rate	INF	_	WDI CD-Room
Wage	Wage rate	WAGE	_	WDI CD-Room

Infrastructures	WDI index	INF	+	WDI CD-Room

TABLE II. FDI INFLOWS AND HERITAGE INDICES OF SELECTED DEVELOPING COUNTRIES DURING TIME PERIOD 1995-2005 (USD MILLIONS)

Country		1995	2000	2005
India	FDI inflow	2144	3584	6598
	Heritage Index	45.1	47.4	54.3
Iran	FDI inflow	17	39	30
	Heritage Index	--	36.1	48.6
Brazil	FDI inflow	4859	32779	15193
	Heritage Index	51.4	61.1	61.7
Thailand	FDI inflow	2068	3366	4527
	Heritage Index	71.3	66.6	63.8
Turkey	FDI inflow	885	982	9805
	Heritage Index	58.4	63.4	51.6
Mexico	FDI inflow	9526	17773	18772
	Heritage Index	63.1	59.3	65.5
Singapore	FDI inflow	11566	16479	20071
	Heritage Index	86.3	87.7	89.7
Malaysia	FDI inflow	4178	3788	3966
	Heritage Index	71.9	66	62.5
China	FDI inflow	35849	38399	79127
	Heritage Index	52	56.4	53.6
Egypt	FDI inflow	598	1235	5376
	Heritage Index	45.7	51.7	56.4

Reference: WDI (2006), Heritage Foundation (2006).

TABLE III. ESTIMATING RESULTS OF FDI DETERMINANTS IN SELECTED DEVELOPING COUNTRIES BY PANEL MODEL WITH FIXED AND RANDOM EFFECTS DURING 1995-2004

Variable	Fixed Effect		Random Effect	
	Coefficient	t-statistic	Coefficient	t-statistic
Constant	-41.65	-2.72	-25.80	-1.43
Economic liberalization	0.82*	2.77	0.61***	1.91
Infrastructures	0.083**	2.16	0.04	1.20
Inflation	-0.19**	2.41	-0.21**	-2.33
Wage	-0.00003	-0.46	-0.00003	-0.41
Market size	-4.16E-12***	-1.82	-1.47E-12	-0.68
F statistic	8.02			
R^2	0.32			
Pooled test (Generalized Chow)	245.27			
Husman test	7.91			
Observations Number	100			

Note: *, ** and *** indicate 1, 5 and 10 percent significance respectively.

Source: present research