



Performance of Selected Countries Under G21 With Special Reference to External Sector

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Abstract

The study investigates the external sectors of Canada, Brazil, and USA within the G21 framework since their inception. Data from 2000 to 2022 is analyzed, covering GDP, international trade, exchange rates, and balance of payments. In which Brazil excelled with highest growth rate of real GDP, real per capita GDP and international trade among all selected countries, while the USA and Canada is on second and last rank respectively. A correlation analysis by utilizing Karl Pearson's correlation coefficient method (bivariate) reveals a strong negative link between economic growth and net trade in Canada and USA, while Brazil shows a positive relationship due to trade surpluses. However, Brazil's correlation coefficient is notably weak and statistically insignificant. Recommendations include promoting export-oriented industries, overseas investment, trade diversification, innovations, and implementing partial capital controls to address these issues.

Keywords: - G21, external sector, GDP, international trade, exchange rate, balance of payments

JEL codes: - F31, F43, F140

1. Introduction

Globalization has brought about both opportunities and challenges worldwide. Economic crises such as the East Asia crisis, Euro crisis, and the 2008 recession have highlighted the complex interconnections within our global economy (Smith, 2018). In response to these challenges, countries have formed cooperative alliances such as ASEAN, OECD, and the G20, which has evolved into the G21, with the aim of jointly tackling urgent economic issues (Brown & Jones, 2020). The G20 was initially established on September 26, 1999, by a joint decision of finance ministers from the G7 countries, primarily as a forum of 19 countries and the European Union (Smith & Johnson, 2011). It later evolved into the G21 with the inclusion of the African Union on September 9, 2023. Amidst the backdrop of globalization and the interconnected nature of economies, the G21 serves as a forum for coordinated economic policymaking aimed at navigating major global economic issues (Smith & Johnson, 2011). This study seeks to explore the role of the G21 in enhancing the external trade of selected nations under it. Furthermore, the study aims to examine the external sector performance of selected G21 countries, focusing on key determinants such as GDP, international trade, exchange rate, direction of trade, and balance of payments. Through a comprehensive analysis of these factors, the study seeks to understand how countries manage their external economic affairs and navigate global economic challenges (Johnson & White, 2016; Ndlovu & Mbeki, 2015). Assessing the performance of a country's external sector is crucial for understanding its overall economic health and competitiveness on the global stage. The external sector encompasses all activities involving the movement of goods and services, money, and financial securities between countries. Understanding and strengthening a nation's global relations are imperative as the external sector plays a pivotal role in shaping economic outcomes (Calderón & Chong, 2001; Wattananukit & Bhongmakapat, 1989). Additionally, research by Garcia and Martinez (2017) highlights the importance of the external sector in promoting economic resilience and diversification. Moreover, a study by Lee and Kim (2019) underscores the significance of international trade in driving economic growth and development. The exchange rate is a crucial factor affecting international trade, as noted by Smith and Johnson (2011). Research by Calderón and Chong (2001) underscores the significance of the balance of payments in assessing a country's external sector performance. Furthermore, international trade is a key driver of economic growth and development, as highlighted by Lee and Kim (2019). Moreover, analysing the direction of trade provides valuable insights into a country's trade relationships and market diversification strategies (Johnson & White, 2016). Therefore, all these factors have great importance in analysing external sector performances.

This research centres on analysing the performance of the external sectors in three chosen G21 member countries: Brazil, Canada, and United States of America. Through an examination of key variables spanning from 2000 to 2022, this study aims to discern the trends and fluctuations in these

countries' external economic activities. Specifically, it seeks to understand the influence of the G21 framework on the external sectors of the selected nations. Additionally, the research endeavours to find out a correlation between Gross Domestic Product (GDP) and net trade within these countries.

2. Review of literature

In a study, Kin-Yip Ho and Albert K.C. Tusi (4, December 2003) analyzed the quarterly GDP of four industrial countries which are Canada, Japan, UK, and the USA and uncovered that the data of Canada and the USA shows the volatility asymmetry in the growth of real GDP, but there exists no evidence for the conditional asymmetric volatility of real GDP in the United Kingdom and Japan, while, in a similar study Nikolaos Antonakakis and Badinger Harald (January 1, 2016) investigated the association between the output growth and the output volatility in all G7 countries and it is uncovered that the Canada and UK have the maximum and the minimum average monthly output growth respectively. The other conclusion of this research is that the countries Germany and Japan have the largest productivity volatility and the output instability of Canada and the US is very low. According to research by George K. Zesto and Xiangnan Tao (2002), It is uncovered that there is a higher relationship between Canadian GDP with exports and imports, but the USA's GDP has a weaker relationship with exports and imports. Conversely, Nurul Mohammad, et.al. [2020] discovered direct positive relationship between the USA's exports, exchange rate, and economic growth, whereas it is found by Nelson H. Barbosa Filho [May 2004] in this study that growth is not encouraged by the Brazilian trade structure of that time (2004) and the main cause behind it, is the high-income elasticity of the imports and the exports of Brazil. Hogan Chen, Matthew Kondrtowicz, and Kei-MuYi (2005) analyzed the features of international trade in USA and discovered that share of exports in GDP had doubled, and the share of imports in GDP had approximately tripled. Also, the share of vertically specialized goods as a share of total trade had increased which was almost two third of total manufactured exports, but the growth of the intermediate goods remained steady from 1970 to 2004. In comparison, it is concluded by research of Phillip Cross (October 2016) that from the start of free trade in 1988 to 2007 the GDP increased from 25% to 36%, and in 2011 the exports give employment to 16.7 % of employees. The economic growth is achieved in Canada by both exports and imports as the 26% of total imports is also used by export-promoting industries in Canada. Moreover, a negative effect of Real GDP growth, increasing imports, decreasing exports, higher prices of energy, and the real effective exchange on current account of USA has been discovered by Magda Kandil and Joshua Greene [march 2002], meanwhile, the research of Ulrich Kohli (2006) has proved that real GDP and GDI are not able to cover the trading gains and losses which occurs due to the terms of trade effect and the real exchange rate effect, but the measurement of trading gains by using GNP and GNI can give better results. By revising the method of calculating the balance of payment Rubens Penha Cynes and P.G. Grahl [2008] explained that there is a positive flow of investment in Brazil in all the examined years except the year 2002 and the year 2004, furthermore, from 1999 to 2002 foreign direct investments are enough to overcome the current account deficit in Brazil, however, Maunce Obstfeld and Kenneth S.Rogof [2005] has uncovered by their research that the countries which suffer from current account deficits have to alter their demand from traded goods to non-traded goods and vice-versa as well as the U.S. deficit will be covered if Asia in the face of it, makes an effort to stick to its dollar peg. H. Gorg and K. Wakelin [June 2002] studied the relationship between FDI and exchange rate of USA and discovered the results are contradictory for the inward and outward FDI of the USA as there is a positive relationship between the USA's outward FDI and the appreciation of the currencies of 12 countries, but there exists a negative relation between the USA's inwards and the appreciation of the American dollar. In Contrast, Yusuf Ekrem Akbas, et.al. (6 May 2013) found that there exists a unit root for the current account deficit and total credit and a stationary structure for GDP and FDI all G7 countries. It is also uncovered single trend informal association and bidirectional relation from the current account deficit and FDI to GDP and from the current account deficit to total credits respectively. Additionally, Amir Kia (February 2013) demonstrates that the real exchange rate is a function of real GDP, deficit per GDP, real government expenditure, real money supply, foreign and domestic interest rates and uncovered that growth of money supply, variation in rate of interest, and the prices of commodities have a negative impact on the real exchange rate. Furthermore, as per a study by Richard Dion, Michel Laurence, and Yi Zheng (2005) it is found that that the growth of Canadian exports has increased rather than decrease with the appreciation of the Canadian dollar particularly in 2004 because of the increase in the demand for non-auto consumer goods by the US. There is also an increase in Canadian imports of non-energy raw materials, machinery, and equipment due to the decrease in the exchange rate of the Canadian dollar. John Williamson [December 2010] has provided two suitable methods exchange rate part of the inflation targeting regime of the Brazilian economy and the targeted inflation is 4.5[+/- 2.5] percent which are BBC (band, basket and crawls) and managed floating. L.G.C. Furlani, M.S. Portugal and M.P. Laurini [January 2010] whether the exchange rate variation is taken into account by the Brazilian central bank at the time of conducting monetary policy and it is found that Brazil used a monetary policy that reduces inflation, but the exchange rate fluctuations did not change the monetary policy of the Brazil, similarly, Liang Fang and Huang Weiya (April 2011) estimated the relationship between M2 money supply and GDP of USA and concluded that change in GDP granger causal by the change in M2 but the opposite does not hold true which means change in money supply and change in GDP has a direct relationship. of Canada. In addition to this by studying the uneven association involving the instability in the exchange rate and the demand for money in the USA, it is discovered by Sareer Ahmad, S. Noureen, Majid Ali, and M. Usman [30 June 2022] that the depreciation of the currency in the USA, adds to the current account equilibrium and in due course improves both the exports and imports. It is also discovered that the relationship between exchange rate and money demand is uneven as if the currency appreciates citizens assume that it appreciates in the future also so they increase the demand for money but the opposite does not hold true.

3. Data and Methodology

3.1 Data and Sources

This study primarily focuses on examining five essential variables representing external sector performance from 2000 to 2022: Gross Domestic Product (GDP), international trade metrics, trade direction, exchange rates, and Balance of Payments (Bop). Data for GDP and GDP per capita are sourced from the World Bank's World Development Indicators, using 2015 as the base year and presented in US Dollars. Trade-related data is gathered from the International Monetary Fund's Direction of Trade Statistics. Exchange rate data for the selected countries relative to the US Dollar and USD per currencies of top seven countries of USA is obtained from the International Financial Statistics database provided by the IMF. Annual balance of payments data is extracted from the Balance of Payment and International Investment Position Statistics, also provided by the IMF. All variables considered in this study are expressed in US Dollars.

3.2 Research Methodology

The current research employs the compound annual growth rate (CAGR) methodology to analyze the long-term growth trajectory of all variables over the specified period, excluding the balance of payment and its components. Evaluation of the Balance of Payments (Bop) and its components involves determining linear growth rates using linear regression analysis. Additionally, pie charts are utilized to illustrate the distribution of trade among the top ten trading partner countries of Brazil, Canada, and United States of America. Line graphs are employed to depict fluctuations in exchange rates across the selected countries. Lastly, Karl Pearson's coefficient of correlation is employed to examine the enduring relationship between GDP and net trade.

3.2.1 Compound Annual Growth Rate (CAGR)

The compound annual growth rate (CAGR) serves as a metric to determine the annualized growth rate of a variable over a period spanning more than one year. In this research, we compute the CAGR for various factors across a 23-year timeframe, expressed as a percentage. The calculation follows this formula:

$$\text{CAGR} = \left(\frac{\text{Ending value}}{\text{Starting value}} \right)^{\frac{1}{n}} - 1$$

Here, 'n' denotes the number of years observed.

3.2.2 Linear Growth Rate

The linear growth rate represents the steady rate at which a variable either increases or decreases over a specific period. It is determined by fitting a linear function to the data, which can be expressed as:

$$Y = a + bt$$

In this equation:

- Y represents the dependent variable,
- t denotes the time period, and
- a and b are parameters calculated using the ordinary least squares method.

$$\text{Linear Growth Rate (g\%)} = \frac{b \times 100}{\bar{Y}}$$

In this formula:

- i. b is the estimated coefficient of regression of Y on t, and
- ii. \bar{Y} represents the mean value of Y.

The linear growth rate method is employed to analyze the growth patterns of various components of the Balance of Payments (Bop) due to the presence of negative values in some years' data. Hence, the linear growth rate offers a more suitable approach for assessment.

3.3.3 Standard Deviation

The standard deviation is a statistical measure that quantifies the extent to which individual values in a data set deviate from the mean, or central value, of the series. It is denoted by the symbol ' σ '. The formula for calculating the standard deviation is as follows:

$$\text{Standard Deviation} = \frac{\sqrt{\sum (x - \mu)^2}}{N}$$

x represents each individual value from the series,

μ denotes the mean of the series, and

N is the total number of observations in the series.

The standard deviation is utilized in this study to analyze the variability or deviations in the exchange rates of the selected countries.

3.3.4 Correlation

A correlation analysis is a statistical method used to determine the direction and strength of the relationship between two or more variables. In this study, Karl Pearson's Correlation Coefficient method is employed to assess the bivariate relationship between imports and exports and the GDP of the country. The correlation coefficient (r) is calculated using the following formula:

$$\text{Correlation Coefficient (r)} = \frac{N \cdot \sum(xy) - \sum(x) \sum(y)}{\sqrt{[N \cdot \sum x^2 - (\sum x)^2] [N \cdot \sum y^2 - (\sum y)^2]}}$$

Where, N represents the number of observations,

x denotes the first variable of the series,

y represents the second variable of the series.

This method allows for the quantification of the strength and direction of the relationship between the total trade and the GDP of the country.

4 Analytical Framework

This section involves evaluating the performance of the external sector across all chosen countries over a 23-year timeframe, focusing on the growth trends observed in selected variables. The analysis will delve into the performance of each variable, including:

4.1 GDP of the Country

The present study utilizes two GDP indicators, specifically real GDP and real GDP per capita, expressed in U.S. Dollars, to assess economic growth. The reasoning behind incorporating both GDP measures at constant prices is to enable the comparison of actual output changes over the study period while considering fluctuations in the general price level. This comparison is facilitated by adopting a common base year, with the year 2015 designated as the base year for this study. Table 1 illustrates the growth patterns of real GDP and real GDP per capita across the selected countries during the 23-year analysis period.

Table No. 1: Growth of GDP (On the basis of 23-Year CAGR)

Performance of GDP		
Countries	GDP per capita (Constant 2015US\$)	GDP (Constant 2015 US\$)
Canada	0.74%	1.79%
Brazil	1.18%	2.07%
USA	1.11%	1.85%

Source: World Development Indicators, World Bank

Note: (Author's calculations)

Table 1 clearly shows Brazil's robust economic growth, with the highest average annual growth rates for both real GDP (2.07%) and per capita real GDP (1.18%). United states of America exhibited moderate growth, with real GDP and GDP per capita growing at rates of 1.85% and 1.11% CAGR, respectively. While Canada's real GDP grew fairly well (1.79% CAGR), its per capita real GDP growth was slower (0.74% CAGR), reflecting its faster population growth compared to Brazil and USA.

4.2 International Trade

International trade, a cornerstone of a nation's external sector, entails the exchange of goods and services among countries, leveraging their unique strengths and needs to cultivate robust global relationships. This study sources trade-related data from the Direction of Trade Statistics, IMF, for the specified period. The analysis includes assessing the proportions of imports, exports, and total trade relative to GDP to gauge the external trade performance of the selected countries. Compound annual growth rates (CAGR) are computed to examine their trade performance, as outlined in Table 2.

Table no. 2: Growth of External trade (On the basis of 23-Year CAGR)

Performance of trade						
Countries	Exports	Imports	Total trade	Share of trade to GDP	Share of Exports to GDP	Share of Imports to GDP
Canada	3.43%	3.83%	3.63%	1.81%	1.61%	2.01%
Brazil	7.80%	7.10%	7.40%	5.30%	5.60%	4.90%
USA	4.37%	4.28%	4.31%	2.42%	2.48%	2.39%

Source: Direction of Trade Statistics, IMF

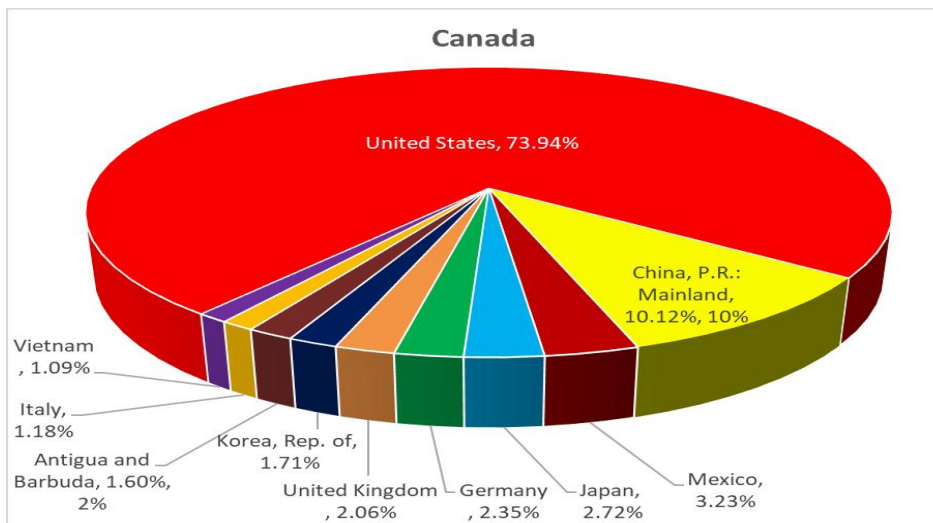
Note: (Author’s calculation)

Table 2 shows that Brazil has experienced a significant expansion in trade, with a high average annual growth rate of 7.40%, indicating notable improvements in its external trade. Additionally, Brazil boasts trade surpluses, with exports to GDP (5.60%) surpassing imports to GDP (4.90%). USA, on the other hand, maintains a balanced trade profile, with comparable shares of exports and imports relative to GDP (2.48 and 2.39%, respectively). Moreover, with its moderate trade expansion rate of 4%, USA maintains steady trade engagement. Canada exhibits lowest trade growth, with a CAGR of 3.63%. Furthermore, Canada's trade balance shows a larger gap, with imports to GDP (2.01%) surpassing exports to GDP (1.61%), indicating a less favourable trade position compared to the other countries.

4.3 Direction of Trade Statistics

The direction of trade involves examining trade disaggregated by different trading partner countries. In this study, the trading partners of the selected countries are analyzed using two methods: a) Identifying the top ten major trading countries based on total trade up to 2022, and b) Evaluating trade performance with member countries of the G20, excluding the African Union as the 21st member in 2023.

4.3.1 Top 10 Trading Partner Countries



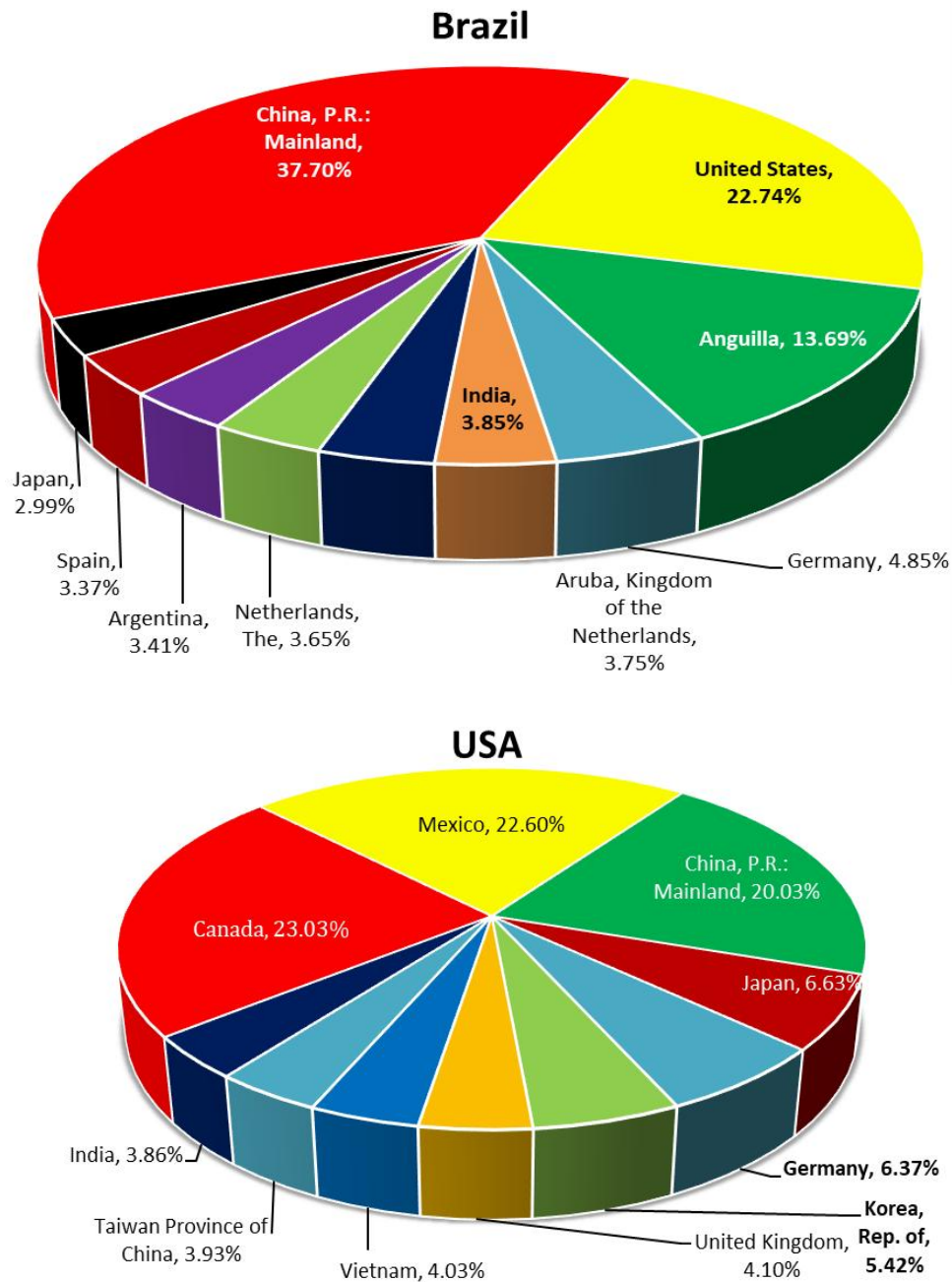


Figure 1: Top 10 Trading Partner Countries of Selected Countries in 2022

Source: Direction of Trade Statistics, IMF

Figure 1 examines the primary trading partners of Canada, Brazil, and USA based on total trade in the year 2022. Of the three countries, Canada stands out as the sole nation directing over 73% of its external trade to a single country, namely the United States. Such heavy dependence on one trading partner can exacerbate vulnerability to economic shocks within that partner country. In contrast, Brazil, and USA have adopted a more diversified approach, distributing their trade across multiple nations. This strategy not only mitigates exposure to economic disruptions but also offers greater opportunities to explore new markets globally.

4.3.2 Total Trade with G20

To assess the impact of G21 on the selected countries, this study compares their total trade with both G20 member nations and countries outside of the G20. Specifically, it examines the shares of total trade with G20 countries and those with countries not included in the G20, relative to their total world trade. Table 3 presents the growth of total trade with the G20 based on a 23-year compound annual growth rate (CAGR).

Table no. 3: Growth of Total Trade with G20 (On the basis of CAGR)

Growth of trade with G20				
Countries	Total trade with G20	Total trade with countries other G20	Share of trade with G20 as a % of world trade	Share of trade with countries other than G20 as a % of world trade
Canada	3.65%	6.60%	-0.01%	2.87%
Brazil	7.62%	6.90%	0.17%	-0.51%
USA	4.55%	3.54%	0.23%	-0.74%

Source: Direction of Trade Statistics, IMF

Note: (Author’s calculation)

Table 3 sheds light on the performance of total trade between the selected countries and the G20. Brazil has notably expanded its trade with G20 economies, achieving an average growth rate of 7.62%, surpassing its trade with the rest of the world, which accounts for a CAGR of 6.90%. However, while the share of total trade with the G20 relative to world trade has increased by 0.17%, the share of trade with the rest of the world exhibits a negative growth of -0.51%. Likewise, USA demonstrates a higher growth rate in trade with G20 nations compared to trade with the rest of the world, reporting CAGRs of 4.55% and 3.54%, respectively. Conversely, Canada exhibits distinct behavior, reporting a trade growth rate with countries outside the G20 at 6.60%, outpacing the growth rate of trade with G20 countries at 3.65%. Moreover, a negative CAGR of -0.01% can be observed for the share of total trade with the G20 as a percentage of world trade, in contrast with a positive CAGR of 2.87% for the share of total trade with the rest of the world, indicates Canada's emphasis on expanding trade with nations outside the G20. In conclusion, unlike Canada, Brazil and USA have significantly expanded their engagement with G20 member nations through trade expansion.

4.4 Exchange Rate

The exchange rate performance of Canada and Brazil is analysed in terms of their domestic currency per US dollar period average (CAD/USD and BRL/USD, respectively) as shown by figure 2.1 of figure: 2. In contrast, whereas for the USA, the exchange rate is examined according to the USD dollar per domestic currencies of its top seven trading partner countries, which include Canada, China, Mexico, Japan, the United Kingdom, Taiwan Province of China, and the Euro Area. The corresponding exchange rates are represented as USD/CAD, USD/CNY, USD/MXN, USD/JPY, USD/GBP, USD/TWD, and USD/EUR, respectively. This is represented by part 2.2 of figure 2 for the specified period from 2000 to 2022.

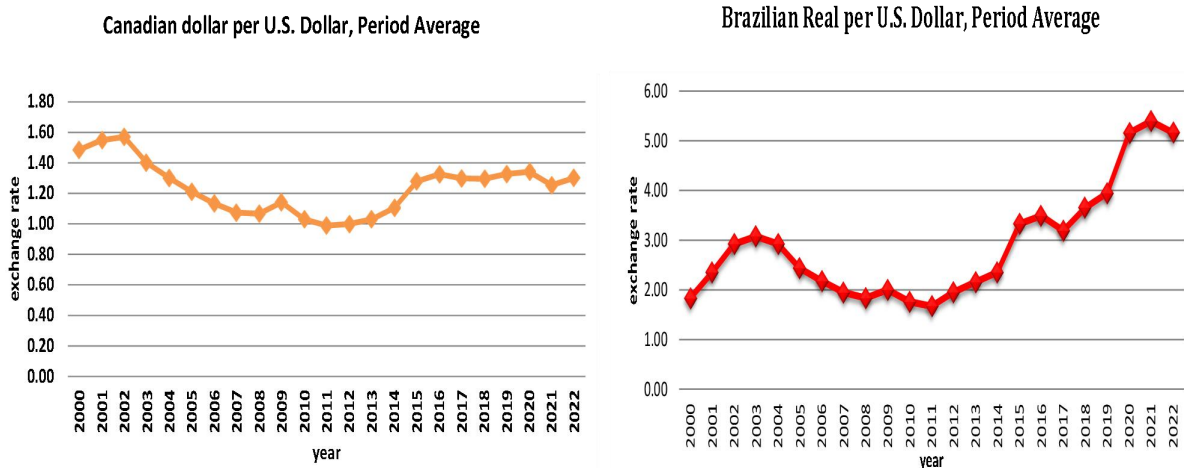


Figure 2.1: Exchange rates of CAD and BRL against USD

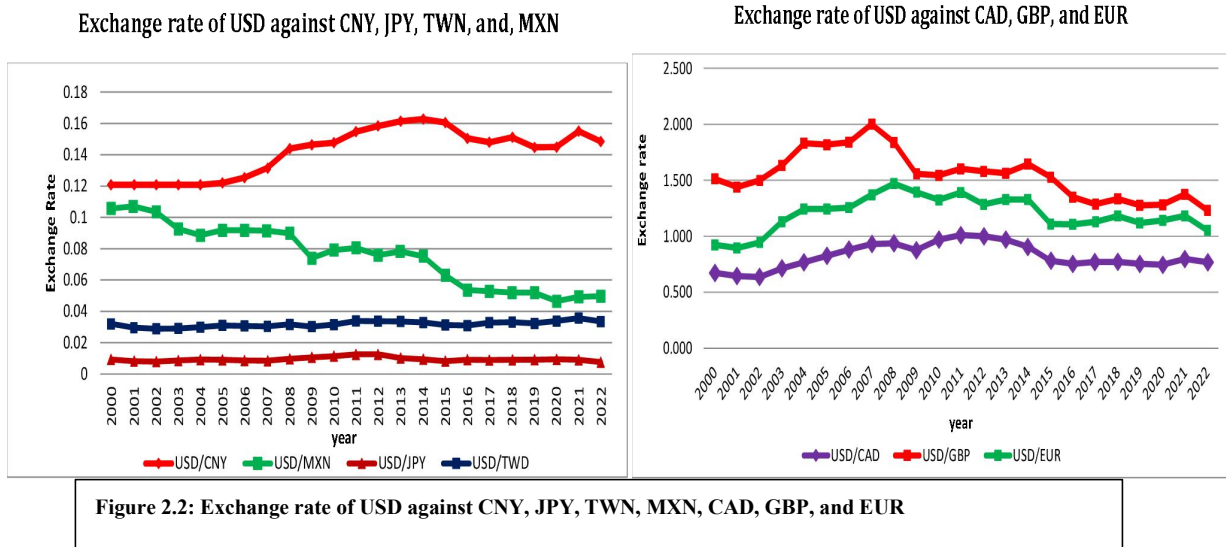


Figure 2.2: Exchange rate of USD against CNY, JPY, TWN, MXN, CAD, GBP, and EUR

Figure 2: Exchange rate performance of selected countries

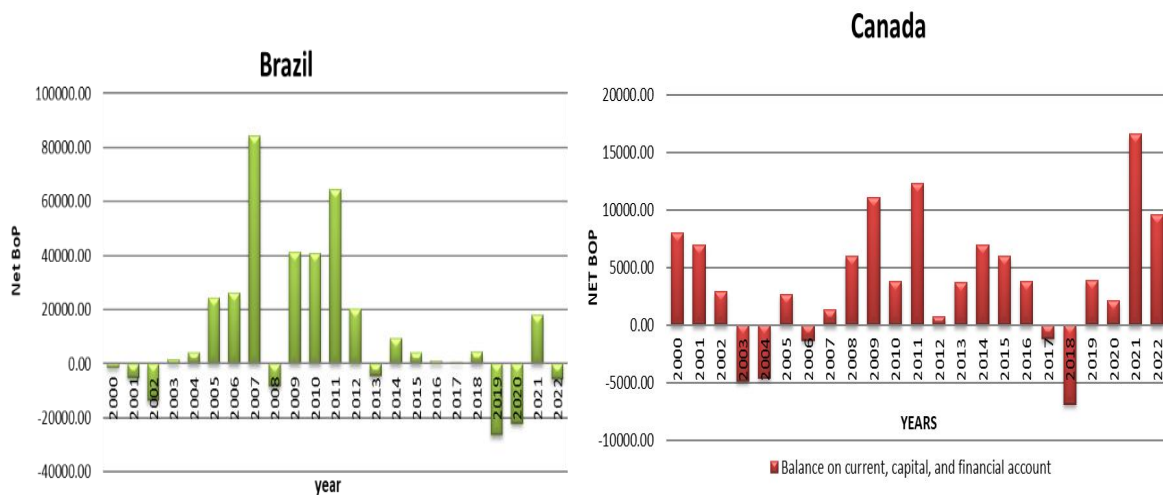
Source: International Financial Statistics, IMF

It is vividly clear from the table from figure 2.1 of figure: 2 that the Canadian dollar is appreciated in the final year to approximately 1.38 CAD/USD compared to 1.45 CAD/USD in the initial year after confronting some ups and downs in the middle years. In comparison the Brazilian Real is depreciated from almost 1.9 BRL/USD in 2000 to nearly 5.2 BRL/USD. In terms of USA, the American dollar has strengthened against three countries among its top seven trading partners, namely Mexico (Mexican Peso), Japan (Japanese Yen), and the United Kingdom (British Pound Sterling). Conversely, it has weakened against Canada (Canadian Dollar), China (Chinese Yuan Renminbi), Taiwan Province of China (New Taiwan Dollar), and the Euro Area (Euro). Furthermore, the exchange rate of Brazil exhibited significant volatility, with a standard deviation value of (1.13), contrasting sharply with Canada (0.17) and average standard deviation of USD against currencies of top seven trade partners (0.07).

4.5 Balance of Payment

The analysis examines the performance of the Balance of Payments (Bop) in Canada, Brazil, and USA, encompassing its diverse components. This evaluation utilizes the linear growth rate over the period from 2000 to 2022, as depicted in Table 4. The net Bop is computed in accordance with the formula outlined by the IMF's international standards.

Net Balance of Payment= (Net current account+ Net capital account)- Net financial account



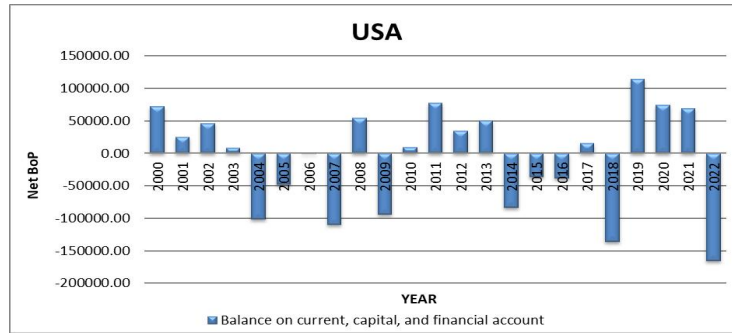


Figure 3: Net Balance of Payments of the selected countries (in million US dollars)

Source: Balance of Payment and International Investment Position Statistics, IMF

Figure: 3 Clearly shows that Canada in on the highest rank among all three countries with 18 years of surplus, closely followed by Brazil with 15 years. In contrast, USA is on lower rank with only 14 years of net BoP surplus. Additionally, the study outlines the linear growth rates of its components in Table 4.

Performance of Bop					
Countries		Net Current Account	Net Capital account	Net Financial Account	Net Reserve assets
Canada		14.67%	12.57%	12.93%	9.05%
Brazil		6.71%	12.34%	3.74%	-6.85%
USA		0.58%	2.74%	0.43%	14.60%

Table 4 illustrates that all nations namely Canada, Brazil, and USA maintained positive net current account growth, with Canada exhibiting a notably high growth rate of 14.67%, signaling robust trade performance compared to Brazil's modest growth rate of 6.71% and USA negligible growth rate of 0.58%. Likewise, Canada and Brazil demonstrated similar positive net capital account growth rates of 12.57% and 12.34%, respectively, indicating an increase in non-produced and non-financial assets, while, USA stood at last rank with only 2.74% growth in its capital account. Moreover, all the countries show similar result in terms of growth of financial accounts which accounted for 12.93%, 3.74%, and 0.43% for Canada, Brazil, and USA respectively, indicating a significant inflow of foreign assets and investments. Finally, USA surpassed all with the highest growth in net foreign exchange reserves at 14.60%. Canada experienced a net increase in reserve assets at a rate of 9.05%, while Brazil saw a net decline in the accumulation of foreign reserves at a rate of -6.85%.

4.6 Correlation Analysis

The study employs bivariate correlation analysis, specifically Karl Pearson's correlation coefficient method, to explore the relationship between real GDP and net trade in selected G21 countries. Net trade is defined as the variance between total exports and total imports, where a positive balance signifies net exports and a negative balance indicates net imports.

The hypothesis testing framework is structured as follows:

- H0: There is no significant linear relationship between real GDP and net trade in the selected countries.
- H1: There exists a significant relationship between real GDP and net trade in the selected countries.

The results of the correlation between real GDP and net trade for Canada, Brazil, and USA are detailed in Table No. 5

Table No. 5: Correlation Between Real GDP and Net Trade (α= 0.01)

COUNTRIES	Pearson's correlation coefficient	sig (2 tailed)
Canada	-0.73	0.00
Brazil	0.15	0.48
USA	-0.81	0.00

Source: Author's Calculation

Note: Correlation is significant at the 0.01 level (2-tailed)

Table no. 5 vividly clear that a strong negative correlation (-0.73) between GDP and net trade suggests that as Canada's economy grows, its net trade balance tends to worsen. This could be due to increased imports outpacing exports, influenced by factors like domestic demand and exchange rates. The statistically significant p-value (0.00) reinforces the reliability of this relationship. In Brazil, the weak positive correlation (0.15) between GDP and net trade implies a slight tendency for GDP and net trade to increase together, but it's not statistically significant (p-value = 0.48). Brazil's diverse export portfolio and economic factors like global demand fluctuations may contribute, but the relationship lacks statistical support. Like Canada, the USA shows a strong negative correlation (-0.81) between GDP and net trade, indicating that as GDP grows, the net trade balance tends to deteriorate. This is influenced by factors such as trade policies, exchange rates, and global economic conditions. The low p-value (0.00) strengthens the significance of this relationship. In summary, Canada and the USA demonstrate significant negative relationships between GDP and net trade, while Brazil's relationship appears weaker and lacks statistical significance.

5. Concluding Remarks and Policy Implications

The study evaluates the performance of the external sectors of selected member countries within the G21 framework, namely Canada, Brazil, and the USA, during the post-establishment period of G21. It examines five major variables crucial to understanding external sector performance: GDP, international trade, trade direction, exchange rate, and balance of payments. Analysis spans the years from 2000 to 2022, utilizing compound annual growth rates and linear growth rates to assess long-term growth trends in these variables over the specified period. The study indicates that Brazil outperformed others, reporting the highest GDP growth rate (2.07%) and GDP per capita growth rate (1.18%). However, USA has a higher GDP in absolute terms. Additionally, there is a noticeable reduction in trade engagement with G20 member nations in Canada compared to Brazil and USA. The Canadian dollar against USD and US dollar against Mexico (MXN), Japan (JPY), and UK (GBP) have strengthened in during the period of analysis, whereas the opposite of this is true for Brazilian Real against USD and US dollar against Canada (Canadian Dollar), China (Chinese Yuan Renminbi), Taiwan Province of China (New Taiwan Dollar) the Euro Area (Euro). The study observed that all selected countries consistently maintained surpluses in their balance of payments throughout the analysis period, with only a few exceptions in some years. A bivariate correlation analysis is conducted to evaluate the relationship between GDP and net trade using Karl Pearson's coefficient of correlation. The analysis reveals that Canada and the USA exhibit robust negative correlations between GDP and net trade, indicating a tendency for increased GDP to coincide with decreased net trade. Conversely, Brazil's correlation is weakly positive but lacks statistical significance, suggesting a less definitive relationship between GDP and net trade in the context of the study. In this study, it is evident that all three countries face current account deficits, mainly due to trade imbalances. Canada and Brazil heavily rely on international trade for growth. To address this, a comprehensive strategy is needed, including managing exchange rates, implementing effective trade policies, and controlling government spending. Governments should prioritize export promotion and infrastructure development. Long-term strategies to diversify the economy and foster innovation are crucial for sustained growth and addressing balance of payment deficits.

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