Does institutional stability granger-cause foreign direct investment? evidence from Canada

Mahmood, Nihal and Masih, Mansur

INCEIF, Kuala Lumpur, Malaysia, UniKL Business School, Kuala Lumpur, Malaysia

15 October 2019

Does institutional stability granger-cause foreign direct investment? evidence from Canada

Nihal Mahmood[1] and Mansur Masih[2]

Abstract

Global FDIs have increased substantially since the 1990's. This was seen as a favorable development among developing countries, however developed countries have had a mixed reaction. In this paper we look at the effects of FDI flows on institutional stability, to better understand what drives FDI. The focus country for this paper is Canada, as it is one of the few countries where the economy remained relatively stable compared to other economies during the global financial crisis. As such, the findings from this study can shed light on what allowed Canadian policy makers to maintain economic stability. The methodology applied is Auto-Regressive Distributive Lag (ARDL) to understand the relationship between FDI and institutional stability along with other controlled variables (GNP, inflation, and exports). This study is different from others in that it examines the Canadian economy, and similar papers have examined different countries (to my knowledge). Based on previous theoretical and empirical literature, most of the research points to FDI positively affecting institutional stability. However, there is some literature that makes the case for this relationship not always holding true. Our empirical findings tend to show that it is in fact institutional stability that positively impacts FDI in the long run. As such, the policy makers should consider implementing policies that ensure that the strength of institutions is enhanced, and this in turn will attract more investment.

Keywords: *institutional stability, FDI, ARDL, VECM, VDC*

_____

[1] INCEIF, Lorong Universiti A, 59100 Kuala Lumpur, Malaysia.

2 **Corresponding author**, Senior Professor, UniKL Business School, 50300, Kuala Lumpur, Malaysia.

Email: mansurmasih@unikl.edu.my

Introduction: motivating the study

Foreign direct investment (FDI) inflows grew from $1.45 trillion in 2013, and is expected to rise to $1.85 billion in 2016 (UNCTAD). The top host countries for FDI inflows as of 2013 include the United States, China, Russia, Singapore and Canada. In addition, North America is the top region of FDI outflow. To further add, from the period of 2000 to 2012, about 55 countries adopted 1,082 institutional policy changes, with the goal of creating a more favorable environment for foreign investors (Demir, 2015).

Several studies indicate that good institutions encourage private investments, improve efficiency of economic system and encourage economic growth (Acemoglu, Johnson & Robinson, 2005; Hall & Jones, 1999; Rodrik, Subramanian & Trebbi, 2002). Institutions play a key role in disciplining the behavior of economic agents, thus encouraging setting rules and "limit opportunism and build transactional trust in financial transactions, and ultimately enhance confidence of foreign investor and FDI inflows" (Ahmad & Ahmed, 2014). In a study by Makki and Somwaru (2004), the results pointed to FDI and exports positively impacting economic growth. This study looked at 66 developing countries from 1970 to 2000. Wang (2004) found that it is more important to higher-income countries, whereas international trade is more critical for lower-income countries (Tekin, 2012). On the other hand, other studies were not able to find a direct link between FDI and institutional development (Mody and Wheeler, 2012). In another study by Harms and Unsprung (2002), political and civil liberties were found to be factors that attracted FDI as opposed to institutional aspects (Ahmed & Ahmad, 2014). As such it is inconclusive as to whether or not institutional stability plays a fundamental role in encouraging FDI.

Furthermore, there is theoretical literature that suggest that FDI can adversely impact economic growth. This is because the "growth accelerating effect of FDI" is based on the assumption that this does not crowd out domestic investment (Tekin 2012). There is also theoretical literature that supports the notion of institution-able stability encourage FDI. For instance the Douglas North approach discusses how institutions play a key role in economic growth. Even from a theoretical perspective, it seems that the literature is inconclusive on the exact role that institutional stability plays, and how other factors react to it.

This paper will focus on Canada, because in recent years it is one of the economies that have performed extremely well, despite the global financial crisis in the past decade. Despite its proximity to the U.S. economy, none of the banks in Canada failed. Unlike other central banks, Bank of Canada did not resort to quantitative easing during this time. This can be attributed to good regulation, and the willingness of business and the government to react decisively. As Chrystia Freeland noted in the Financial Times in 2010, "One of the most important policy debates today…is what caused the crisis and what should be done to prevent repetition…that's where Canada comes in. It is a real-world, real-time example of a banking-system in a medium-sized, advanced capitalist economy that worked. Understanding why the Canadian system survived could be a key to making the rest of the world equally robust." While this study will not provide the answer to avoiding future crisis, it may provide some insight that can benefit policy makers around the world.

The main objective of this study is to explore the long run impact of institutional quality on FDI with respect to the Canadian economy by applying the Autoregressive Distributed Lag (ARDL) cointegration technique. FDI is a critical part of economic growth, and knowing what drives this is necessary for policy makers to adopt strategies to ensure the correct balance of FDI is maintained. While the focused variables in this study are FDI and institutional stability, other macroeconomic control variables were also included in the model, namely GNP, inflation, and exports (these variables were chosen based on similar studies that have been conducted).

The key findings of this paper are that the variables are cointegrated, indicating that there is a long run (theoretical relationship) between them. The Error Correction Model shed light on institutional stability being an exogenous variable (leader), and FDI being an endogenous variable (follower). As such for policy makers to attract more FDI into Canada, they must focus on the stability level of institutions, which will in turn attract FDI.

The paper is divided into a total of 5 sections. The next section in this paper is the literature review, which reviews both theoretical and empirical controversies on the issue. The next section explains the data used, followed by methodology, empirical results and the discussion of what the results mean. Last but not least, the study will conclude providing recommendations for policymakers.

Literature Review

The literature from previous studies shows that there is a link between institutional quality and foreign direct investment (FDI). It has been found that poor institutional quality, which includes factors such as corruption, bureaucratic delays, and poor law and order governance; adversely impact FDI in developing countries (Ahmad & Ahmed, 2014). According to Globerman and Shapiro (1999, 20002), better institutional quality encourages FDI inflows, as it makes it easier for multinational corporations to invest abroad. Corruption was found to be the most important deterrent to FDI, according to a study done by Brunetti (1998).

On the other hand, not all studies show that there is a strong link between FDI and institutional stability. In a study conducted by Mody and Wheeler (1992), they were not able to find any relationship between the two. It is possible that institutional stability has an indirect impact on FDI, since it affects factors such as human capital and quality of public facilities, which affect FDI. A study by Jun and Singh (1996) concluded that institutions do not have a substantial impact in promoting FDI (Ahmad & Ahmed, 2014).

The Douglas North approach discusses the role that institutions play in economic growth and investment. According to North, institutions affect economic growth by increasing or decreasing transaction and production costs. When institutions are inefficient or unstable, this contributes to higher production costs (Ahmad & Ahmed, 2014). Dunnings eclectic paradigm examines why local firms choose to operate beyond the domestic economy. There are three key reasons for this, consisting of ownership advantage, internalization advantage, and locational advantage. Based on Douglas North and Dunnings theoretical underpinnings, there seems to be a relationship between FDI and institutional stability. However, there is also the concern of crowding out domestic investment (Tekin 2012). As such, it is not just institutions that affect FDI, but also ensuring there is a healthy balance of domestic and international investments.

Developed countries are known to push for more conditionality requirements when it comes to dealing with foreign governments with respect to trade policies, transparency, law, and the business environment. An example of this is the 1977 US Foreign Corrupt Practices Act, banning US firms from bribing foreign governments, even if that law doesn't exist abroad (i.e. in India or China). Such legislations do encourage developing countries

to adopt the standards of developed countries (Demir, 2015).

A number of studies suggest that institutional development is one of the sources of competitive advantage affecting long run growth of a country (Demir, 2015). In the remainder of this paper, the ARDL technique will be applied to assess if the empirical results are in line with empirical and theoretical literature.

The Model, Data & Methodology

A variety of factors are used to assess institutional stability in Canada. The study is based on annual time series data consisting of institutional stability (INST), inflation (INF), gross national product (GNP), exports (XP) and foreign direct investment (FDI). The factors used in this study are macroeconomic factors.

The functional form of the model is as follows:

INST = f {INF, GNP, XP, FDI}

The sample period used is from 1981 to 2014, obtained via DataStream and Thomson Reuters. There are a total of 33 observations.

The Augmented Dicky- Fuller (ADF) test was conducted to see if there were any unit roots and to identify order of integration for each variable. Further tests were done using Phillips-Perron (PP), which is different from ADF since it deals with autocorrelation and heteroscedasticity in the errors. As such it is a more comprehensive test. Since the variables in this study are a combination of stationary and non-stationary variables. The auto regressive distributive lag (ARDL) approach is used. This technique can be applied regardless of order of integration. In addition, it is more robust when dealing with smaller sample sizes and when there is cointegration.

The variables are tested for cointegration based on the F-statistic. The null hypothesis being that there is no cointegration. The F-statistic is compared against two bounds of critical values. Based on the bound test, cointegration exists if the F-statistic is above the upper bound. Further, Error Correction Models (ECM) was drawn from ARDL. From this, outcome of long run estimates can be determined.

The testing will begin with diagnostic tests. After this the stationarity of the variables will be determined. Ideally, in level form the variables should be non-stationary,

and in differenced form they should be stationary. This was not found to be case for this study, so the ARDL approach was applied.

Empirical Results & Discussion

To check the unit roots of the variables Augmented Dickey Fuller Test (ADF), and Phillip-Peron (PP) Test were conducted. The results of these tests can be used to determine whether ARDL modelling needs to be applied. The variables were found to be a combination of stationary and non-stationary, and the results were not consistent in either of the tests. As such, ARDL modelling was applied.

Table 1: Augmented Dickey Fuller (ADF) Test

Variables	Test Statistic	Critical Value	Implication
Level Form			
LINST	-2.5143	-3.6316	Non-Stationary
LINF	-4.4857	-3.6316	Stationary
LFDI	-3.2683	-3.6278	Non-Stationary
LGNP	-2.6748	-3.6316	Non-Stationary
LXP	-0.97975	-3.6278	Non-Stationary
Differenced Form			
DINST	-3.6755	-2.9447	Stationary
DINF	-3.6614	-2.9681	Stationary
DFDI	-3.9962	-2.9753	Stationary
DGNP	-4.5725	-2.9447	Stationary
DXP	-4.2765	-2.9447	Stationary

Table 2: Phillips Peron (PP) Test

Variables	Test Statistic	Critical Value	Implication
Level Form			

LINST	-1.3765	-3.6494	Non-Stationary
LINF	-1.5047	-3.6494	Non-Stationary
LFDI	-3.6531	-3.6494	Stationary
LGNP	-2.4345	-3.6494	Non-Stationary
LXP	-1.2803	-3.6494	Non-Stationary
Differenced Form			
DINST	-4.3384	-2.927	Stationary
DINF	-6.4501	-2.927	Stationary
DFDI	-10.9645	-2.927	Stationary
DGNP	-6.6588	-2.927	Stationary
DXP	-4.647	-2.927	Stationary

Next the vector auto regression (VAR) must be determined, to determine the VAR order for the ARDL model. As a side note, this is not necessary given that ARDL finds the appropriate lag for each variable. As per table below, there is a conflict in the results. AIC suggests 4 lags, whereas SBC suggests 1 lag.

Table 3: VAR Order Selection

	Criteria	
	AIC	**SBC**
Optimal Order	4	1

To address this conflict, each variable was checked to see if there was any autocorrelation. The test indicated that there is, as such a VAR order 2 was selected, which is in between AIC and SBC.

Table 4: ARDL

Variables	**F Statistic**	**Critical Value Lower**	**Critical Value Higher**
DINST	1.613	3.189	4.239
DINF	34.4583	3.189	4.239
DFDI	4.0189	3.189	4.239
DGNP	1.2883	3.189	4.239
DXP	5.5737	3.189	4.239

The above table shows that the F statistics for DINF and DXP are 34.46 and 5.57,

respectively, at the 5% significance level. Since there are 2 variables above the upper bound, the null hypothesis can be rejected (the null hypothesis is that there is no cointegrating long-run relationship).

The results indicate that institutional stability (DINST), inflation (DINF), foreign direct investment (DFDI), gross national product (DGNP) and exports (DXP) move together in the long run. As such there is a theoretical relationship among the variables. To better understand what happens when the results deviate in the short-run, and how long it takes for it to return to long-run equilibrium, the error-correction model is applied below.

Table 5: Error Correction Model

Variables	Coefficient	Standard Error	T-Statistics	P Value
ECM (-1) DINST	-0.36306	0.24451	-1.4849	0.161
ECM (-1) DINF	0.020907	0.09132	0.22894	0.822
ECM (-1) DFDI	-1.1075	0.19241	-5.7558	0
ECM (-1) DGNP	0.45081	0.098565	4.5737	0
ECM (-1) DXP	-0.59946	0.11768	-5.0941	0

The t-statistic or p-value of the error correction coefficient, tells us if deviating from the equilibrium significantly affects the dependent variable, which allows us to classify the variable as exogenous (leader) or endogenous (follower). Also the size of the coefficient tells us the speed of short-run adjustment in converging back to equilibrium.

From the table above, there are 2 exogenous variables and 3 endogenous variables. Institutional stability (DINST) and inflation (INF) are independent variables, given that the p-value is greater than 5%. Foreign direct investment (DFDI), gross national product (DGP), and exports (DXP) were all found to be dependent variables. The result of the exogenous variables does not contradict literature. From past studies, we know that institutional stability does impact FDI, and they tend to move in the same direction (as in higher institutional stability attracts higher FDI). In addition, inflation, which is a proxy for macroeconomic stability, has been found to significantly affect FDI (Ahmad & Ahmed, 2014). FDI, GNP and exports were found to be endogenous variables. Again this is consistent with literature. In this study GNP was used, although majority of studies used GDP. The GNP proxy was used due to limitation in finding enough data for GDP. With respect to exports, former studies have found it has a positive relationship with FDI and

8

financial stability (Goswami, 2013). The positive relationship with FDI was more prominent for countries with manufactured exports. This implies that financial stability plays a more prominent causal effect on exports, in comparison to FDI.

Given the findings above and previous literature, FDI was chosen as among the endogenous variables, since the purpose of the study is to see institutional stability affects FDI.

While VECM can aid in identifying which variable is exogenous versus endogenous, it cannot provide the relative endogeneity and exogeneity of each variable. A more exogenous variable is explained by more the variability in its own past. Identifying the relative exogeneity and endogeneity is a necessary for policy makers as it allows them to implement effective policies using appropriate tools. Although results for orthogonalized VDC were obtained, the results were not analyzed based on this. There are 2 key limitations to this approach, which includes that that the order of the variables is dependent on the VAR, and when one variable is shocked the other variables is assumed to be switched off. These limitations do not exist for Generalized VDC.

The table below summarize the results of the Generalized VDC is summarized below. Institutional stability was found to be the most exogenous variable, which is consistent with expectations.
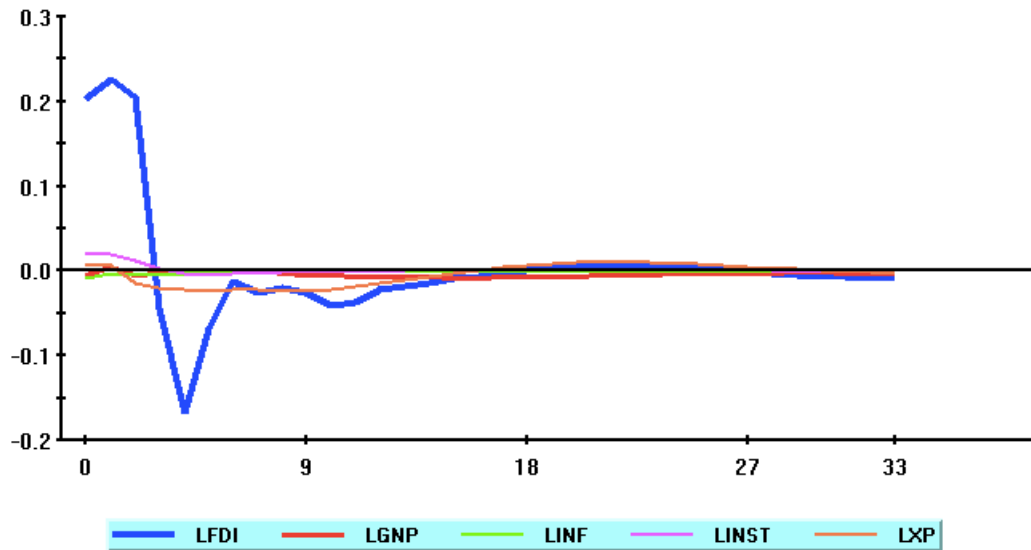
Table 6: Generalized VDC

	HORIZON	LFDI	LGNP	LINF	LINST	LXP	Total	Rank
LDFI	3	61.01%	2.62%	1.97%	16.95%	17.44%	100.00%	3
LGNP	3	10.35%	48.45%	39.23%	0.95%	1.02%	100.00%	5
LINF	3	2.52%	33.79%	49.97%	5.21%	8.51%	100.00%	4
LINST	3	12.41%	0.90%	5.37%	70.16%	11.16%	100.00%	1
LXP	3	9.89%	2.88%	16.63%	6.87%	63.73%	100.00%	2

The information presented in the VDC can also be presented graphically via Impulse Response Function (IRF). The IRF maps out the dynamic response path of all variables when a particular variable is shocked to see the effects in the long run. The IRF for the most exogenous variable, institutional stability is provided below (the remaining graphs are in the Appendix).

9

Table 7: Impulse Response

Generalised Impulse Responses to one SE shock in the equation for LINST

Legend: LFDI, LGNP, LINF, LINST, LXP

Concluding Remarks & Policy Implications

Several studies have been conducted on FDI and institutional development (or other macroeconomic factors). This is not surprising given that we operate in highly integrated global community. This study focused on the Canadian economy to see the role institutional stability plays in its economy, given its economy's has been the less volatile over the past decade as compared to other economies. The study employed ARDL techniques to assess the above.

From the study, it can be concluded that there is an empirical causal link between FDI and institutional stability. Most of the literature found, both empirical and theoretical, do support this finding. The key finding of this study is that FDI and institutional stability are cointegrated in the long run. In addition, institutional stability causes FDI (since institutional stability is exogenous).

Canada is known to employ risk-averse policies in comparison to its neighbor – United States. While Canada has been 'looked down upon' for being so risk averse, such policies have created a safer economic environment for institutions to flourish and remain

stable over the long run. This is critical in attracting FDI, since foreign investors want to feel that their investment is safe. Overall Canadian policy makers are doing a good job of mitigating risk and creating a positive economic environment. They should continue to monitor and implement policies that encourage good business practices and healthy levels of risk taking. The global economy however is always changing, as such policy makers should be alert with regards to any changes in the environment.

References

1. Ahmed, M. H., and Q. M. Ahmed (2014), Does the Institutional Quality Matter to Attract the Foreign Direct Investment? An Empirical Investigation for Pakistan. *South Asia Economic Journal,* 15 (1), 55-70.

2. Arnett, George (2014) Foreign Direct Investment: Which Countries Get the Most? *The Guardian*. Guardian News and Media, 24 June 2014, Web. 8 May 2016.

3. Demir, Firat (2016), Effects of FDI Flows on Institutional Development: Does it Matter Where the Investors Are From? *World Development,* 78, 341-59.

4. Goswami, N (2013), Determinants of Trade Development: Panel Evidence from South Asia, *South Asia Economic Journal,* 14 (1), 17-33.

5. Kiladze, Tim (2016), The 2008 Financial Crisis: Through the Eyes of Some Major Players, *The Globe and Mail,* Web, 08 May 2016.

6. Lynch, Kevin (2016), Avoiding the Financial Crisis: Lessons from Canada – Policy Options, *Policy Options*, Web, 08 May 2016.

7. Pegkas, Panagiotis (2015), The Impact of FDI on Economic Growth in Eurozone Countries. *The Journal of Economic Asymmetries*, 12(2), 124 -132.

8. Tekin, Rifat (2012). Economic Growth, Exports and Foreign Direct Investment in Least Developed Countries: A Panel Granger Causality Analysis. *Economic Modelling,* 29(3), 868 -878.