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Economic Freedom and Foreign Direct Investment in BRICS Countries

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***Abstract* — This paper studies the impact of economic freedom on foreign direct investment in BRICS countries, namely Brazil, Russia, India, China, and South Africa over the period of 2008-2013. The foreign direct investment (FDI) is measured by net inflows of FDI as a percentage of gross domestic product. The economic freedom is measured by the index of economic freedom published by The Wall Street Journal and The Heritage Foundation, which includes ten components such as business freedom, trade freedom, fiscal freedom, government spending, monetary freedom, investment freedom, financial freedom, property rights, freedom from corruption, and labor freedom. The regression results show that the economic freedom, investment freedom, financial freedom, and property rights are negatively associated to the FDI, whereas business freedom, monetary freedom, and labor freedom are positively related to FDI. The coefficients of trade freedom, fiscal freedom, government spending, and freedom from corruption are not significant in the results. Further, the control variables gross domestic product and gross domestic product per capita are found to be significantly positively related to FDI. This implies that the FDI net inflows to BRICS countries are attracted by the regulatory efficiency and market size, rather than the rule of law, limited government and open markets.**

***Keywords*—Foreign direct investment, Economic freedom, BRICS, Gross domestic product, investmetn freedom**

I. Introduction

Foreign direct investment (FDI) has always been an important driver for the global economic growth. All countries are competing for more FDI inflows, this is true for both developed and developing countries. In 2012, for the first time in history, FDI inflows to developing counties exceeded those to developed countries by more than US$130 billion [1]. Among developing economies, BRICS (Brazil, the Russian Federation, India, China and South Africa) have played a vital role in attracting FDI and their share of FDI in global FDI inflows kept rising even during the 2008-2009 crisis period and reached 20 percent in 2012 [1]. In mid-2014, the BRICS created The BRICS New Development Bank to fund investment in infrastructure and sustainable development [2], this may further attract more FDI in the future.

This paper attempts to study the reasons why BRICS can attract more FDI inflows by focusing on the relationship between the economic freedom and FDI in BRICS countries. The economic freedom is measured by the index of economic freedom published by The Wall Street Journal and The Heritage Foundation, which includes ten components such as business freedom, trade freedom, fiscal freedom, government spending, monetary freedom, investment freedom, financial freedom, property rights, freedom from corruption, and labor freedom. The contribution of this paper is that not only the overall index of economic freedom is studied, but also the 10 components of the index are studied. Control variables are selected to measure the market size, market growth and degree of openness.

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The rest of the paper is organized as follows: section II reviews the literature on FDI and economic freedom, section III outlines the methodology, section IV details the results of the study, and the conclusion is in section V.

II. Literature Review

Since the birth of “BRIC” in 2001 and “BRICS” in 2011 [3], many researchers have studied the FDI inflows to these five counties. For instance, [4], [5], and [6] studied the determinants or drivers of FDI in BRIC countries, [7] studied the determinants of FDI in BRICS countries. Some paper studied only one or two countries in BRICS, such as FDI in Brazil is studied in [8], FDI in India is examined in [9], FDIs in China and India are compared in [10].

Majority of the research papers on FDI classify the determinants of FDI into several categories, for instance, 1) market size, measured by gross domestic product (GDP) or gross domestic product per capital (GDPPC) in [9], [11], [12], and [13], 2) market growth, proxied by GDP annual growth in [6], [13], 3) degree of openness, proxied by total imports and exports of the country in [14], etc.

The relationship between a country’s economic freedom and its FDI inflow gains more attention from researchers recently such as [10], [15], [16], [17], and [18]. These studies use different measures of economic freedom, [10], [16], and [18] use the index of economic freedom published by The Wall Street Journal and The Heritage Foundation. The index is the average of ten components grouped into four categories as 1) rule of law – property rights, and freedom from corruption; 2) limited government – fiscal freedom, and government spending; 3) regulatory efficiency – business freedom, labor freedom, and monetary freedom; and 4) open markets – trade freedom, investment freedom, and financial freedom. Each measure is from 0 to 100, 100 indicates the maximum freedom.

III. Methodology

This paper studies the foreign direct investment to BRICS countries – Brazil, Russia, India, China, and South Africa - over the period from year 2008 to 2013. The FDI is measured by the net inflows of foreign direct investment as a percentage of gross domestic product. Economic freedom is measured by the index of economic freedom published by

The Wall Street Journal and The Heritage Foundation. There are 11 measures: the first measure is the overall economic freedom, the next 10 measures are: property rights, freedom from corruption, fiscal freedom, government spending, business freedom, labor freedom, monetary freedom, trade freedom, investment freedom, and financial freedom. Four control variables are chosen based on the literature: GDP and PDP per capita to proxy the market size, total imports of goods and services as a percentage of GDP to proxy the degree of openness, and GDP annual growth rate to proxy the market growth.

The annual data of economic freedom index and ten components are collected from the web page of The Heritage Foundation. And the annual data of foreign direct investment net inflows and other factors are collected from the World Development Indicators, web page of the World Bank. There are 30 country-year observations in total.

The multiple regression model is as follows:

$$FDI_{it} = a + b_1GDPG_{it} + b_2IMPORTS_{it} + b_3\ln(GDPPC)_{it} + b_4\ln(GDP)_{it} + b_5EconomicFreedomIndex_{it} + e \quad (1)$$

Where FDI is the net FDI inflows as a percentage of GDP, GDPG is annual GDP growth rate, IMPORTS is the total imports of goods and services as a percentage of GDP, GDPPC is the GDP per capita, EconomicFreedoonIndex is the 11 measures of economic freedom.

IV. Empirical Results

A. *Descriptive Statistics*

Fig. 1 shows the FDI net inflows to BRICS measured in trillion constant 2005 US$ from 2008 to 2013. It can be seen that China's level of FDI is much higher than those of others, this may cause difficulty in comparison. Therefore, to standardize the FDI numbers before comparison, Fig. 2 is plotted to see the FDI net inflows to BRICS measured in percentage of GDP from 2008 to 2013. It shows that the new percentage measure for all 5 countries are in the same scale.

The descriptive statistics of all variables are listed in Table I. The average annual FDI net inflows to BRICS countries is 2.77 percent of GDP, the annual GDP growth is 4.66 percent, and the total imports account for 23.23 percent of GDP. For the economic freedom, the overall economic freedom is 55.30 which is not high compare to developed countries. The highest component freedom index is fiscal freedom of 73.09 followed by government spending of 70.63, whereas the lowest index is freedom from corruption of 35.33 followed by investment freedom of 45.04.

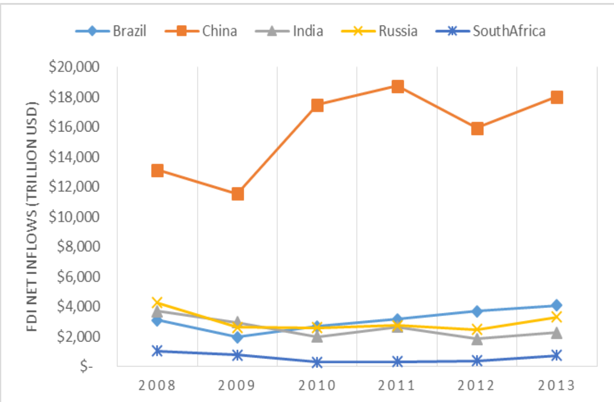

Figure 1: FDI net inflows to BRICS measured in trillion constant 2005 US$ from 2008 to 2013

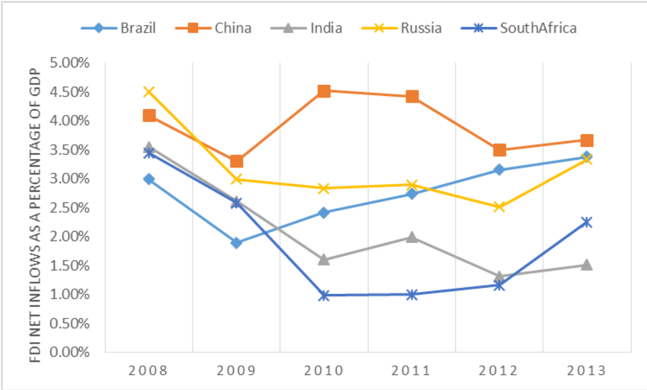

Figure 2: FDI net inflows to BRICS measured in percentage of GDP from 2008 to 2013

The correlations among variables are displayed in Table II. All correlations seems low except that the correlation between ln(GDP) and economic freedom is high, this will be taken into account when the regression is conducted.

TABLE I: DESCRIPTIVE STATISTICS OF VARIABLES

	Mean	Standard Deviation	Min.	Max.	Count
FDI (%)	2.77	1.02	0.98	4.52	30
GDPG (%)	4.66	3.94	-7.82	10.63	30
IMPORTS (%)	23.23	6.76	11.27	37.24	30
ln_GDP	27.73	0.84	26.40	29.22	30
ln_GDPPC	8.22	0.71	6.79	8.84	30
Economic Freedom	55.30	4.43	49.90	63.80	30
Business Freedom	49.54	13.90	20.00	74.60	30
Trade Freedom	56.19	17.91	21.00	77.20	30
Fiscal Freedom	73.09	5.46	65.80	86.90	30
Government Spending	70.63	12.86	48.60	89.70	30
Monetary Freedom	66.00	11.67	35.50	77.20	30
Investment Freedom	45.04	14.86	20.00	74.20	30
Financial Freedom	52.27	16.18	30.00	75.80	30
Property Rights	49.80	18.98	20.00	77.40	30
Freedom from Corruption	35.33	9.08	21.00	51.00	30
Labor Freedom	55.16	10.97	30.00	68.60	30

Note: FDI stands for net inflows of foreign direct investment as a percentage of GDP, GDPG stands for GDP annual growth rate, IMPORTS stands for total imports of goods and services as a percentage of GDP, LN_GDPPC stands for natural logarithm of GDP per capita, LN_GDP stands for natural logarithm of GDP.

TABLE II: CORRELATION MATRIX OF VARIABLES

	FDI	*GDPG*	*IMPORTS*	*ln_GDP*	*ln_GDPPC*
GDPG	0.243				
IMPORTS	-0.267	0.049			
ln_GDP	0.569	0.616	-0.377		
ln_GDPPC	0.103	-0.524	-0.342	-0.386	
Economic Freedom	-0.535	-0.322	0.349	**-0.738**	0.209
Business Freedom	-0.245	-0.291	0.171	-0.609	0.190
Trade Freedom	-0.017	0.083	-0.039	-0.150	0.072
Fiscal Freedom	0.026	-0.174	0.149	-0.037	-0.016
Government Spending	0.175	0.455	0.582	0.319	-0.490
Monetary Freedom	0.102	-0.091	-0.026	-0.340	0.310
Investment Freedom	-0.431	-0.236	0.052	-0.190	0.055
Financial Freedom	-0.375	-0.343	0.089	-0.333	0.354
Property Rights	-0.412	-0.214	0.100	-0.267	0.055
Freedom from Corruption	-0.333	-0.143	0.212	-0.494	0.090
Labor Freedom	-0.017	-0.112	-0.033	-0.343	-0.013

Note: FDI stands for net inflows of foreign direct investment as a percentage of GDP, GDPG stands for GDP annual growth rate, IMPORTS stands for total imports of goods and services as a percentage of GDP, LN_GDPPC stands for natural logarithm of GDP per capita, LN_GDP stands for natural logarithm of GDP.

B. *Regression results*

The regression results are detailed in Table III. There are 11 regressions, each with different economic freedom index. Since the correlation between ln(GDP) and economic freedom is high, the variable ln(GDP) is deleted in the first regression when the overall economic freedom index is the independent variable. The result indicates that the overall index of economic freedom is significantly negatively associated to the FDI at the 1% level, this is consistent with [16]. However, the results for 10 components are mixed: investment freedom and financial freedom are significantly negatively associated to the FDI at the 1% level, and property rights is negatively significant at 10% level; whereas business freedom, monetary freedom, and labor freedom are positively related to FDI at the significance level of 10 or 5 percent; the coefficients of trade freedom, fiscal freedom, government spending, and freedom from corruption are not significant in the results. These results imply that the FDI net inflows to BRICS countries are attracted by the regulatory efficiency rather than the rule of law, limited government, and open markets.

Further, the control variable IMPORTS is found to be positively related to FDI in 6 regressions, this is not consistent with [7] where trade openness found to be an insignificant determinant of FDI during 1975-2007. This paper studies the period 2008-2013 and finds openness is significant which might imply that the determinants of FDI to BRICS are changing over time. Gross domestic product and gross domestic product per capita are found to be significantly positively related to FDI, this result is consistent with the literature such as [6], [7], [9] and [16], etc. that bigger market size can attract more FDI inflows.

TABLE III: REGRESSION RESULTS ON FDI IN BRICS

	1	2	3	4	5
C	-3.29	-39.48***	-32.02**	-30.81**	-30.06**
	(0.47)	(0.00)	(0.02)	(0.03)	(0.04)
GDPG	-0.01	0.00	0.00	0.01	0.01
	(0.83)	(0.96)	(1.00)	(0.80)	(0.87)
IMPORTS	0.14***	0.05*	0.05	0.05	0.05
	(0.00)	(0.07)	(0.13)	(0.16)	(0.40)
LN_GDPPC	1.27***	0.83	0.78	0.78	0.77
	(0.02)	(0.18)	(0.22)	(0.21)	(0.20)
LN_GDP		1.20***	0.97**	0.91**	0.91**
		(0.00)	(0.01)	(0.01)	(0.04)
ECONOMIC	-0.15***				
	(0.00)				
Business Freedom		0.02*			
		(0.09)			
Trade Freedom			0.01		
			(0.43)		
Fiscal Freedom				0.01	
				(0.70)	
Government Spending					0.00
					(0.93)
R-squared	0.65	0.54	0.52	0.51	0.51
Durbin-Watson stat	2.03	1.74	1.72	1.73	1.74

Note: FDI stands for net inflows of foreign direct investment as a percentage of GDP, GDPG stands for GDP annual growth rate, IMPORTS stands for total imports of goods and services as a percentage of GDP, LN_GDPPC stands for natural logarithm of GDP per capita, LN_GDP stands for natural logarithm of GDP, Economic stands for overall Economic Freedom. Numbers in parentheses are p-values; ***, **, and * indicate significance at the level of 1%, 5%, and 10%, respectively.

V. Conclusion

This paper studies the relationship between the economic freedom and FDI in BRICS countries over the period 2008-2013. The economic freedom is measured by the index of economic freedom published by The Wall Street Journal and The Heritage Foundation, which includes ten components such as business freedom, trade freedom, fiscal freedom, government spending, monetary freedom, investment freedom, financial freedom, property rights, freedom from corruption, and labor freedom.

The regression results are mixed for the overall index of economic freedom and ten components. The overall index of economic freedom is found to be significantly negatively associated to the FDI. Three components are showing significant negative relationship with FDI: investment freedom, financial freedom, and property rights. Three components are displaying significant positive relationship with FDI: business freedom, monetary freedom, and labor freedom. Four components are found to be insignificant in attracting FDI in BRICS: trade freedom, fiscal freedom, government spending, and freedom from corruption. Moreover, three control variables are found to be significantly positively affecting the FDI in BRICS: total imports of goods and services as a percentage of GDP, GDP and GDP per capita.

To summarize, the FDI net inflows to BRICS countries over 2008-2013 are attracted by the regulatory efficiency, degree of openness, and market size, rather than the rule of law, limited government, and open markets defined by The Wall Street Journal and The Heritage Foundation.

TABLE III: REGRESSION RESULTS ON FDI IN BRICS (CONTINUED)

	6	7	8	9	10	11
C	-18.76	-18.59	-18.88	-25.81*	-29.80*	-45.7***
	(0.15)	(0.18)	(0.15)	(0.08)	(0.07)	(0.00)
GDPG	0.01	-0.01	0.00	0.00	0.01	-0.01
	(0.84)	(0.87)	(0.98)	(0.99)	(0.85)	(0.89)
IMP	0.08**	0.09**	0.07**	0.05	0.05	0.07**
	(0.04)	(0.01)	(0.02)	(0.14)	(0.18)	(0.02)
LN_GDPPC	1.25**	1.09**	1.35**	0.78	0.77	1.02**
	(0.01)	(0.03)	(0.01)	(0.21)	(0.22)	(0.04)
LN_GDP	0.24	0.41	0.36	0.79**	0.91**	1.31***
	(0.54)	(0.29)	(0.33)	(0.04)	(0.04)	(0.00)
Monetary Freedom	0.03**					
	(0.01)					
Investment Freedom		-0.03***				
		(0.00)				
Financial Freedom			-0.03***			
			(0.01)			
Property Rights				-0.02*		
				(0.08)		
Freedom from Corruption					0.00	
					(0.93)	
Labor Freedom						0.04**
						(0.02)
R-squared	0.61	0.65	0.64	0.58	0.51	0.65
Durbin-Watson stat	1.94	1.57	1.66	1.63	1.73	1.64

Note: FDI stands for net inflows of foreign direct investment as a percentage of GDP, GDPG stands for GDP annual growth rate, IMPORTS stands for total imports of goods and services as a percentage of GDP, LN_GDPPC stands for natural logarithm of GDP per capita, LN_GDP stands for natural logarithm of GDP. Numbers in parentheses are p-values; ***, **, and * indicate significance at the level of 1%, 5%, and 10%, respectively.

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