The desirability of Doing Business and Flow of Foreign Direct Investment nexus: The Case of Ethiopia

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Abstract:*The present study intended to analyze the effect of doing business indicators on the flow of foreign direct investment (FDI). The study took time series data for the period 2010 to 2014. The data have been analyzed using graphic comparison, analysis of variance and correlation tests. The correlation result indicated that costs of doing starting business, cost to get electricity connection, cost of registering property, resolving insolvency and cost of construction permit have a strong negative relation to the FDI flow to Ethiopia during the study period. The supportive data of enterprises survey conducted in the year 2006 , 2011 and, 2015 by the World Bank disclosed that the biggest obstacles to operate business in Ethiopia are , access to finance, corruption , customs and regulations, tax administration and getting electricity and transportation in comparison to other sub Saharan and rest economies have not shown good progress the periods. So that the study suggests that the government of Ethiopia needs to work to create a more conducive environment to both local and foreign businesses through building infrastructures, stable legal systems and institution in order to reduce the cost of doing business and attract FDI flows.*

Key words: doing business, foreign direct investment, Ethiopia

1. Introduction

The advent of globalization persisted in all business environments through creating turbulent phenomena, posed organizations to strive for their survival and success by developing suitable business models. Business organizations exist and operate within an environment where there is complex interplay and networks among human resources, material resources and other internal and external systems (Oginni, 2010). The more complex, turbulent and dynamic an environment becomes, the greater will be the impact on business operation and performance, therefore there is need for all organizations to direct their attention to the environment when formulating their business models and strategic management policies to determine their survival, growth and profit motives.

In recent years, it has become common to attribute a great deal to the business environment where 'bad' business environments – as measured by the extent of regulation or corruption – are argued to have a measurably adverse impact on performance. Most countries try to improve their business environment in order to make it conducive for both domestic and foreign investments. There are several studies under the area to reinforce the stakeholders' decisions. For policy makers trying to improve their economy's regulatory environment for business, a good place to start is to find out how it compares with the regulatory environment in other economies(J. Svejnar and K. Tinn, 2009).

FDI is not only a main source of exterior capital, but also a contributor to the economic growth and development. Since in the mid-1990s,Ethiopia has taken steps to loosen/liberalizes its economy that are including foreign investment promotions; improvements in the legal and regulatory framework for FDI, removal of entry and foreign-owned restrictions, establishment of investment promotion agencies to publicize business opportunities and international regulation of investments through bilateral investment agreement (w. Solomon, 2008). Some of previous literatures had identified the key determinants of foreign direct investment. The most significant forces include gross domestic product, GDP per capita, abundance of natural resources, costs of production, infrastructure and level of corruptions(R. Morris, A. Aziz, 2011). K. A. Mottaleba and K. Kalirajanb, 2013, interested to know why some countries are successful in attracting FDI while others are not. The confirmed that countries with largerGDP and high GDP growth rate, higher proportion of international trade and with more businessfriendly environment are more successful in attracting FDI.Bayraktar, 2013 study confirmed that countries which have better records of "doing business" tend to attract more FDI. Recently, the improvement in "ease of doing business" indicators in developing countries can have a partial explanatory power in determining higher FDI flows to these countries. His specific finding conformed that the share of developing countries in FDI inflows is increasing consistently, while it is dropping for developed countries, the difference in growth rates of developed and developing countries is one of the factors that can explain changing FDI inflows from developed to developing countries (developing countries are growing faster). Thus, this paper intends to examine whetherand to what extent the business environment affect the flow of foreign investment in Ethiopia.

2. Doing business in Ethiopia

The World Bank Doing Business indicator measurement provides an aggregate ranking on the ease of doing business based on indicator sets that measure and benchmark regulations applying to domestic small to medium-size businesses through their life cycle. Economies are ranked from 1 to 189 by the ease of doing business ranking. Doing Business presents results for 2 aggregate measures: the distance to frontier score and the ease of doing business ranking. The ranking of economies is determined by sorting the aggregate distance to frontier scores. An economy's distance to frontier score is indicated on a scale from 0 to 100, where 0 represents the worst performance and 100 the frontier. The ease of doing business ranking compares economies with one another; the distance to frontier score benchmarks economies with respect to regulatory best practice, showing the absolute distance to the best performance on each Doing Business indicator. When compared across years, the distance to frontier score shows how much the regulatory environment for local entrepreneurs in an economy has changed over time in absolute terms, while the ease of doing business ranking can show only how much the regulatory environment has changed relative to that in other economies.The 10 topics included in the ranking in Doing Business 2016 are: starting a business, dealing with construction permits, getting electricity, registering property, getting credit, protecting minority investors, paying taxes, trading across borders, enforcing contracts and resolving insolvency (world bank group,2016). So this study also takes into account and describes these indicators in case of Ethiopia.

Rankingsand Score on *Doing Business* -Ethiopia, 2016

Indicator	Ranks out of 189 economies	Score out of 100
Starting a Business	176	62.45
Dealing with Construction Permits	73	71.05
Getting Electricity	129	58.10
Registering Property	141	50.04
Getting Credit	167	15
Protecting Minority Investors	166	35
Paying Taxes	113	68.95
Trading Across Borders	166	39.8
Enforcing Contracts	84	59.06
Resolving Insolvency	114	37.81

Source: world Bank, doing business Ethiopia 2016

Further in the Annex-A, of this paper the comparison of all indicators of doing business for Ethiopia and other selected neighbor countries and best performer economies was disclosed.The survey of World Bank ranked the overall Ethiopia's ease of doing business 148th scored 49.24 out of 100 in year 2015 and 146th and 49.73 in the year 2016 survey report of 189 economies . It indicated that there was only small improvementshave undertaken in one year period. In the above consideration, place of rank and score for Ethiopia was even poor when it is compared with its neighboring economies with exception to state of Eritrea. Most specifically, getting credit, trading across border, protecting minority investors and starting business emerged as very tough in Ethiopia as it is compared with its neighbor economies. Further, Ethiopia did not make good progress to improve on these important factors in the mentioned years. Ethiopia ranked 73th in dealings with construction permit out 189 economies which was the only best achievement out of the ten ease of doing business indicators. Getting credit or finance is seemed as the most difficult task to run business, hence the country scored 15 percent which is very low rate. The country is in the top fifteen most difficult economies in the world to start business. M. Solomon, 2008, defines hospitable business environment as efficient judicial system, liberalized regulatoryframework, efficient and transparent bureaucracy and an environment with less corruption.Lack of liberalization is among the main factors that deter inflows of FDI to Ethiopia.Restriction of private investment in telecommunication, electricity transmission and supply, largeair transport sectors is a serious disincentive for investors in all economic sectors. In addition,investment in banking and insurance sector is allowed only to national investors. This alsohighlights lack of sufficient liberalization in the financial sector as well.The government is the sole owner of land in Ethiopia. Enterprise survey (2011) indicated that "in Ethiopiathe land market including the lease system, presents serious problems in terms of availability ofland and the cost."

3. Related literature

Bayraktar, 2013, examined the link between FDI and "ease of doing business" indicators, as one possible source of the changing direction of FDI, is investigated. The study covered the years from 2004 to 2010. The results showed that countries which have better records of "doing business" tend to attract more FDI. The improvement in "ease of doing business" indicators in developing countries can have a partial explanatory power in determining higher FDI flows to these countries. His specific finding conformed that the share of developing countries in FDI inflows is increasing consistently, while it is dropping for developed countries, the difference in growth rates of developed and developing countries is one of the factors that can explainchanging FDI inflows from developed to developing countries (developing countries are growing faster). He also indicated in recent years, "doing business" indicators almost have not changed in developed countries, however, the values of the indicators are rapidly improving in developing countries, especially in BRIC countries. These improvements are particularly strong in "starting a business", "closing a business," and "protectinginvestors" indicators. Because, improvements in "doing business" can be one of the important factors helping to attract more FDI inflowsto developing countries (N. Bayraktar, 2013). K. Piwonski,2010, study has questioned whether or not the ease of doingbusinessinfluence FDI. He indicated a positive connection between government actions, for which the World Bank's 'DoingBusiness Index' was used as a proxy, to an increase in foreign direct investment inflows. The research was done by running a regression model to find aconnection between changes in foreign direct investment inflows and the Doing Business rank ofeach country. The results of the regression show that by increasing their country's DoingBusiness rank one level, a government can bring in over $44 million USD. Thus, the model hasproven that there is a connection between government actions and foreign direct investment;countries can actively pursue foreign investment dollars successfully.In contrast , G. Sigh, 2012, has found from the granger causality test the six indictors of doing business index of world bank don't cause foreign direct investment to India, however from the Johnson test of co-integration , he concluded that there is long run relationshipbetween FDI and cost of doingbusiness in India.

In the similar study and the correlation analysis of F. Shahadan, S. Faqir& J. Faizi, 2014, exposed that starting a business, dealing with construction permits, registering property, getting credit, protecting investors, trade across borders and enforcing contracts indexes have been directly and significantly associated with FDI inflow in Asian economies. On the other hand, the closing business or resolving insolvency index and paying taxes is not in the favorable of FDI net inflows, these are insignificant to attract FDI. The study indicated a strong negative correlations between starting a business, dealing with construction permits indexes. Whilst, FDI net inflow has strong positive correlation with getting credit and protecting investors' indexes, but a small and negative correlation with closing business or resolving insolvency index, whereas FDI inflow is highly negatively correlated with paying taxes index, as well as getting credit is superior positive correlated with the protecting investors.The registering property index has positive and significant effect on FDI inflow, according to the doing business registering property rights are essential for investment provision, productivity and growth. The best economies having an up-to-date properties information system, computerized database (Cadastres) or surveys together, prove and secure property and user rights with land registries. This index is part of the land and buildings information system which accounts for an economy. The regression results evidenced that property owners with registered titles are more likely to invest. They also have a better chance of getting credit when using their property as collateral. Compared with the residents who did not receive title, title holders increased the overall value of their homes by 37% (Galianiet al, 2011). Deininger et al, 2002, study in Nicaragua, confirmed that having a formal title not only made owners more likely to invest but increased land values by 30% Following a land titling project in Thailand, property increased in value by 75–197% after being registered. It means these selected economies have the capacity to attract about USD 257 Million FDI inflow per annum, subjective to registering property index.

Sekkat et al. (2007) define investment climate as infrastructure availability, sound economic and political conditions. He assessed the importance of openness, infrastructure availability, and sound economic and political conditions in increasing developing countries' attractiveness with respect to FDI. The results also showed that these factors are particularly important for South Asia, Africa, and the Middle East. The paper also showed a higher impact of these factors on FDI in the manufacturing sector than on total FDI. A. Rehman, M. Ilyas, and et .al 2011, also investigated the impact of infrastructure on Foreign Direct Investment. They found out that there is significant positive impact in both in the short and long run of infrastructure on FDI inflows in Pakistan. In short run, one percent increase in infrastructure results in uplifting FDI by 1.03% and in long run, one percent rise in infrastructure enhances FDI inflows by 1.31%. while discussing other variables, market size also have positive significant relationship in short and long run whereas, exchange rate has negative significant impact of infrastructure in short and long run.

J. Anderson and A. Gonzalez, 2013, also confirmed that a better *Doing Business* ranking is significantly associated with larger FDI inflows. The study claimed that higher *Doing Business* rankingsare a broad indicator of an attractiveinvestment climate. But the study was unable to find evidence for smaller subsetsof economies, such as for developingeconomies.Even though Doing Business indicators focus on small to medium-size domestic firms, many policy makers have associated improvements in the indicatorswith greater inflows of foreign direct investment (FDI).Cross-country correlations show that FDI inflows are indeed higher for economies performing better on Doing Business indicators, even when taking into account differences across economies in other factors considered important for FDI.Results suggest that on average across economies, a difference of 1 percentage point in regulatory quality as measured by Doing Business distance to frontier scores is associated with a difference in annual FDI inflows of $250–500 million.The study emphasized that Doing Business reflects more about the overall investment climate than what matters only to small and mediumsizedomestic firms.These findings support the claim that economies that provide a good regulatoryenvironment for domestic firms tend to also provide a good one for foreign fi rms.Anothercross-country study by Cristina, B. A. 2014 emphasized that the most determinant governance factors on the ease of doing business are 'government effectiveness', 'regulatory quality', 'rule of law' and 'control of corruption', especially for the economies of countries classified in high income categories. The study concluded that governance indicators are influencing factors for the ease of doing business, even if the impact is felt somewhat differently by high income economies compared to low, lower and upper middle income economies.

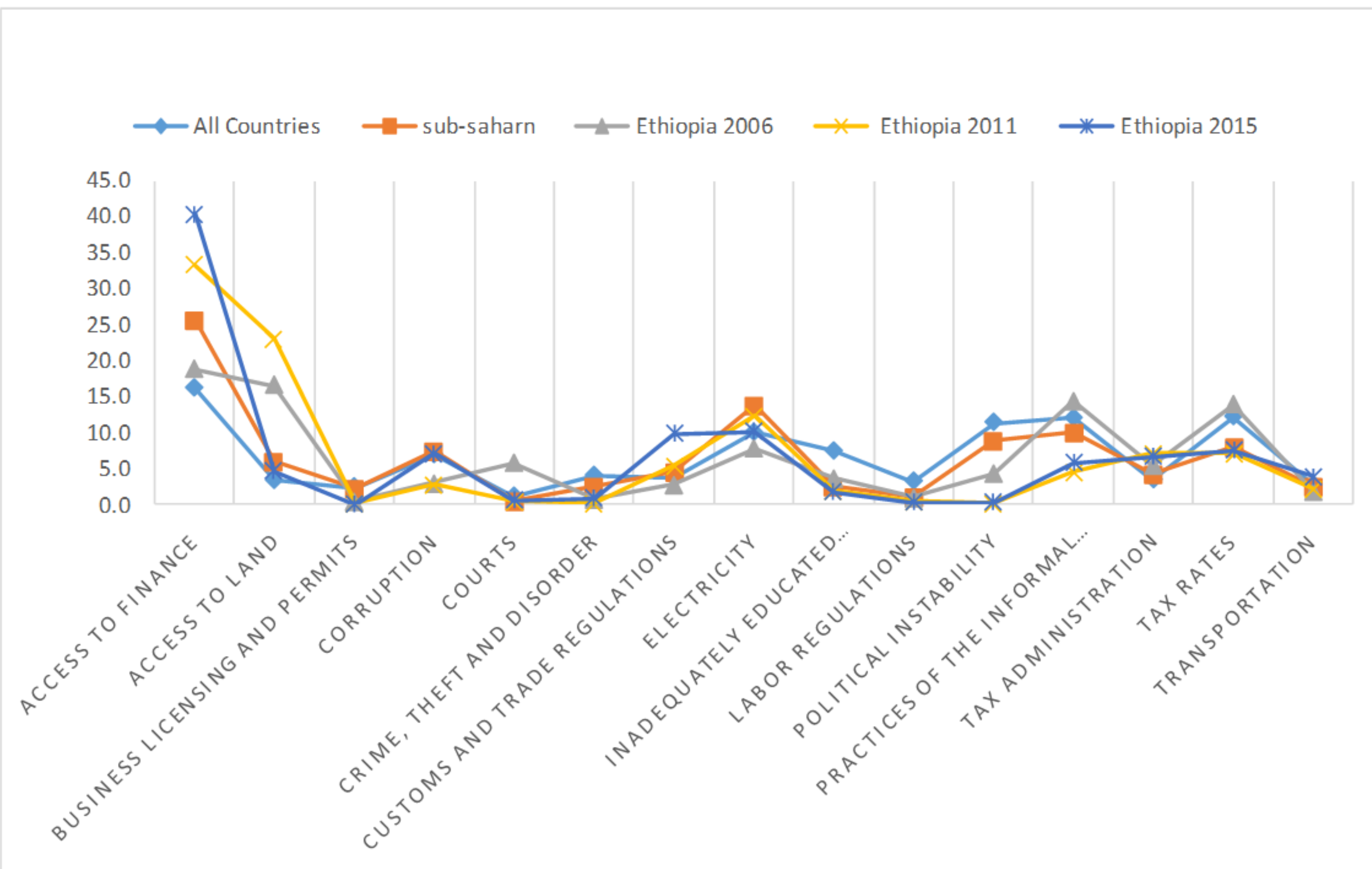
4. Methodology

The study uses secondary data from the World Bank and other studies undertaken in the area of doing business and foreign direct investment. It is a kind of confirmatory study which intends to confirm or refute the previous research in the area in other economies and in case of Ethiopia. Further, it is time series and pooled cross sectional quantitative study. The data considered in the study is 2010-2014. The main independent variables of research are cost of doing business to run each activities to set up and operate business processes, and the dependent variable is the flow of foreign direct investment in the targeted recent years. To analyze these data graphical presentation, analysis of variance (ANOVA) and correlation analysis were used. Graphic presentation indicated the comparison of Ethiopia business environments with sub Saharan and all countries to look the trend of change or improvement of problematic business environment from time to time.But the ANOVA assesses whether or not the change took place in the business environment is significant different in the survey periods (2006, 2011 and 2015) in Ethiopia. Moreover, correlation test analyzes the relations among doing business indicators and FDI flows. Since the World Bank uses several indicators of ease of doing business for different economies, this studyemphasized to observe the rateof costof doing business and FDI flow. Hence the rate of cost index of doing business indicators were employed except for getting credit (credit registry coverage), protecting of minority investor protection (ease of shareholders suits index 10), resolving insolvency (recovery rate cents on dollars) and paying tax (% of profit) were used. Moreover, the study has given its eyes to the enterprise surveyconducted inthe year 2006, 2011 and 2015 which rate the different obstacles of business environments.

5. Discussion of Results and Analysis

The enterprise survey of World Bank group in the year 2006, 2011 and 2015 came up the average number of enterprises rated the different business environment as an obstacle to their business. The graph below indicates that the percentage of enterprises rated different business environment as obstacle to do business.The number of enterprises included in this survey were 446 620 and 848 in the year 2006,2011 and 2015, respectively. The study comprised all types of enterprises in Ethiopia.

COMPARISION OF BUSINESS EVIRONMENT OF ETHIOPIA WITH OTHER ECONOMIES



From the above graph it can be learnt thatsome of the business environments in Ethiopia are comparable with the other sub-Saharan and rest of the world. It can be reinforced that Ethiopia enterprises face critical problems on securing finance, obtaining land access, getting electricity , tax administration and custom and trade regulation in the recent years 2011 and 2015 when it is compared with the other. In the year 2015, access to finance was emerged as the biggest challenge, for which above 40 % of the enterprises under the survey (848 enterprises) have reacted. Shockingly, corruption was also becoming another challenge which isreaching a high level in Ethiopia even higher than the other sub-Saharan record and the rest of the world. But corruption was supposed as at low level in Ethiopia than other sub- Saharan countries. Custom and trade regulation, transportation and tax administration are also the biggest rated obstacles for Ethiopian enterprises in the year 2015. In the recent survey the access to land has shown big improvement in Ethiopia. However, corruption and custom regulation becameworse in the past five years 2012-2015 than ever. The survey indicated that the percentage of enterprises rating these factors as the obstacles to their business are increasing from the previous years 2011 in Ethiopia let alone its comparison to the other economies. In other business environment proxy Ethiopia's environment is more or less rated equally with the average of the rest of the world and sub-Saharan economies.

The analysis of variance (ANOVA) test in the annex C conducted for the three surveys (i.e. 2006, 2011 and 2015) also confirmed that there is no significant change shown in the periods to the business environments. The calculated ANOVA result emerged as 1.19E-14 and the critical value was 3.22. So that it is in acceptance region, which is interpreted as the average percentage of enterprises reporting a business environment as an obstacle remain the same in the years, (i.e. 2006,2011 and 2015) the survey conducted. It suggests that the policy makers push forward to make improvements on the business obstacles to acquire more private investments.

The other statistical measurement run was the test of correlation for the World Bank doing business indicators with foreigndirectinvestment, correlation result at Annex-B. This study was more interested in the correlation of cost of doing business indicators and the FDI flow from 2011 to 2014. The result of the correlationtest indicated that, except costof enforcing contract, protecting minority investors and paying taxes all other indicators costs are negatively correlated with FDI inflows. More specifically , the cost of starting business, getting electricity, registering property, resolving insolvency are strongly correlated with the inflow of FDI in Ethiopia the study periods. Cost incurredto get construction permit, getting credit (% of adult), trade across the border ($ per container) have a moderate negative correlation with FDI. This result confirms the extant studies by G. Sigh, 2012,K. Piwonski 2010, Bayraktar, 2013, improving doing of business help to attract more FDI. Djankov et al, 2002 also emphasized doing business corresponds to an international instrument on "behavior change" not only to motivate national investors but to attract foreign investors too. But the enforcement of contract (% of claim), minority investors (strength of protecting 10 scales) have not shown any correlation. Surprisingly, paying tax (% of profit) was positively correlated.

6. Conclusions

This study examined the effect of the business environment on the flow of FDI to Ethiopia.The overall Ethiopia's ease of doing business ranked148thand scored 49.24 out of 100 in year 2015 and 146th and 49.73 in 2016 in the World Bank survey been taken for 189economies. The survey used ten doing business indicators namely starting a business, dealing with construction permits, getting electricity, registering property, getting credit, protecting minority investors, paying taxes, trading across borders, and enforcing contracts, resolving insolvency. Out of these indicators protecting minority investors, paying taxes and enforcing contract costs are not properly correlated with FDI flow to Ethiopia in the study periods. The rest seven indicators are negatively correlated with FDI flows. This finding is supportive of the G. Sigh, 2012, K. Piwonski 2010, Bayraktar, 2013, improving doing of business help attract more FDI and higher cost of doing business indicators reduce the flow of FDI. Djankov et al, 2002, has more emphasized doing business corresponds not only to motivate national investors but to attract foreign investors too.So that we suggest that the government of Ethiopia needs to work to create a more conducive environment to both local and foreign business through building infrastructures, stable legal systems and institution in order to reduce the cost of doing business. Because the improvements being happened is very slow as it was indicated in the ranks of the World Bank survey.

7. Limitation and the future implication

This study has considered only the ease of doing business indicators in relation to the stock of FDI. To triangulate the result the enterprise survey was also used. However, there are many other factors which more importantly affect the flow of FDI. So that this study was limited to the effect of doing business indicators on the FDI. Further, doing business indicators templates are also best designed for a representative firms in a high income country. If firms in less developed countries engage in substantially different production activities, the constraints they face are likely to be very different. Inherent limitation of secondary data and measurability would be its short fault. However, we believe that this study would serve as an additional insight forthe some detail future survey in the area and a ping for the policy makers and implementers.

References

[1] Abdul K. M. K. Kalirajanb,(2013). Determinants of Foreign Direct Investment in Developing Countries: A Comparative Analysis, ASARC Working Paper 2010/13
[2] Anderson J. and A. Gonzalez, (2013). Does Doing Business matter for foreign direct investment?
[3] Bayraktar, N. (2013). Foreign Direct investment and Investment Climate, WEI International Academic Conference Proceedings Istanbul, Turkey
[4] Deininger, K., & Chamorro, J. S. (2002). Investment and income effects of land regularization: the case of Nicaragua.
[5] Djankov, S., Hart, O., &Nenova, T. (2002). Efficiency Insolvency, Background Papers for Doing Business in 2003. Report of Private Sector Advisory Services. World Bank. Washington, DC.
[6] Galiani, S., &Schargrodsky, E. (2011). Land property rights and resource allocation. Journal of Law and Economics, 54(4), S329-S345.http://dx.doi.org/10.5539/ijbm.v6n5p268
[7] J. Svejnar and K. Tinn, (2009). Explaining the performance of firms and countries: what role does the business environment play?
[8] Morris, R., & Aziz, A. (2011). Ease of doing business and FDI inflow to Sub-Saharan Africa and Asian countries. Cross Cultural Management: An International Journal, 18(4), 400-411.
[9] Oginni, B.O. (2010). Business Organic Management, 2nd ed. Somolu Lagos, Shecom Press Ltd.
[10] Piwonski K.,A. Ramírez, (2010). Does the 'Ease of Doing Business' In a Country Influence its Foreign Direct Investment Inflows? Senior Capstone Project
[11] Rehman, C., Ilyas, M., MobeenAlam, H., &Akram, M. (2011). The Impact of Infrastructure on Foreign Direct Investment: The Case of Pakistan. IJBM, 6(5).
[12] Sekkat, K., &Veganzones-Varoudakis, M. A. (2007). Openness, investment climate, and FDI in developing countries. Review of Development Economics, 11(4), 607-620.
[13] Shahadan, F., Sarmidi, T., &Faizi, F. J.(2014). Relationships between Doing Business Indexes and FDI Net Inflows: Empirical Evidence from Six Asian Countries (Afghanistan, Bangladesh, India, Iran, Pakistan and Sri Lanka).
[14] Sigh .G, (2012). Relationship between doing business and FDI, journal of united world school of business , Grandhinager, Gujarat, India
[15] Solomon M. W. (2008). Determinants of Foreign Direct Investment in Ethiopia, thesis submitted to Maastricht School of Governance, for the degree of MSc in Public Policy.
[16] World Bank group, (2016). Doing business, measuring and regulatory quality efficiency, country profile Ethiopia. www.worldbank.org

Annex

Annex A. The table below indicates the summary of comparison of all indicators of doing business for Ethiopia and other selected neighbor and best performer economies

Indicator	Ethiopia DB2016	Ethiopia DB2015	Egypt, Arab Rep. DB2016	Eritrea DB2016	Kenya DB2016	Rwanda DB2016	South Africa DB2016	Uganda DB2016	Best performer globally DB2016
Starting a Business (rank)	176	170	73	184	151	111	120	168	New Zealand (1)
Starting a Business (DTF Score)	62.45	59.11	88.24	46.16	74.47	83.05	81.18	67.79	New Zealand (99.96)
Dealing with Construction Permits (rank)	73	70	113	189	149	37	90	161	Singapore (1)
Dealing with Construction Permits (DTF Score)	71.05	70.62	65.97	0	59.37	76.34	69	54.59	Singapore (92.97)
Getting Electricity (rank)	129	127	144	142	127	118	168	167	Korea, Rep. (1)
Getting Electricity (DTF Score)	58.1	57.29	52.49	53.43	58.57	60.04	41.99	42.61	Korea, Rep. (99.88)
Registering Property (rank)	141	140	111	177	115	12	101	120	New Zealand (1)
Registering Property (DTF Score)	50.04	50.02	57.84	35.26	56.63	87.75	60.79	55.38	New Zealand (94.46)
Getting Credit (rank)	167	165	79	185	28	2	59	42	New Zealand (1)
Getting Credit (DTF Score)	15	15	50	0	70	95	60	65	New Zealand (100)
Protecting Minority Investors (rank)	166	165	122	122	115	88	14	99	Singapore (1)*
Protecting Minority Investors (DTF Score)	35	35	45	45	46.67	53.33	71.67	51.67	Singapore (83.33)*
Paying Taxes (rank)	113	113	151	174	101	48	20	105	United Arab Emirates (1)*
Paying Taxes (DTF Score)	68.95	69.11	58.87	43.49	71.96	81.48	88.75	71.32	United Arab Emirates (99.44

Annex B. The correlation result

	FDI	Sbusiness	cost of Construct	Electricit	Reg Prope	Credit	Investor	Taxe	Trade	Contracts	Insovency
FDI	1										
Sbusiness(cost of % income percapita)	-0.86	1.00									
cost of Construction permit(% of w/hous	-0.67	0.95	1.00								
Electricity(% of income/capita	-0.86	1.00	0.95	1.00							
Reg. Property(% of prop. Value	-0.91	0.84	0.75	0.83	1.00						
Credit(%of adults)	-0.54	0.04	-0.25	0.03	0.41	1.00					
Investors(strength of procteting 10 scale	0.00	0.00	0.00	0.00	0.00	0.00	1.00				
Taxe % of profit	0.58	-0.68	-0.55	-0.68	-0.32	-0.04	0.00	1.00			
Trade($ per container)	-0.52	0.79	0.79	0.80	0.41	-0.25	0.00	-0.91	1.00		
Contracts(% of claim)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1	
Resolv. Insovency (recovery rate, cents $)	-0.89	0.86	0.78	0.85	0.98	0.36	0.00	-0.40	0.51	0	1

Annex c.

Anova: Single Factor

SUMMARY

Groups	Count	Sum	Average	Variance
Ethiopia 2006	15	99.9	6.66	38.34686
Ethiopia 2011	15	99.9	6.66	90.974
Ethiopia 2015	15	99.9	6.66	99.48971

ANOVA

Source of Variation	SS	df	MS	F	P-value	F crit
Between Groups	1.82E-12	2	9.09495E-13	1.19E-14	1	3.219942293
Within Groups	3203.348	42	76.27019048			
Total	3203.348	44				