

# **The Effect of Entrepreneurship on Foreign Direct Investment in India**

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## **ABSTRACT**

*Entrepreneurship has become an important and extensively researched concept in business studies. Research on foreign direct investment (FDI) has become widespread due to the growth of FDI and its importance in globalization. Most entrepreneurship studies examined the importance and influence of entrepreneurial orientation in a micro-level context. On the other hand, studies and research concerning FDI used statistical techniques to analyze the effect, determinants, and motives of FDI on a macroeconomic level, ignoring empirical studies on other noneconomic determinants. In order to bridge the gap between the theory and empirical evidence on FDI and the theory and research on entrepreneurship, this study examines the impact of entrepreneurship on inward foreign direct investment. The relationship between entrepreneurship and foreign direct investment is investigated through regression analysis of pooled time-series and cross-sectional data. The results suggest that entrepreneurship has a significant effect on FDI.*

**KEYWORDS**—*Entrepreneurship, foreign direct investment, globalization, economic freedom.*

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## **I. INTRODUCTION:**

The forces of globalization in recent years have determined and been determined by great flow of investment, not only between the developed nations but also from developed to underdeveloped nations. The global expansion of transnational corporations (TNCs) has become more widespread following the actions of many governments to remove various barriers. The growing importance of FDI is related to its beneficial impact on both a host-country's economy and a firm's performance and profitability. FDI can have a long-term beneficial impact on a country's development since it is generally directly linked to productive investments. FDI may also assist developing countries through the provision of capital, through the inflow of technology, through the inflow of managerial know-how and marketing skills, and through their impact on the development of efficient markets. In addition to the importance of FDI in economic growth and improvement in the productivity and performance of businesses, there is a worldwide consensus among economists and business leaders that entrepreneurship is a key factor to economic growth. Moreover, entrepreneurship has been promoted as a key factor of a firm's development. It is now accepted that the economic and social vitality of a business environment greatly depends on the overall level of its entrepreneurial capacity and development potential. Given the rapid growth of FDI and the increasing importance of entrepreneurship, it is critical for both the public and private sectors to have a complete understanding of the determinants of FDI and the relationship between entrepreneurship and international investments.

However, research pertaining to FDI and entrepreneurship were usually conducted in two different arenas and hence, there is a lack of empirical studies analyzing the effect of entrepreneurship on foreign direct investment. Most entrepreneurship studies examined the importance and influence of entrepreneurial orientation in a micro-level context. On the other hand, studies and research concerning FDI used statistical techniques to analyze the effect, determinants, and motives of FDI on a macroeconomic level, ignoring empirical studies on other non-economic determinants. With the availability of data on foreign direct investment and techniques to measure entrepreneurship, it becomes imperative to test the effect of entrepreneurship on inward FDI in order to bridge the gap between the theory and empirical evidence on FDI and the theory and research on entrepreneurship. In this vein, this study is intended to, empirically, test for a possible relationship between entrepreneurship and FDI. The first part of this paper is devoted to the literature review on FDI and entrepreneurship. The second part discusses the several factors that provide the rationale for the liaison between entrepreneurship and FDI. Based on the review of the literature, hypotheses are developed. Following the development of hypotheses, the methodology is described and the results are then reported. Finally, after presenting some conclusions and implications, the future direction and limitations of the study will be discussed.

## **II. RESEARCH PURPOSE & OBJECTIVE:**

Due to the growing importance of FDI and after it became well documented that FDI may have beneficial impact on the host-country's economy, governments in emerging and developing markets became eager to attract their fair share of foreign capital. To promote and attract foreign direct investments, host governments started to offer foreign investors considerable tax holidays, special exemptions, subsidies and many other enticements, in the belief that these kinds of incentives will create the appropriate investment environment. Furthermore, most governments have introduced regulatory changes in the direction of creating a more favorable environment for FDI. However, Helleiner shows that investment incentives such as tax holidays play a limited role in inter-country investment decisions. Similarly, new research from the McKinsey Global Institute finds that the commonly used incentives to attract foreign direct investment are largely ineffective, costing governments millions of dollars annually. This is because in many cases governments give away significant tax revenues and subsidies for investments that would have been undertaken anyway.

A survey of 30 executives at companies that invested in India revealed that financial incentives were the least important factor in the investment decision. Most of the executives stated that they would prefer that the government spend money upgrading the local infrastructure rather than providing some financial incentives. For instance, in the same article a Ford executive explained that the top three factors in their decision to build a plant in India were the availability of a supplier base and skilled labor, as well as the quality of infrastructure. Evidence also shows that technology is not being transferred to developing countries through FDI. The lack of knowledge transfer is due to the weakness of the national innovation system, social capabilities, and the absorptive capacities of local enterprises. In fact, research suggests that although most developed nations benefit from the inflow of FDI, many developing nations did not reap the benefits of FDI inflow. Studies show that in some countries foreign direct investment failed to have a clearly positive impact on the local economy, and the alleged benefits from FDI such as the transfer of technology, management know-how and marketing skills were at best weak in these developing economies. Thus, as evidence suggests, it is false to assume that socially and economically depressed areas will transform into fast growing areas by injection of external investment funds and external expertise. Without entrepreneurial capabilities, which are potentially available or well developed, external funds will be wasted on projects that will not provide long-term economic growth. Hence, the purpose of this study is to empirically reveal the importance of entrepreneurship as a determinant of FDI in Central and Eastern European countries (CEE). The research is intended to redirect governments' focus to the foundations of their economy instead of just providing financial incentives, which are not very effective in attracting transnational corporations and in advancing economic growth. Thus, to attract foreign direct investment and to make the most of it, governments must promote entrepreneurship, which generates external economies that benefit existing firms as well as the birth of new ones in the region. The advantages resulting from entrepreneurship development including labor availability, quality infrastructure, variety of supply of other inputs with quality and competitive prices, and formal and informal access to information, and new technologies, will then provide the appropriate enticements to attract FDI. Furthermore, entrepreneurship will create an economic environment better positioned to benefit from FDI, along with the technology and management skills that accompany it. Entrepreneurship is essential to disseminate the impact of foreign investment, for without competitive domestic markets, the entry of foreign players has little effect on inefficient domestic incumbents and their productivity.

### **III. RESEARCH NEED & RATIONALE:**

Based on the some studies, there was a wide range of theories concerning FDI, however in the past there was a lack of empirical studies analyzing the effect of entrepreneurship on foreign direct investment. Not only was there a lack of studies examining the effect of entrepreneurship on FDI, but as stated above, the main stream of literature explaining international investments is rooted in the theory of industrial organization, which looks at FDI as a mean to create an oligopolistic market structure by building significant barriers to entry and by seeking a first mover advantage to exploit previously unexploited markets. In other words, these theories predicted that FDI will flow to countries with less contestable markets and with fewer firms -local or multinationals- serving these markets. Contrary to previous views, this paper intends to show that FDI will flow to competitive markets where local firms are abundant and entrepreneurship flourishes.

There is a lack of integration and cross-fertilization between entrepreneurship studies and international business studies in general. Low and MacMillan analyzed the levels of analysis in published entrepreneurship research and found that entrepreneurship research is dominated by micro-level analysis, predominantly using the firm or the individual as the level of analysis. Westhead and Wright averred that studies are still urgently required to focus upon the relationships between the entrepreneur and the external environment. In summary, international business research cannot afford to ignore the growing power of entrepreneurship, nor can entrepreneurship researchers ignore the internationalization of the marketplace. This provides evidence to the need for this study, which will bridge the gap between international business research and entrepreneurship research.

The rationale behind the relationship between entrepreneurship and FDI is based on several factors including, the importance of entrepreneurship for the competitive advantage of nations, the importance of local firms in joint ventures and other cooperative alliances, and the role of entrepreneurs in the creation of a strong business condition and adequate infrastructure. The first argument is based partly on Porter “diamond”, where the importance of local firms lies in their ability to increase the competition in the local market and pressure companies to innovate and develop new products, thus gaining a competitive advantage over companies operating in non-competitive nations. Therefore, foreign firms will prefer to invest in such economies that have superior industries and dynamic entrepreneurs.

The second argument focuses on the entry mode of TNCs, and the creation of cooperative networks. Most firms enter foreign markets through mergers & acquisition, joint ventures or use other forms of cooperative alliance with local firms. The focus on cooperative alliances explained the importance of these alliances from the TNCs and local firms’ point of view. The growth of cooperative alliances and their importance to FDI strategy provides evidence that TNCs will consider the availability and quality of local supplier, distributors and firms, before investing in a foreign market.

The final argument for a positive relationship between entrepreneurship and FDI is build on the fact that foreign investors require supportive domestic, public, and private policies, and the resulting economic, social, and institutional infrastructure in the host country. In this context, entrepreneurs play a major role in providing these requirements. Entrepreneurs exert pressure on the government, create a need for a regulated banking and economic system, and provide the basis for good systems to be instituted. Thus, the presence of local firms signals to investors that an appropriate infrastructure and good business conditions are present in that specific market.

These arguments provide the building blocks for this research to test for a possible relationship between entrepreneurship and FDI in CEE countries. If empirical evidence supports the relationship between entrepreneurship and inward FDI, entrepreneurship could emerge as a determinant of FDI and be included in further FDI models. The contribution of this study will have several implications on TNCs, local entrepreneurs and local governments. The research will highlight a new determinant that companies engaged in FDI should consider in their assessment and decision making models. Also, this study will reveal the importance of entrepreneurship to countries’ economy, and will provide insight for policy makers, involving their role in generating policies that encourages and supports entrepreneurship.

#### **IV. HYPOTHESES DEVELOPMENT:**

Based on the theoretical contributions and previous empirical findings, and due to the lack of empirical evidence for a possible positive relationship between entrepreneurship and foreign direct investment, the central hypothesis to be tested in this research is that entrepreneurship is a determinant of foreign direct investment to the host country.

Entrepreneurship shapes the local environment by building institutions and attracting resources. Entrepreneurs exert pressure on the government, create a need for a regulated banking and economic system, and provide the basis for good systems to be instituted. In addition, these entrepreneurial firms enhance the competition in the local market and pressure companies to innovate and develop new products. Furthermore, entrepreneurs tend to form social networks where reputation becomes an important mechanism, which limits opportunistic behavior. All these positive externalities provide the needed enticement for foreign investors. Foreign investors require the supportive domestic, public and private policies, and the resulting economic, social, and institutional infrastructure, in the host country. Since entrepreneurs play a major role in providing these requirements, the presence of local firms signals to investors that an appropriate infrastructure and good business conditions are present in that specific market. TNCs managers view the presence of local industries and entrepreneurship as a strategic resource. They will prefer to invest in such economies that have superior industries and dynamic entrepreneurs. Thus, entrepreneurship is going to lead to an increased inflow of foreign direct investment.

**H1.** Foreign direct investment is positively associated with entrepreneurship in the host country. Economic freedom is another factor that is expected to influence the inflow of foreign direct investment.

TNCs usually assess economic freedom before investing in a certain country. In many countries, companies are not free to work and do business the way they want. They cannot import what they need, or own private property. Due to these restrictions, TNCs will avoid investing in countries that are not economically free. They avoid countries whose governments most tightly control their economies. Thus, it is expected that foreign direct investment will flow to countries with higher economic freedom.

**H2.** There is a direct relationship between economic freedom and the flow of foreign direct investment.

For entrepreneurship to grow and prosper, entrepreneurs must be free to work, keep most of what they earn, and trade with whom they want. Businesses must be free to produce the goods and services they want, in quantities they desire, and to market these goods and services at the prices they consider appropriate. Thus, it is supposed

that in the presence of economic freedom, entrepreneurship will have a more powerful effect on FDI inflow. Therefore, the research will test for the interaction effect between entrepreneurship and economic freedom hypothesizing that in the presence of economic freedom, there would be a stronger positive relationship between entrepreneurship and FDI.

**H3.** In a freer economy, there is a higher positive relationship between entrepreneurship and FDI.

#### **A. Control Variables**

While previous literature on FDI had suggested several possible explanatory variables, such as: exchange rate, openness of the economy, growth, location specific advantages, wage rate, natural resources, corruption, tax rates etc., it is not possible to include all variables. A model can never be a completely accurate description of reality. Using the principle of parsimony, the most relevant control variables will only be included in the model, which will seek to explain much by little. They include: market size, economy growthrate, economic and political stability, infrastructure, openness of the economy and corruption.

**1. Market Size** Upon identifying determinants of inward FDI, and based on previous analysis revealing that foreign investors looking towards the CEE region are mainly seeking market access, it is expected that market size will have an effect on inward FDI. Large markets provide a reasonable scope for investment and hence influence market-seeking FDI. Market size is typically proxied using the level of GDP or population and a positive relationship is expected between market size and FDI inflow.

**2. Growth Rate** When talking about market seekers and the size of the market, it is important to include the market size in conjunction with the growth prospects of the host country market. Market growth is an important pull factor and theoretically positively related to the level of FDI flows. Therefore, the model will include growth rate as a control variable.

**3. Interest Rates** Another factor that is very important and affects investments is economic and political instability. The EBRD report revealed that political and economic instability were identified as major obstacles by foreign investors intending to invest in the CEE region. Economic and political instability increases interest rates in host country economy. High interest rates will raise the user cost of capital, and thus, affect the profitability of FDI negatively, so acting as an FDI deterrent. Hence the level of interest rates, used as a proxy to measure political and economic stability, is supposed to be a determinant of FDI in the CEE region. Therefore, a negative relationship is expected to exist between interest rate level, in the host country, and FDI inflow.

**4. Infrastructure** The EBRD research has identified poor physical and institutional infrastructure to be a major FDI obstacle in CEE countries. Foreign firms need an appropriate infrastructure in order to operate in the host country. Also, countries with better institutional infrastructure will provide an incentive for TNCs to better operate, since TNCs will have to cooperate with local firms that provide inputs, information, channel of distribution etc... Therefore, it appears to be important for TNCs to invest in countries where the business condition of other firms and the institutional infrastructure is well developed. Hence, infrastructure condition will be used as another control variable.

**5. Openness of the Economy** One aspect that has received considerable attention is the role the openness of the economy plays in affecting FDI. Open economies encourage more confidence and foreign direct investment. Singh and Jun found that the relative size of the export sector is the strongest explanatory variable for FDI flows. Thus it is important to include the openness of the economy as one of the independent variables, since a direct relationship could exist between the openness of the economy and FDI in CEE region.

**6. Corruption** Last but not least, corruption and bureaucracy cannot be excluded when discussing Central and Eastern European Countries. Corruption and bureaucracy might deter foreign participation in the domestic economy, and hence, there is usually a negative relationship between corruption and FDI.

### **V. RESEARCH METHODOLOGY:**

Estimation of multiple linear regression model, autoregressive model and log-linear model, using cross-sectional and time series data set (called panel or longitudinal data), will be used to test the absolute and relative effect of entrepreneurship on foreign direct investment and the abovementioned hypotheses. The dataset is a yearly panel from 1995 through 2001, which includes 10 source countries, all located in Central and Eastern Europe. These countries, within Central and Eastern Europe, were chosen based on the availability of consistent data. Because the study is using a pooled model, the analysis focuses on attempting to explain variations of FDI flows over time and across countries. The time series portion of the data captures intra-country variation.

As compared with cross-sectional and time series data, panel dataset presents a larger set of observations thereby increasing the number of degrees of freedom as well as reducing co-linearity between the independent variables. With pooled time-series cross-sectional data, the reliability of the estimates of the regression parameters can be greatly increased. Yet, care must be taken in pooling time-series and cross-



sectional data for the purposes of estimation. Inappropriate pooling can introduce an unacceptable degree of aggregation bias. One problem with a pooled model is that countries that are structurally different may be forced to exhibit identical coefficients. But since the data pool in this study is limited to transition economies in CEE and does not cover countries of different developmental characteristics, it is assumed that there will be no significant structural difference, and using a pooled model would be appropriate. The basic assumption of panel data models is that: given the observed explanatory variables the effects of all omitted variables are driven by individual time-invariant, period individual invariant and individual time-varying variables. Variables varying between countries being constant across time may refer to climate, geography, natural resources and so forth. The second type of omitted variables refers to external economic shocks taking place at a specific time and affecting all countries in the sample.

In addition to the independent effect of entrepreneurship on FDI, the interaction effect between entrepreneurship and economic freedom will be examined. While previous literature on FDI had suggested several possible explanatory variables, such as: exchange rate, openness of the economy, growth, location specific advantages, wage rate, natural resources, tax rates ...etc., it is not possible to include all of them. The basic full formulation of the model to be tested is as follows:

FDI = f (Entrepreneurship, Economic Freedom, Market Size, Growth Rate, Stability, Infrastructure, Corruption, Openness of Economy)

The 2 versions of the basic model are the following: A. Log-linear model B. Autoregressive model

Log-Linear Model A:

$$\text{LogY} = \alpha + \alpha_2X_1 + \alpha_3X_2 + \alpha_4X_3 + \alpha_5X_4 + \alpha_6X_5 + \alpha_7X_6 + \alpha_8X_7 + \alpha_9X_8 + U \dots\dots (1)$$

$$\text{LogFDI} = f (\text{logEn-n, EF-n, logGDP, G, Stab, Infr, Corr, Open}) \dots (2)$$

$$\text{LogFDI} = \alpha + \alpha_2\text{logEn-n} + \alpha_3\text{EF-n} + \alpha_4\text{logGDP} + \alpha_5\text{G} + \alpha_6\text{Stab} + \alpha_7\text{Infr} + \alpha_8\text{Corr} + \alpha_9\text{Open} + U \dots\dots\dots (3)$$

where: FDI= Absolute Foreign Direct Investment (measured by FDI inflow) En-n= Entrepreneurship (number of enterprises lagged n years) EF-n= Economic Freedom (n years lagged Economic Freedom Index) GDP= Domestic market size measured by GDP G= Growth rate measured by change in real GDP Stab= Economic and political stability measured by interest lending rate Infr= Infrastructure condition measured by number of telephone lines in use Open= openness of the economy measured by the relative size of export and import Corr= Corruption measured by corruption Index u= Stochastic error term .

For model (A) the study expect to reject the null hypothesis that  $\alpha_2 = 0$  and accept the alternative hypothesis that  $\alpha_2 > 0$ . The same is expected for  $\alpha_4, \alpha_5, \alpha_7, \alpha_9$ . The study expects to reject the null hypothesis  $\alpha_3 = 0$  and accept the alternative hypothesis that  $\alpha_3 < 0$ . The same is expected for  $\alpha_6$  and  $\alpha_8$ .

**Autoregressive Model B:**

$$Y = \alpha + \alpha_1Y_{-1} + \alpha_2X_1 + \alpha_3X_2 + \alpha_4(X_1)(X_2) + \alpha_5X_3 + \alpha_6X_4 + \alpha_7X_5 + \alpha_8X_6 + \alpha_9X_7 + \alpha_{10}X_8 + u \dots\dots\dots (4)$$

$$\text{RFDI} = f (\text{RFDI-1, ENTCAP-n, EF-n, (EF)(ENTCAP), Pop, G, Stab, Infr, Corr, Open}) \dots\dots\dots (5)$$

$$\text{RFDI} = \alpha + \alpha_1\text{RFDI-1} + \alpha_2 \text{ENTCAP -n} + \alpha_3\text{EF-n} + \alpha_4 (\text{EF}) (\text{ENTCAP}) + \alpha_5\text{POP} + \alpha_6\text{G} + \alpha_7\text{Stab} + \alpha_8\text{Infr} + \alpha_9\text{Corr} + \alpha_{10}\text{Open} + u \dots\dots\dots(6)$$

where: RFDI= Relative Foreign Direct Investment (measured by FDI/GDP) RFDI-1= Relative Foreign Direct Investment Lagged by 1 year ENTCAP-n= Entrepreneurship (lagged number of enterprises/capita) EF-n= Economic Freedom (lagged Economic Freedom Index) EF\*En= Interaction effect between Entrepreneurship and Economic freedom in the host country POP= Domestic market size measured by population G= Growth rate measured by change in real GDP Stab= Economic and political stability measured by interest lending rate Infr= Infrastructure condition measured by number of telephone lines in use Open= Openness of the economy measured by the relative size of export and import Corr= Corruption measured by corruption Index u= Stochastic error term .

For model (B) the study expect to reject the null hypothesis that  $\alpha_2=0$  and accept the alternative hypothesis that  $\alpha_2 > 0$ . The same is expected for  $\alpha_4, \alpha_5, \alpha_6, \alpha_8, \alpha_{10}$ . The study expects to reject the null hypothesis  $\alpha_3=0$  and accept the alternative hypothesis that  $\alpha_3 < 0$ . The same is expected for  $\alpha_7$  and  $\alpha_9$ . Given that entrepreneurship

may have little immediate impact upon foreign investment due to delays in the decision processes of large transnational corporations; this impact may, however, manifest itself after a lag of three or four years. Thus, the above models will be tested using various time lags to determine the appropriate time lag between entrepreneurship and FDI. Also, the model will be tested without any lags in order to check the possibility of simultaneous relationship between entrepreneurship and FDI.

In order to test for these hypotheses, data related to both the independent variables and the dependent variable should be collected. Data related to FDI and countries' economic determinants such as GDP, population, GDP growth rate, and interest lending rate would be based on the International Monetary Fund (IMF), international financial statistics handbook, 2003. This handbook publishes yearly economic data for most of the world countries.

To capture the independent variable "economic freedom", the "Index of Economic Freedom" published by the Heritage Foundation and the Wall Street Journal will be used. This index is based on 50 variables such as trade policy, monetary policy, property rights, and fiscal burden of the government and so on. The index ranges between 1 and 5, where one reflects that the country have a great deal of economic freedom and 5 reflects that the country have little economic freedom.

One indicator of openness on the economy is the relative size of the export and import sector. Openness of the economy will therefore be computed by the ratio of import plus export to GDP ( $X+M/GDP$ ). Data on export, import and GDP will be obtained from the 2003 IMF international financial statistics handbook.

Measuring corruption is challenging, as there is no consensus among researchers regarding what should be considered when measuring corruption. In addition, it is difficult to get an objective measure because of the secrecy of corruption dealings. Subjective measures based on questionnaire-based surveys that are conducted by independent organizations, such as Transparency International, Political Risk Services, and World Economic Forum, are alternatives for this problem. However, it is important to note that these surveys measure the perception of corruption rather than corruption per se. To capture corruption in Central and Eastern Europe, this study uses the "Corruption Perception Index" published by Transparency International. This index relates to perceptions of the degree of corruption as seen by businesspeople, risk analyst and the general public and ranges between 10 which corresponds to an uncorrupt environment and 0 which corresponds to a highly corrupt environment. Since its inception in 1995, researchers have used the Corruption Perception Index extensively.

Infrastructure will be captured using number of telephone lines in use as a proxy. These data are published in the European Marketing Data and Statistics, 2003. For many years academics have used the number of telephone lines as a proxy to measure infrastructure. And although the telephone is no longer the major medium for communication, having a telephone line is necessary for using alternative network, such as the internet.

Finally, although there is no consensus on how to measure entrepreneurship on a country level, and even though numerous characteristics were associated with entrepreneurship, this study perceives entrepreneurship as the number of companies established in local economies by local residents. Therefore, entrepreneurship will be captured by the number of private enterprises/capita. Though we have offered a very simple definition, it is always problematical to define the term entrepreneurship. Any attempt at rigid definition will be avoided here, because whatever attributes are selected, they are sure to prove excessively restrictive.

Concerning enterprises data, they could be obtained from the European Observatory for SMEs, which provides a structured and updated overview of European small and medium sized enterprises, in both quantitative and qualitative terms (The European Observatory, 2000). However, time series data of this kind is not available at the European Observatory of SMEs and hence, enterprise statistics will be obtained from the World Bank database, Finance Ministry' of CEE countries, and the EBRD report.

As stated previously, the sample consists of 10 Central and Eastern European countries through the period 1995-2001 (7 years in total). The countries represented are: Estonia, Moldova, Poland, Czech Republic, Slovakia, Romania, Bulgaria, Croatia, Albania and Slovenia.

To test the hypotheses, regression analysis was used, and is considered appropriate since all variables in the model are continuous, and assuming no serial correlation, homoscedasticity, and no multicollinearity.

Two different models are used in this study to analyze the effect of entrepreneurship on inward FDI. The first model (A) is a log-linear regression model, devised to assess the impact on FDI of the differences in entrepreneurship levels. The log form is used in the analysis to render the distributions nearly normal and the error term homoscedastic. To test this model, the OLS approach is appropriate given the use of continuous variables in the study. In this model, the dependent variable is the log of FDI.

Regarding the independent variables, both the GDP variable and entrepreneurship variable were represented using the logarithmic form. This is because the study is interested in finding the percentage change in the regressand (FDI) for a percentage change in the regressors (GDP) and (entrepreneurship). In addition, log transformation helps to ameliorate heteroscedasticity.

The second model (B) is an autoregressive model, where the lagged value of the dependent variable RFDI is included in the regression model. This inclusion of the lagged dependent variable reduces

autocorrelation considerably. Relative measures of FDI and entrepreneurship are employed to control for any large country effects. The dependent variable, henceforth referred to as RFDI, is FDI flows relative to GDP, and the independent variable, referred to as ENTCAP, reflects entrepreneurship relative to total population.

SPSS software was used to test for a relationship between the dependent variable FDI and the independent variables: entrepreneurship, market size, growth rate, lending rate, corruption, infrastructure and economic freedom. In model (B), the independent variables, economic freedom and entrepreneurship, were mean centered to avoid multicollinearity since an interaction effect was being tested for. The correlation matrices and variance-inflation factor (VIF) were verified for detecting evidence of multicollinearity. Collinear variables were removed when there was evidence that their presence affects some other variables. Durbin-Watson statistic was examined to check if there is evidence of serial correlation in error terms. Note that all analyses were conducted assuming a 90% confidence level, alpha equals 10%.

## VI. EMPIRICAL RESULTS & ANALYSIS:

This section presents the main empirical results regarding the effect of entrepreneurship on FDI inflows after controlling for other FDI determinants. A. Model (A) Results The regression results for the log-linear model are presented in Table I. Two regression models are run. Initially, LogFDI is regressed with log of entrepreneurship, log of GDP, economic freedom, corruption, openness of the economy, lending rate, growth rate, and infrastructure.

In model 1, logGDP ( $p=0.000<0.1$ ), corruption ( $p=0.004<0.1$ ), economic freedom ( $p=0.01<0.1$ ) and log of entrepreneurship ( $p=0.001<0.1$ ) are significant, while lending rate ( $p=0.087<0.1$ ) is marginally significant and openness of economy ( $p=0.216>0.1$ ), growth rate ( $p=0.853>0.1$ ) and infrastructure ( $p=0.978>0.1$ ) are not significant. Consistent with the literature, logGDP, lending rate, and corruption have the expected signs. Economic freedom and entrepreneurship are also significant with the expected signs. The overall model is significant ( $F=48.04$ ,  $p=0.000<0.1$ ,  $R^2=84.5\%$ ). This provides support for hypothesis 1 and hypothesis 2.

The correlation matrices were examined for evidence of multicollinearity. Relatively high correlation between infrastructure and other independent variables such as openness of the economy, and corruption was detected. In addition a test of multicollinearity among independent variables using the variance-inflation factor (VIF) did not suggest any serious problem, except with infrastructure (Table II). The VIF of infrastructure is 6.691 while none of the other VIF values exceeded 5.3. Note that Hair, Anderson, Tatham and Black and Studenmund have suggested VIF values of 5.3 and 10, respectively, as cutoffs for multicollinearity [23]-[48].

Hence, since the VIF of infrastructure was above the 5.3 cutoff, the variable "infrastructure" was dropped from the model. Also, the growth variable was dropped since it was highly insignificant ( $p=0.853>0.1$ ) and since some conflicting evidence exists, in the literature, regarding economic growth. For instance, the United Nations Center on Transnational Corporations survey cites conflicting evidence for the growth rate of GNP, once market size is included. Lunn found that growth rate lagged in the second period was significant, but had the wrong sign.

Model 2 is the adjusted log-linear model that excludes the independent variables growth and infrastructure. The overall model is also significant ( $F=66.11$ ,  $p=0.000<0.01$ ,  $R^2=86.3\%$ ). In model A2, logGDP ( $p=0.000<0.1$ ), openness of the economy ( $p=0.076<0.1$ ), lending rate ( $p=0.057<0.1$ ), corruption ( $p=0.001<0.1$ ), economic freedom ( $p=0.000<0.1$ ) and the log form of entrepreneurship ( $p=0.000<0.1$ ), are all significant and have the expected signs.

Note that in models 1 and 2, entrepreneurship was lagged by 4 years since the results using a 4-year lag were superior to other lags. With a 3 years lag, entrepreneurship variable remain significant and still provide support for hypothesis 1.

Table II shows that there exists no evidence of multicollinearity in Model 2, as none of the VIF values exceeds the 5.3 cutoff suggested by Hair, Anderson, Tatham and Black.

Also, the Durbin-Watson statistic reveals that there is no evidence of positive or negative autocorrelation. In Model 2, Durbin-Watson  $d=2.226$ . Since,  $du=1.68<2.226<4-1.68$ , it implies that Durbin-Watson statistic is not significant.

### B. Model (B) Results:

The regression results for the autoregressive model are presented in Table IV. Five regression models are run. Initially, RFDI is regressed with entrepreneurship as an relationship between corruption and FDI, the results suggest that foreign firms do not support corruption. Therefore, governments, businesses and citizens should take an aggressive stance to combat corruption and to create accountable and transparent systems. Finally, the results support the notion that openness of the economy is a significant determinant of FDI flows. This implies that countries should liberalize trade and seek to develop a vibrant import/export sector as a mean to attract consistent inflow of FDI.

**VII. LIMITATIONS AND FUTURE RESEARCH:**

The study is subject to some limitations that also suggest fruitful avenues for further research. The study relied on outcome-based measure of entrepreneurship, which is a broad measure. Using different measures of entrepreneurship in future analysis can help uncover important inferences. Another limitation of this study is that it was limited to Central and Eastern European countries. Researcher might wish to include entrepreneurship as a determinant of FDI in models that apply to other countries and test whether entrepreneurship is a consistent determinant of FDI, in both developed and developing countries. Also, researchers can apply data on FDI by type of investment and by sector, which may lead to valuable implications regarding the industry in which entrepreneurship has a greater significance in determining FDI inflow.

**APPENDIX**

**Table I: Log –Linear Model (A)**

Variables	Model 1 (A)	Model 2 (A)
Dependent Variable	Log FDI	Log FDI
Constant	-2.294(-1.123)	-2.267(-1.689)
Log-Entrepreneurship	.338*** (3.358)	.335*** (4.612)
EF (economic freedom)	.762***(-3.381)	-.760***(-3.790)
Log GDP	.855*** (9.553)	.856*** (11.092)
Stability (lending rate)	-.827*(-1.737)	-.843*(-1.942)
G (GDP growth rate)	.104(.186)	
Open (Openness of economy)	.621(1.250)	.618*(1.80)
Corrupt (Corruption)	-.352**(-2.984)	-.348***(-3.656)
Infra (telephone line Per Capita )	0.0457(.027)	
F-Value	48.04	66.11
R2	.863	.863
Adj.R2	.845	.850
Durbin-Watson	2.222	2.226
Observations	70	70

Note: T- Value are in Parenthesis  
 \*\*\* Significance at the 0.01 Level  
 \*\* Significance at the 0.05 Level  
 \* Significance at the 0.1 Level

**Table II: VIF- Model (A)**

Variables	Model 1 (A)	Model 2 (A)
	VIF	VIF
Log-Entrepreneurship	2.499	1.343
EF (economic freedom)	2.521	2.058
Log GDP	2.651	2.034
Stability (lending rate)	1.538	1.319
G (GDP growth rate)	1.217	
Open (Openness of economy)	5.078	
Corrupt (Corruption)	3.068	2.500
Infra (telephone line Per Capita )	6.691	2.060

**Table III: AUTOREGRESSIVE- MODEL (B)**

Variables	Model 1(B)	Model 2 (B)	Model 3 (B)	Model 4 (B)	Model 5 (B)
Dependent Variable	RFDI	RFDI	RFDI	RFDI	RFDI
Constant	0.03129 (6.164)	.119 (6.496)	0.05469(.199)	0.0793(2.3111)	.07921(2.558)
ENTCAP-4	8.124E- 04*** (2.730)	8.218E- 04*** (3.199)	-1.517E- 03*** (-.024)	8.91E- 04** (2578)	8.89E- 04*** (3.408)
EF		-2.768E- .02*** (-4.926)	24.791 (1.687)	-1.50E 02*	-1.49E- 02** (9-2.025)
(En) (EF)		4.073E- 06 (.001)			
POP				6.162E- 07*(1.799)	6.159E- 07* (1.991)
Stab				-2.625E- 02 (-1.608)	-2.64E- 02* (-1.685)
Open				3.89E- 02*** (2.735)	3.89E- 02*** (3.143)
Corrupt				-1.22E-	-1.21E-



				02*** (-3.189)	02*** (-3.689)
G				1.461E-03 (.082)	
Infra				1.194E-03 (.027)	
F-Value	7.452	17.135	.079	10.50	13.949
R2	.099	.338	.002	.612	.612
Adj R2	.086	.319	-.027	.553	.568
Durbin-Watson	2.083	2.047	1.875	2.267	2.269
Observations	70	70	70	70	70

Note: T- Value are in Parenthesis

\*\*\* Significance at the 0.01 Level

\*\* Significance at the 0.05 Level

\* Significance at the 0.1 Level

Table IV: VIF- Model (B)

Variables	Model (B)
RFDI-1	VIF
ENT CAP-4	1.971
EF	1.626
POP	2.713
G (GDP growth rate)	2.290
Stab	1.689
Open	3.176
Corrpt	2.414

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