JMEE

Journal of Marketing and Emerging Economics

| e-ISSN: 2792-4009 | www.openaccessjournals.eu | Volume: 3 Issue: 7

The main determinants of export performance in CANADA

Saidov Khabibulla Shavkat ogli
Tashkent State University of Economics
Student of the Faculty of Finance and Accounting
khabibullasaidov@gmail.com

Abstract

Due to the fact that the Gross Domestic Product (GDP) is calculated with the help of net export, we can assume that the country's export performance has a large effect on the economic growth of the country. Moreover, export has a positive influence on the relationship between countries and unemployment rates which have an indirect effect on the economy of the country. Being the determinant of the well-being of the country, export has its own factors such as Foreign Direct Investment (FDI), Inflation, Exchange rate, and so on.

This paper will analyze several determinants of export performance in Canada by discussing previous researches, empirical analysis of the collected data, and OLS assumptions. The results of the study can be helpful for understanding the factors of export and for making the right economic decisions in this sector.

Keywords: *Gross Domestic Product, Foreign Direct Investment, Inflation, Exchange rate, Ordinary Least Square.*

Introduction

Due to the fact that the Gross Domestic Product (GDP) is calculated with the help of net export, we can assume that the country's export performance has a large effect on the economic growth of the country. Moreover, export has a positive influence on the relationship between countries and unemployment rates which have an indirect effect on the economy of the country. Being the determinant of the well-being of the country, export has its own factors such as Foreign Direct Investment (FDI), Inflation, Exchange rate, and so on. In our case, Canada's total export of goods and services has similar determinants. Positive changes in these factors have been influencing export performance which leaded Canada to become the 10th-highest exporter in the world today. This paper will analyze several determinants of export performance in Canada by discussing previous researches, empirical analysis of the collected data, and OLS assumptions. The results of the study can be helpful for understanding the factors of export and for making the right economic decisions in this sector.

Literature review

There were conducted several studies that tried to find the factors affecting the export performance of the country. Most of the articles analyzed the different determinants in the case of other countries. One of the first researches was made by Majeed and Ahmad in 2006. They took several variables that could affect the export and tried to check the regression model in the case of 75 developing countries. Using the Fixed effects model, they have realized that the factors such as GDP, Exchange rate, and labor force growth, have a significant impact on the export performance of those countries. On the other hand, in 2018, Bostan et al tried to find the negative effect of the

exchange rate on the country's total export. It was found that there is a slight negative influence of the exchange rate and interest rate on the Romanian total export. Moreover, the results of the OLS method in the research of Bostan et al (2018), had also shown that Foreign Direct investment has a significant effect on the export performance of Romania. A year after this study, Jerome Kueh et al. had made research in the ASEAN region and checked determinants such as inflation, exchange rate, foreign direct investment, and so on. The empirical results of this study showed that Inflation had the strongest impact on the export performance in the ASEAN region. Furthermore, Bhavan, T. (2016) tried to find the factors affecting the export in the case of Sri Lanka. He took several variables like gross capital, interest payment on dept, and others, and by the OLS method found the coefficients of selected determinants. The results showed that all variables have a large effect on export in Sri Lanka. In addition, there was conducted research in the case of Canada by Hassan, M.S., Kausar, A. and Arshed, N. in 2022. By analyzing several studies about determinants of export performance, Hasan et al. took Exchange rate, Energy consumption, interest rate, and total population as independent variables. Even if the data fitted the model for 97 percent, the results showed that only one factor (Energy consumption per capita) has a significant impact on the export performance of Canada.

Data description

In order to obtain the Ordinary Least Square (OLS) method in the Stata software, it was collected a data from the World Bank Open Data for the 31-year period starting from 1990. Since the study looks for factors that affect export performance in Canada, the total annual export is taken as a dependent variable. Moreover, according to the articles provided in the literature review, Foreign Direct Investment, Inflation, and the Exchange rate of the country have a large influence on the export of it. Therefore, in this study, they are taken as independent variables. In addition to this, the Crude oil annual average price was also selected as the determinant of export, due to the fact that Canada is one of the largest oil exporters in the world.

The total annual export, Foreign Direct Investments, and Crude Oil prices are calculated in US dollars. The inflation is in percentage and the exchange rate is taken as CAN per USD. Moreover, the selected data was converted into natural logarithms, thus we will not face the issues with skewness of the highly skewed distribution.

Descriptive statistics

Table №1

Variables	ln(Export of goods and services)	ln(Inflation)	ln(Foreign Direct Investment)	ln(Exchange rate)	ln(Crude oil annual average price)
Mean	26.58127	0.5090688	23.84312	0.2268228	3.656329
Maximum	27.0743	1.727375	25.51451	0.4512667	4.654052
Minimum	25.72836	-1.798404	21.09649	-0.0107577	2.569894
Std. dev.	0.4485923	0.6827459	1.024963	0.1325375	0.6699769
Observations	31	31	31	31	31

Methodology

The Ordinary Least Square (OLS) method is the widely used method that helps to easily calculate the parameters of the regression model and test the hypothesis. Therefore, in order to use the OLS method for this study, the hypothesis and the linear regression model should be set. You can find them below.

Hypothesis:

H0: the selected determinants do not affect the export performance.

JMEE
Journal of Marketing and Emerging Economics
| e-ISSN: 2792-4009 | www.openaccessjournals.eu | Volume: 3 Issue: 7

Ha: the selected determinants affect the export performance.

The linear regression model:

ln(Export) = β0 + β1*ln(Inflation) + β2*ln(FDI) + β3*ln(ExchangeRate) + β4*ln(CrudeOilPrice) + yx + u

β0 is an indicator of intercept, that shows the minimum amount of export when the independent variables are equal to zero.

β1, β2, β3, and β4 are the coefficients of the selected determinants in this model. By these coefficients, we can predict how the dependent variable changes when one of the independent ones fluctuates for one unit.

u is an error term.

Empirical results

Table №2

Number of Observation	31	F(4, 26)	114
Prob > F	0.0000	Root MSE	0.11191
R Squared	0.9461	Adj R-squared	0.9378

Table №3

Variables	Coefficients	Std. error	t statistics	p-value
The dependent variable is ln(Export)				
ln(Inflation)	-0.0421126	0.0300771	-1.4	0.173
ln(FDI)	0.0321082	0.0277876	1.16	0.258
ln(Exchange rate)	1.861356	0.2456103	7.58	0.000
ln(Crude Oil Price)	0.8311648	0.0602894	13.79	0.000
constant	22.37594	0.536945	41.67	0.000

The tables above show us the results of the regression taken from the Stata software. In Table №2, it can be seen that the main results of the regression. The number of observations is 31 which is higher than the minimum amount for the OLS method. In addition, we can find that the Prob > F is equal to zero. This means our regression is significant and we are 99 percent confident to reject the null hypotheses. Moreover, the R Squared which shows how much of the data fits the regression model is about 0.9461 in our case. Therefore, we can state that in 94.61 percent of cases, our model can explain the correlation between the variables and can predict the future value of export performance.

Table №3 shows us the information about each independent variable. First, if we check the p-value of each determinant, it can be found that Inflation and Foreign Direct Investment have higher p-value than alpha. Thus, it can be stated that these independent variables have no strong influence on the export performance in Canada. On the other hand, the Exchange rate and the Crude oil price have a significant effect on the value of export. Furthermore, the results also show that both the Exchange rate and Crude oil prices have a positive impact on the export performance of Canada. The one-unit growth in the Exchange rate will increase the export by about 1.86 units, and one unit rise in Crude oil price will grow the export by about 0.83 units.

Overall, we can conclude that the Exchange rate and Crude oil price have a large effect on the export performance of Canada. Results found in this study differ from previous ones that proved the relationship between Foreign Direct Investment and Inflation with export performance.

OLS Assumptions

JMEE
Journal of Marketing and Emerging Economics
| e-ISSN: 2792-4009 | www.openaccessjournals.eu | Volume: 3 Issue: 7

Zero conditional means of the error term

Variables	Observation	Mean	Std. dev.	Min	Max
Uhat	31	-3.38E-10	0.1041871	-0.2023508	0.2447958

Zero conditional mean assumption states that the mean of the error term indicates the relationship of other not observed variables with the independent variable and the expected error term for the

	lnExport	lnInflation	lnFDI	lnExchangerate	lnCrudeOilprice

given independent variable should be equal to zero. In the table above, it can be seen that the mean of the error term is not equal to zero, thus error term should not be put into the regression.

Homoscedasticity

In order to find if the regression is homogeneous or heterogeneous, the Breusch-Pagan test is often used. The null hypothesis should be rejected if the p-value is smaller than the alpha.

Breusch-Pagan / Cook-Weisberg test for heteroskedasticity

Ho: residuals have equal variances

Ha: residuals have no equal variances

Variables: fitted values of lnexport

chi2(1) = 2.15

Prob > chi2 = 0.1424

The result above shows that the p-value is 0.14, which is higher than the significant level (5%), thus we fail to reject the null hypothesis and state that the selected data is homoscedastic.

No autocorrelation

time variable	years, 1 to 31
Delta	1 unit

Durbin-Watson d-statistic (5, 31)	1.37961

We have made an autocorrelation test of our model, in order to find if there is a correlation between a given time series and a lagged version of itself over successive time intervals. Therefore, it was found the d-value and checked by the Durbin-Watson table. If the d-value is in the range provided in the Durbin- Watson table, it means that there is zero correlation. In our case, the d-value is in the range, thus we can state that there is no autocorrelation.

No perfect multicollinearity

Variables	VIF	1/VIF
lnCrudeOilprice	3.91	0.25589
lnExchangerate	2.54	0.393989
lnFDI	1.94	0.51468
lnInflation	1.01	0.990065
mean VIF	2.35	

JMEE
Journal of Marketing and Emerging Economics
| e-ISSN: 2792-4009 | www.openaccessjournals.eu | Volume: 3 Issue: 7

lnExport	1				
lnInflation	-0.0723	1			
lnFDI	0.7143	-0.0501	1		
lnExchangerate	-0.3752	-0.0687	-0.2592	1	
lnCrudeOilprice	0.8824	0.0268	0.6286	-0.7335	1

The multicollinearity of the variables means that there is a correlation between independent variables. Having a multicollinearity can cause the unreliability of the results. Thus, this regression model was checked for the availability of multicollinearity by Vif test. If the values are higher than 5, the model has perfect multicollinearity. In the tables above, it can be seen that the values of VIF are lower than 5, thus we can state that there is no perfect multicollinearity.

Conclusion

To sum up, by analyzing several past studies, and running the regression model in the Stata Software, it was found that the Exchange rate and the Crude oil price had a positive significant influence on the export performance in Canada. Therefore, we can reject the null hypothesis for these two variables. On the other hand, the other variables showed us insignificant relationships, which leads to failing to reject the null hypothesis for these determinants. Overall, this study gives a bit of advice to increase the two significant independent variables in order to increase the export performance of Canada.

Appendix

```
. sum lnexport lninf lnFDI lnExchangerate lnOilprice
```

Variable	Obs	Mean	Std. Dev.	Min	Max
lnexport	31	26.58127	.4485923	25.72836	27.0743
lninf	31	.5090688	.6827459	-1.798404	1.727375
lnFDI	31	23.84312	1.024963	21.09649	25.51451
lnExchange~e	31	.2268228	.1325375	-.0107577	.4512667
lnOilprice	31	3.656329	.6699769	2.569894	4.654052

```
. reg lnexport lninf lnFDI lnExchangerate lnOilprice
```

Source	SS	df	MS		
				Number of obs	= 31
				F(4, 26)	= 114.00
Model	5.7114029	4	1.42785073	Prob > F	= 0.0000
Residual	.325648806	26	.012524954	R-squared	= 0.9461
				Adj R-squared	= 0.9378
Total	6.03705171	30	.201235057	Root MSE	= .11191

lnexport	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
lninf	-.0421126	.0300771	-1.40	0.173	-.103937	.0197119
lnFDI	.0321082	.0277876	1.16	0.258	-.02501	.0892263
lnExchangerate	1.861356	.2456103	7.58	0.000	1.356497	2.366216
lnOilprice	.8311648	.0602894	13.79	0.000	.7072383	.9550914
_cons	22.37594	.536945	41.67	0.000	21.27224	23.47965

JMEE
Journal of Marketing and Emerging Economics
| e-ISSN: 2792-4009 | www.openaccessjournals.eu | Volume: 3 Issue: 7

```
. predict uhat, residual

. sum uhat

    Variable |        Obs        Mean    Std. Dev.       Min        Max
-------------+---------------------------------------------------------
        uhat |         31   -3.38e-10    .1041871  -.2023508   .2447958

. estat hettest

Breusch-Pagan / Cook-Weisberg test for heteroskedasticity
         Ho: Constant variance
         Variables: fitted values of lnexport

         chi2(1)      =     2.15
         Prob > chi2  =   0.1424

. gen years = _n

. tsset years
        time variable:  years, 1 to 31
                delta:  1 unit

. dwstat

Durbin-Watson d-statistic(  5,    31) =   1.37961
```

```
. vif

    Variable |       VIF       1/VIF
-------------+----------------------
  lnOilprice |      3.91    0.255890
lnExchange~e |      2.54    0.393989
       lnFDI |      1.94    0.514680
       lninf |      1.01    0.990065
-------------+----------------------
    Mean VIF |      2.35

. corr lnexport lninf lnFDI lnExchangerate lnOilprice
(obs=31)

             | lnexport    lninf    lnFDI lnExch~e lnOilp~e
-------------+---------------------------------------------
    lnexport |   1.0000
       lninf |  -0.0723   1.0000
       lnFDI |   0.7143  -0.0501   1.0000
lnExchange~e |  -0.3752  -0.0687  -0.2592   1.0000
  lnOilprice |   0.8824   0.0268   0.6286  -0.7335   1.0000
```

References

1. Bhavan, T. (2016). The Determinants of Export Performance: The Case of Sri Lanka The Determinants of Export Performance: The Case of Sri Lanka. International Research Journal, 5(8), pp.8–13. [Accessed 21 Nov. 2022].
2. Bostan, I., Toderașcu (Sandu), C. and Firtescu, B.-N. (2018). Exchange Rate Effects on International Commercial Trade Competitiveness. Journal of Risk and Financial Management, 11(2), p.19. doi:10.3390/jrfm11020019. [Accessed 21 Nov. 2022].
3. data.worldbank.org. (n.d.). Exports of goods and services (current US$) - Canada | Data. [online] Available at: https://data.worldbank.org/indicator/NE.EXP.GNFS.CD?locations=CA. [Accessed 21 Nov. 2022].
4. data.worldbank.org. (n.d.). Foreign direct investment, net inflows (BoP, current US$) - Canada | Data. [online] Available at:

https://data.worldbank.org/indicator/BX.KLT.DINV.CD.WD?locations=CA [Accessed 21 Nov. 2022].

5. data.worldbank.org. (n.d.). Inflation, consumer prices (annual %) - Canada | Data. [online] Available at: https://data.worldbank.org/indicator/FP.CPI.TOTL.ZG?locations=CA. [Accessed 21 Nov. 2022].
6. Hassan, M.S., Kausar, A. and Arshed, N. (2022). Investigating Export Determinants: A Time Series Evidence From Canada. SAGE Open, 12(2), p.215824402211010. doi:10.1177/21582440221101037. [Accessed 21 Nov. 2022].
7. Oo, T., Kueh, J. and Hla, D.T. (2019). Determinants of Export Performance in ASEAN Region: Panel Data Analysis. International Business Research, 12(8), p.1. doi:10.5539/ibr.v12n8p1. [Accessed 21 Nov. 2022].
8. Tariq Majeed, M. and Ahmad, E. (2006). Determinants of Exports in Developing Countries. The Pakistan Development Review, [online] 45, pp.1265–1276. Available at: https://www.pide.org.pk/pdf/PDR/2006/Volume4/1265-1276.pdf [Accessed 24 Nov. 2022].
9. Worldbank.org. (2022). World Bank Commodity Price Data (current US$) [online] Available at: https://thedocs.worldbank.org/en/doc/5d903e848db1d1b83e0ec8f744e55570-0350012021/related/CMO-Historical-Data-Monthly.xlsx [Accessed 24 Nov. 2022].
10. Zukhriddinoglu, N. J. (2022). Theoretical Foundations of the Concept of the Company's Competitiveness. International Journal on Orange Technologies, 4(3), 86-90.
11. Nizomiddinov, J. Z. O., & Burkhanov, A. U. (2022). IMPROVING METHODS FOR ASSESSING THE COMPETITIVENESS OF TRADE ENTERPRISES. In АКТУАЛЬНЫЕ ВОПРОСЫ НАУКИ 2022 (pp. 42-44).
12. Usmanovich, B. A. (2021). WAYS TO IMPROVE THE FINANCIAL RESULTS OF ENTERPRISES. In Interdisciplinary Conference of Young Scholars in Social Sciences (USA) (pp. 176-178).
13. Zuhriddin o'g'li, N. J. (2022). O'ZBEKISTONDA ICHKI TURIZMNI RIVOJLANTIRISH. BARQARORLIK VA YETAKCHI TADQIQOTLAR ONLAYN ILMIY JURNALI, 2(6), 159-163.
14. Zuhriddin o'g'li, N. J. (2022). RAQAMLI TEXNOLOGIYALARNING TASHQI IQTISODIY FAOLIYATNI RIVOJLANTIRISHDAGI O 'RNI. IJTIMOIY FANLARDA INNOVASIYA ONLAYN ILMIY JURNALI, 2(6), 45-48.
15. Zukhriddin o'g'li, N. J. (2022). MUQIMIYNING IJODIY MEROSI. TA'LIM VA RIVOJLANISH TAHLILI ONLAYN ILMIY JURNALI, 2(3), 82-85.
16. Zuxriddin o'g'li, N. J. (2022). КОРХОНАЛАР РЕНТАБЕЛЛИГИНИ ОШИРИШ ЙЎЛЛАРИ. BARQARORLIK VA YETAKCHI TADQIQOTLAR ONLAYN ILMIY JURNALI, 212-215.
17. Zukhriddinoglu, N. J., & Usmanovich, B. A. (2022). Improving Methods for Assessing the Competitiveness of Trade Enterprises. International Journal on Integrated Education, 5(2), 42-44.
18. Oglu, N. J. Z., & Usmanovich, B. A. (2022). Increasing the competitiveness of an industrial enterprise in the foreign market.
19. Usmanovich, B. A. (2022). CONDITIONS AND FACTORS FOR INCREASING COMPETITIVENESS. Лучшая научно-исследовательская работа 2022 3, 53.