THE IMPACT OF FOREIGN EXCHANGE RESERVES ON THE LIVING STANDARDS OF SRI LANKAN CITIZENS

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ABSTRACT

The purpose of this study is to discover and analyze the impact of foreign exchange reserves on the living standards of Sri Lankan citizens. Export income, foreign debt, foreign remittances, and foreign reserves are employed as explanatory variables concerning Sri Lanka's current crisis condition. The most widely used indicator of a country's standard of living is its gross national income (GNI) per capita, in this study the researcher primarily focuses on the income approach determinants of foreign reserves inflow to Sri Lanka. Therefore, to measure Sri Lankan citizens' living standards, the researcher employed the gross national income (GNI) per capita. The analysis utilizes data from 2001 to 2021 from the Central Bank of Sri Lanka (CBSL), the International Monetary Fund (IMF), and the World Bank (WB). The unit-root test, correlation analysis, and regression analysis were employed to assess the time-series data. EViews version 9 statistical software was used to screen secondary quantitative data and analyze the study's findings. The test results demonstrated that export income, foreign debt, and foreign reserves had a positive and significant effect on Sri Lankan citizens' living standards, however, foreign remittances have no significant effect on Sri Lankan citizens' living standards. It was a timely matter that drove the researcher to investigate how the lack of foreign reserves has an impact on the living standards of Sri Lankan citizens. This study is expected to help decision-makers manage forex reserves more efficiently and effectively, and more crucially, to raise the living standards of Sri Lankans. As a result, implementing a proper management system for foreign reserves will be a better source for employing the reserves to improve the country's financial stability. Furthermore, the findings of this study will be helpful to the government in addressing present loopholes in the economy. This study will be a valuable source of direction for future scholars as they handle topical issues in emerging countries' economies associated with key eras. Researchers will profit from this research as well; as a result, they will be able to widen the existing empirical and theoretical review on the foreign reserves of developing countries such as Sri Lanka and their impact on citizens' living standards.

Keywords: *Export Income, Foreign Debts, Foreign Reserves, Foreign Remittances, Living Standards of Sri Lankan Citizens*

1. INTRODUCTION

International reserves are assets or claims held in foreign currency by central banks. These assets can be classified as anything from short-term money market receivables to long-term investments. The ownership and administration of foreign assets is

essentially the responsibility of a nation's central bank or monetary authority. Each country's economic system requires forex reserves, and the growth of these reserves informs the international financial community about the country's creditworthiness (Andriyani *et al.*, 2020).

People's living standards could only be improved by the country's economic growth (Rodrik, 2008). Foreign exchange reserves can be used as productive capital to boost economic activity, earn foreign currency, and achieve higher economic growth (Kaphle, 2021).

The top ten holders hold approximately 66.67% of the world's total forex reserves, the majority of whom are Asian. China topped the list with USD 3.86 trillion at the end of 2014, up from USD 822 billion ten years earlier. Japan ranked second with USD 1.2 trillion in June 2015. Switzerland, Taiwan, Korea, Brazil, Russia, India, and Hong Kong remained in the top ten, with USD 600 billion, USD 426 billion, USD 374 billion, USD 368 billion, USD 370 billion, USD 351 billion, and USD 339 billion, respectively (Kashif, 2015).

Due to mismanagement by the authorities, the Sri Lankan economy's foreign reserves have been noticeably reduced over the last two decades. With the COVID-19 pandemic, which decreased investor confidence and the nation's stable political and economic circumstances, the nation's international reserves have decreased. Proper management of these reserves is necessary to enable the nation to fulfill its international commitments. The stability and external value of the Sri Lankan rupee also depend on maintaining sufficient reserves (Karunaratne, 2010). High expectations for this study's ability to identify how international reserves affect Sri Lanka's economy are reasonable. Many studies on foreign reserves have highlighted that a significant portion of foreign debts, in comparison to export income, have recently occurred in many developing countries.

1.1 Background of the Study

The maintenance of economic activity and the stabilization of exchange rates depend heavily on foreign reserves. The current debates over increasing or decreasing them are getting increasingly interesting. Supporters contend that having large foreign reserves will present a country as financially responsible and reliable to other nations (Ford and Huang, 1994).

Due to its emphasis on foreign employment and tourism, Sri Lanka was able to earn more dollar income than any other Asian country, significantly increasing the country's foreign reserves between 2000 and 2014. However, due to high foreign debt service payments, low levels of foreign currency inflows due to a lack of export earnings, worker remittances, foreign capital flows, and a reduction in tourist arrivals due to the COVID pandemic, the forex reserves have depleted sharply over the last couple of years (2014-2021). The Central Bank was compelled to provide the required foreign exchange to enable essential imports due to the low liquidity in the forex market, which further reduced the reserve level (Impact, 2021).
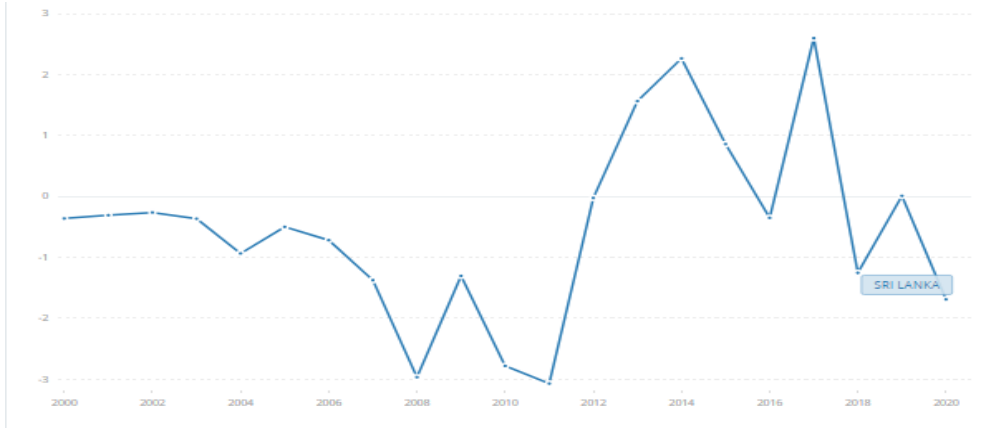
Source: WDI of World Bank

Figure 1: Trend in Reserves and Related Items (BOP and Current US$) in Sri Lanka
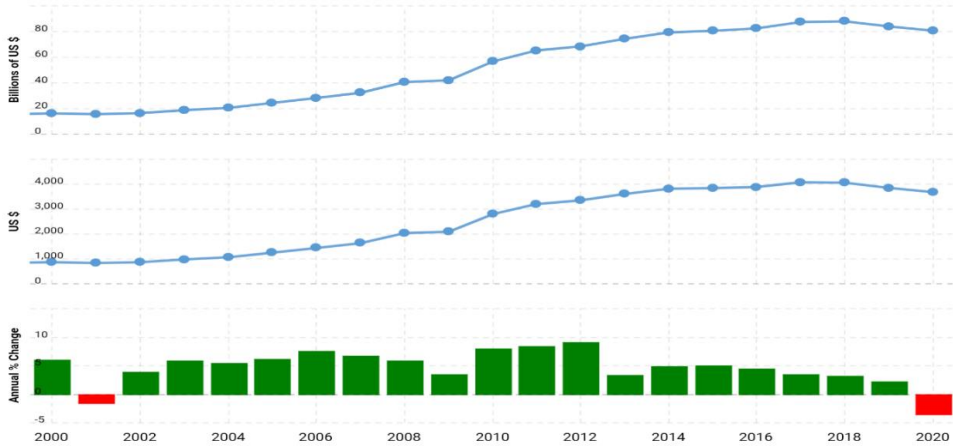
Source: World Bank

Figure 2: Sri Lanka Economic Growth Rate

The country's economic growth is jeopardized because the annual percentage change in growth rate has turned negative. The trends in macroeconomic indicators, such as the depreciation of the Sri Lankan rupee, the expanding trade deficit, and the steady rise in USD debt stock, demonstrate this.

1.2 Problem Statement

Because government foreign bonds are denominated in foreign currencies, reserve assets are often held in this manner. Governments are exposed to foreign countries, interest rates, and currency risk when they hold reserves (Dominguez, 2017). Sri Lanka is a developing country with a service-oriented economy, with the service sector accounting for approximately 56.8% of the nation's gross domestic product,

while wholesale and retail trade accounts for approximately 23% (National Accounts - CBSL, 2019). Market borrowings account for 47% of total borrowings, while foreign governments and institutions account for the remaining 53%. A higher proportion of foreign debts were acquired with a long maturity period; 40% of debts mature in more than ten years, while 39% mature in five to ten years. The Sri Lankan central government continues to incur new foreign debts without considering how to repay them, which may eventually lead to a debt trap and default. According to CBSL, remittances from workers, an important source of foreign currency inflows to Sri Lanka, fell to a year-low of $5.49 billion in 2021. Worryingly, the foreign exchange reserves fell to a 13-year low of $259 million in January 2022.

According to trends in macroeconomic factors such as the Sri Lankan rupee depreciation, trade deficit gap expansion, and continuously increased debt stock in USD, the country's economic growth is jeopardized because the annual percentage change in the country's growth rate has turned negative. Sri Lankans' living standards would decline as a result of this unfavorable economic growth's detrimental effects on economic development.

Many scholars, including Nwosa, 2017; Krušković and Maričić, 2015, have been working on the foreign reserves-related literature over the last decade, with most studies focusing on how foreign reserves impacted economic growth, which encountered various sources such as imports, exports, foreign debts, exchange rates, inflation, and many others. According to these theoretical rationales, forex reserves have been regarded as a crisis mitigation tool, with only a limited amount of forex reserves required to avoid financial crises, while holding foreign reserves incurs costs (Andriyani et al., 2020). Due to the nation's diminishing foreign reserves, it found itself in a precarious position and was forced to face an economic catastrophe. The researcher was inspired to investigate how a nation's lack of foreign reserves affects the living standards of its citizens a current issue. Accordingly, this study's research gap will be filled by looking into how foreign reserves affect Sri Lankans' standard of living.

1.3 Research Questions

The main research question is:

- Is there a significant impact of foreign reserves on the living standards of Sri Lankan citizens?

Specific research questions are:

- What is the impact of export income on the living standards of Sri Lankan citizens?
- What is the impact of foreign debt on the living standards of Sri Lankan citizens?
- What is the impact of foreign remittances on the living standards of Sri Lankan citizens?

1.4 Research Objectives

The main research objective is:

- To examine the significant impact of foreign reserves on the living standards of Sri Lankan citizens.

Specific research objectives are:

- To evaluate the impact of export income on the living standards of Sri Lankan citizens.
- To evaluate the impact of foreign debt on the living standards of Sri Lankan citizens.
- To evaluate the impact of foreign remittances on the living standards of Sri Lankan citizens.

2. LITERATURE REVIEW

2.1 Empirical Review

International reserves are defined by the International Monetary Fund as "the external stock of assets that is available to the country's monetary authorities to cover external payment imbalances or to influence the exchange rate of domestic currencies by intervention in the foreign exchange market or for other purposes". The local currency issued and reserved deposits of different depository money banks (DMBs), governments, and other financial institutions are among the liabilities of the central bank that are settled with these reserves. To guarantee currency stability and the regular operation of both domestic and international payment systems, foreign exchange reserves support the monetary policies linked to them (Kashif, 2015).

Historically, under the Bretton-Woods system, central banks around the world used international reserves to maintain a steady external value for their currencies. When the Bretton Woods system imploded in the early 1970s, countries began to adopt a more flexible exchange rate system in which reserves played only a minor role. However, between 1960 and 2002, global forex reserves increased from 1.75 to 7.8 percent of global GDP (Flood and Marion, 2002).

The Monetary Law Act (MLA), under which the bank was established, provides the framework for the disposition of foreign currency assets and gold, defining the broad parameters in Section 66 concerning currencies, instruments, issuers, and counterparties. In summary, MLA allows the following asset groups to be retained in its foreign assets under Section 67.

I. Gold;
II. Assets in foreign currencies in the form of –
    a) Documents and instruments of the types commonly used for international money transfers; or
    b) Demand and time deposits in foreign central banks, treasuries, and commercial banks;
    c) Foreign government securities; or
    d) Foreign currency and coins; and

III.   The total amount of these drawing rights held by the International Monetary
        Fund's Special Drawing Rights Department, or such maximum percentage of
        the total holdings.

Determinants of Foreign Reserves

When it comes to rules and regulations governing the demand for a country's international reserves, numerous variables such as exports, foreign debt, imports, trade shocks, and monetary policy are considered (Frenkel and Jovanovic, 1981), while (Tambunan, 2001) explains that several general indicators, including import, debt, and financial adequacy, are used to assess an economy's level of international reserves.

Export Income

Foreign exchange is essential in the global economy because it is the primary tool for facilitating a country's international trade. The five categories used to group the inspiring aspects of holding international reserves are economic scale, current account vulnerability, exchange rate vulnerability, capital account flexibility, and opportunity cost. (Gosselin and Parent, 2005).Foreign reserves and exports are positively correlated, meaning that as exports rise, so do the reserves' total holdings. The current account will be in surplus if exports grow faster than imports (E> I), and vice versa. The following is one way to express this connection:

Current account balance = export (E) – import (I)   →   **(01)**

International reserves will rise in tandem with an increase in exports compared to at least two years ago. A decline in exports will lead to a decline in foreign exchange reserves since foreign exchange is needed and required to pay for imports. Imports, particularly capital goods imports, will also decrease, which will lower domestic output.

Foreign exchange that is generated by exports can be used to finance the country's economic sectors and imports. Theoretically, growth in foreign exchange reserves is positively correlated with increases in employment, public revenue, exports, and imports (Andriyani *et al.*, 2020). In a developing country like Sri Lanka, export income is regarded as a significant component of international reserves. The lack of export income during the economic crisis resulted in a significant reduction in Sri Lanka's forex reserves. As a result, the researcher regarded export income as a significant source of foreign reserves.

Foreign Debt

Transactions involving loans and debt from abroad usually happen when a nation's revenue is limited and unable to meet the necessary expenditures for development. It is critical to meet domestic shortfalls to increase savings and forex exchange growth (Todaro and Smith, 2014). Due to the largest contributors to its foreign reserves being debts obtained from other countries and international organizations, Sri Lanka will have a significant level of foreign debt by the first quarter of 2022. Sri Lanka's

massive foreign debt was initially caused by unimportant investment projects and national growth, which eventually led to the country incurring more debt to pay for necessities such as petroleum, LP gas, and pharmaceuticals.

The optimization level determines the theoretical basis of funds as well as the degree of reliance on external debt. External debt has a relationship with national income level (Y), government budget deficit (G), and domestic expenditure in IDR (A), which can be expressed as follows:

Foreign Debt = National Income Level (Y) + Domestic Expenditure in -IDR (A) +   Government Budget Deficit (G)   →   **(02)**

Nations that experience delays in repaying their foreign debts run the risk of experiencing disruptions in foreign trade and capital flows (Tambunan, 2001). Thus, an increase in foreign debt tends to increase debt servicing (LS), as expressed in the following equation:

Foreign Debt = National Income Level (Y) + Domestic Expenditure in- IDR (A) +   Government Budget Deficit (G)   →   **(03)** + Debt Servicing (LS)

Foreign debt is usually represented by foreign currency held in forex reserves. As a result, the greater the debt, the greater the country's forex reserves. Increases in foreign reserves tend to increase external debt. The Sri Lankan government obtained more foreign debt in USD to boost foreign reserves during this critical period for the Sri Lankan economy. These foreign exchanges were used to pay off foreign debt and import necessities like oil, gas, and medicine. As a result, the researcher identified foreign debts as a variable that contributes to foreign reserves.

Foreign Remittances

Remittances are money transfers made by migrant workers to their families and communities back home, usually in cash. Remittances are a portion of migrant workers' earnings that are transferred from the destination of migration to the place of origin. Over the last 30 years, remittance inflows to developing countries have steadily increased, averaging around $100 billion per year. Between 1980 and 2003, global remittance inflows increased fivefold to $91 million, then rose to $325 million by 2010 (World Bank, 2020). The number of workers who find employment overseas each year, GDP growth in both the home and the host country, the state of the economy in both the home and the host country, the availability of money transfer services, exchange rates, and oil prices are some of the major economic factors that influence remittances.

Remittances' expenditure on exposed consumption is cited by those who contend that they have no impact on economic expansion (Rahman et al., 2006) and that any money saved is used more for consumption than for the acquisition of profitable assets (Stahl and Arnold, 1986), the growth of remittance payment processing financial institutions (Aggarwal, Demirgüç-Kunt and Pería, 2011), remittances as a

form of foreign exchange (Ratha, 2005), and the function of remittances as a debt substitute that lessens people's credit restrictions in nations where microfinance is not widely accessible and the function of remittances as a debt substitute that lessens people's credit restrictions in nations where microfinance is not widely accessible (Giuliano and Ruiz-Arranz, 2005). These arguments can be separated into the two traditional camps of development economists: those who support a bottom-up strategy that first lifts the individual out of poverty before helping society as a whole, and those who support a top-down strategy that focuses primarily on institutional development (Siddique, Selvanathan, E and Selvanathan, 2012).

Foreign remittances contribute significantly to Sri Lanka's forex reserves. When undiyal market systems arose as a result of inappropriate government policy decisions, there was a significant drop in the contribution of foreign remittances to Sri Lanka's foreign reserves during the crisis. As a result, the researcher emphasized the significance of foreign remittances in foreign reserves.

2.2 Foreign Reserves in Sri Lanka

Recent studies indicate that a country's level of international reserves determines its rating in the fiercely competitive global market. According to these studies, a country's creditworthiness to the outside world will be enhanced by having a higher level of international reserves. Moreover, developing nations have easier accessibility to capital markets, which lowers the cost of borrowing compared to holding foreign reserves. Despite all theoretical considerations, Sri Lanka's reserves, like those of many developing countries, have steadily increased in the form of external debts. This encourages the researchers to identify the factors that influence Sri Lanka's forex reserves. Thus, with a focus on Sri Lanka, this study provides empirical findings on a few determinants of forex reserves, such as exports, foreign debt, and remittances.

Furthermore, (Lin *et al.*, 2010) determine that only developing nations experience unilateral economic growth brought about by the foreign exchange reserve, not industrialized nations. (Mohanty and Turner, 2006) strongly advise developing countries to use their foreign reserves carefully because large holdings of them over time may lead to inflation, monetary imbalances, excessive credit, and bank system disruptions.

The country's economic development will be emphasized by factors affecting its foreign reserves, which will ultimately affect the standard of living. However, there is an empirical gap for this study because of the nation's foreign reserves, which can highlight the increase in living standards brought about by economic development.

2.3 Foreign Reserves and Living Standard

Profound empirical work was conducted to determine and understand the relationship between international reserves and economic expansion. Both short- and long-term relationships exist between forex reserves and economic growth, with the former positively influencing the latter. But rapid economic expansion does not automatically translate into a larger foreign exchange reserve (Kashif, 2015; Krušković and Maričić, 2015). To control the exchange rate stabilize the economy

and achieve a variety of economic objectives, a country's central monetary authority typically manages an external stock of assets known as forex exchange (Wijnholds and Kapteyn, 2001).

2.4 Theoretical Review

The majority of active research on international reserves was conducted in the 1960s, 1970s, and 1980s, with the main objective of determining the impact on international reserves of the Bretton Woods system and its demise. The majority of the research being done today is based on ideas that were first proposed in the 1970s and 1980s. (Romero, 2005; Prabheesh, Malathy and Madhumathi, 2007; Obstfeld, Shambaugh and Taylor, 2008; Gantt, 2010) found that the empirical reviews identified many explanatory variables as determinants of forex reserves. Five groups were created from the findings of earlier research on the determinants of reserves: economic size, exchange rate flexibility, capital account vulnerability, current account vulnerability, and opportunity cost. In addition, many models have been put into practice to assess the factors that determine forex reserves. The buffer stock model, which suggests that authorities need reserves as a buffer to limit variations in external payment imbalances, is the most commonly used in literature.

Foreign Reserves Management Theories

The strategy for having sufficient foreign reserves shows how reserves should increase to support fulfilling external payment obligations, stabilizing currency volatility during times of external shocks, and averting an unplanned halt to import payments (Alfaro and Kanczuk, 2006).

(Ubom, Essien and Ubom, 2017) underlined the necessity of determining the appropriate level of reserves in accordance with economic growth and how to maintain the value of reserves held in dollars and pounds at a time when the value of the once-respected world's major currencies was rapidly declining.

Triffin proposed that to create equilibrium in the global monetary system, all countries should maintain minimum foreign exchange reserves equivalent to four months' worth of essential imports. Compared to developed countries, developing countries need larger foreign exchange reserves. According to Triffin (1960) and the IMF, reserves must be sufficiently covered by imports, or 4 months' worth of imports must cover reserves, or the ratio of reserves to imports must be met. In the same manner, (Greenspan, 1999) declared that to pay off their short-term external debt, developing countries should maintain reserves of foreign currency. (Kaminsky and Reinhart, 1999) and (Wijnholds and Kapteyn, 2001), instead employed the foreign exchange reserves to total money in circulation as a measure of adequate reserves.

3. RESEARCH METHODOLOGY

Foreign reserves have been determined to have a negligible effect on economic growth in emerging economies, and their influence on the standards of living of Sri Lankan citizens is still debatable. Secondary data sources were used to collect data for this investigation. Secondary data on the independent and dependent variables was gathered using World Bank and CBSL reports. Export income, foreign debt,

foreign remittances, and real GNP per capita are all annual time series data for the years 2001 through 2021 in this study. Based on the variables identified, the following conceptual framework can be constructed:
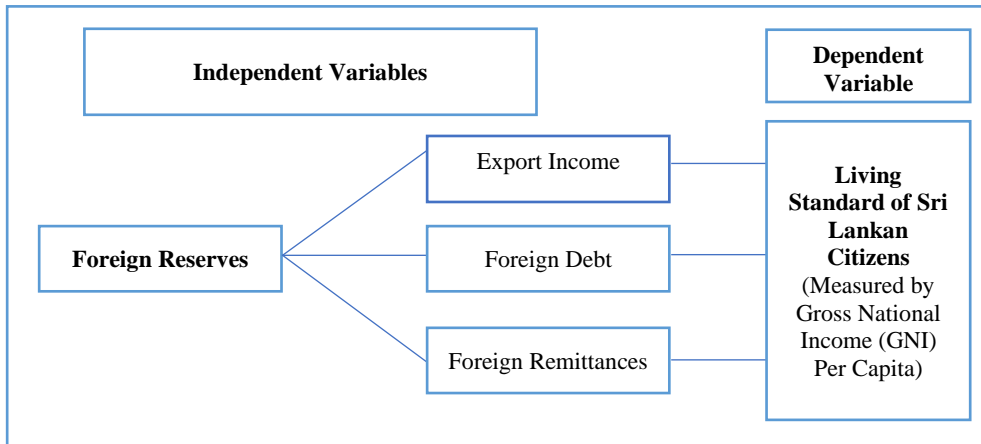
Source: Developed by the researcher

Figure 3: Conceptual Framework

Based on the above conceptual framework, the following hypotheses can be recognized.

H_1 – There is a significant impact from foreign reserves on the living standards of Sri Lankan citizens.

H_2 – There is an impact of export income on the living standards of Sri Lankan citizens.

H_3 – There is an impact of foreign debt on the living standards of Sri Lankan citizens.

H_4 – There is an impact of foreign remittances on the living standards of Sri Lankan citizens.

4. DATA ANALYSIS AND DISCUSSION

The statistical program EViews was utilized to screen secondary quantitative data and analyze the study's findings in accordance with the research objectives.

4.1 Unit Root Test (Augmented Dickey-Fuller Method)

According to the results of the Augmented Dickey-Fuller Unit Root test, all variables are stationary at the second difference. This is because, at the 1%, 5%, and 10% levels of significance, the computed ADF statistics have absolute values greater than the tabulated ADF values of the variables, and the probability values are less than 0.05. This is based on the ADF unit root test performed on the variables by the researcher. The unit-roots with intercept were tested to obtain the second difference and make the variables stationary.

Table 1: The summary results of the Unit Root Test

Variable	ADF value	Critical Values			Prob.	Conclusion
		1%	5%	10%		
GNIPC	-4.407962	-3.857386	-3.040391	-2.660551	0.0033	Stationary at 2nd dif.
EXPI	-5.399764	-3.886751	-3.052169	-2.666593	0.0005	Stationary at 2nd dif.
FRD	-5.647955	-3.857386	-3.040391	-2.660551	0.0003	Stationary at 2nd dif.
FRR	-5.786480	-3.857386	-3.040391	-2.660551	0.0002	Stationary at 2nd dif.
FR	-4.905325	-3.857386	-3.040391	-2.660551	0.0012	Stationary at 2nd dif.

Source: EViews output from the secondary data

4.2 Correlation Coefficient Analysis

Table 2: The correlation outputs

	GNIPC	EXPI	FRD	FRR
GNIPC	1.000000	0.956856	0.963637	0.986467
EXPI	0.956856	1.000000	0.908801	0.946113
FRD	0.963637	0.908801	1.000000	0.933730
FRR	0.986467	0.946113	0.933730	1.000000

Source: EViews outcomes of the secondary data

The correlation coefficient between the dependent variable, GNIPC, and the independent variable, EXPI, is 0.96, as shown in the table above. Whereas the correlation coefficient of FRR is 0.99, indicating a nearly perfect positive link with the dependent variable, GNIPC, the correlation coefficient of FRD is 0.96, indicating a similar relationship.

Table 3: The correlation outputs

	GNIPC	FR
GNIPC	1.000000	0.981981
FR	0.981981	1.000000

Source: EViews outcomes of the secondary data

Foreign Reserves and Gross National Income per Capita have a correlation coefficient of 0.98, indicating a nearly perfect positive relationship.

4.3 Regression Analysis

Testing the assumptions of the regression model

a) Assumption of normality test

The multiple regression analysis's standardized residuals have a normal distribution. The residuals are normal because the assumption of normality is met and the Jarque-Bera probability is greater than 0.05.

b) Assumption of autocorrelation

According to the test results, the observed R2's Prob. Chi-Square (2) is greater than 0.05. As a result, the obtained residuals are free of serial autocorrelation.

c) Assumption of homoscedasticity (test for heteroskedasticity)

The observed R2 has a greater-than-0.05 chi-square (3) probability. As a result, heteroskedasticity does not exist in the multiple regression model. As a result, because the residuals are homoscedastic, the basic regression model fits. Given this, it is appropriate to use this research database for the regression analysis in the study.

d) Assumption of multicollinear

The Centred VIF value is less than 10, indicating that the model lacks severe multicollinearity. According to the test results, the multiple regression model has VIF values of 1.85, 1.02, and 1.87 for each independent variable. Furthermore, in the simple regression model, the VIF value is 1.0, which is less than 10. As a result, both the multiple and simple regression models lack multicollinearity.

Linear Regression Analysis

Given the primary goal of examining the significant impact of foreign reserves on the living standards of Sri Lankan citizens, the multiple linear regression model is developed as follows.

$$GNIPC \equiv B_0 + B_1 EXPI + B_2 FRD + B_3 FRR + \varepsilon \qquad \rightarrow \qquad (04)$$

Where,

GNIPC = GNI Per Capita

EXPI = Export Income

FRD = Foreign Debts

FRR = Foreign Remittances

B₀ $= $ Intercept Coefficient

B₁ = Slope coefficient of Export Income

B₂ = Slope coefficient of Foreign Debt

B₃ = Slope coefficient of Foreign Remittances

Ɛ = Standard Error

Results of multiple regression analysis

DDGNIPC -	GNI per capita Atlas method current US\$ (MILLIONS) (2ND Difference)
DDEXPI -	Export income current US\$ (MILLIONS) (2ND Difference)
DDFRD -	Foreign debt total (DOD current US\$ (MILLIONS) (2ND Difference)
DDFRR -	Foreign remittances current US\$ (MILLIONS) (2ND Difference)

Table 4: Multiple regression analysis of factors

Variable	Coefficient	Std. Error	t-Statistic	Prob.
DDEXPI	0.041525	0.012593	3.297412	0.0049
DDFRD	0.033495	0.010465	3.200686	0.0060
DDFRR	0.024045	0.060951	0.394504	0.6988
C	2.328148	24.94422	0.093334	0.9269
R-squared	0.640796	**Mean dependent var**		4.736842
Adjusted R-squared	0.568955	**S.D. dependent var**		162.4250
S.E. of regression	106.6385	**Akaike info criterion**		12.36143
Sum squared resid	170576.5	**Schwarz criterion**		12.56026
Log-likelihood	-113.4336	**Hannan-Quinn criteria**		12.39508
F-statistic	8.919667	**Durbin-Watson stat**		2.576924
Prob(F-statistic)	0.001239			

Source: EViews output for the Regression Model

The results in the above table illustrate how the standard of living of Sri Lankans is marginally impacted by export revenue, foreign debt, and foreign remittances. With the data from the regression analysis given in Table 4, the regression equation can be made as follows.

$$GNIPC \equiv 2.328 + 0.042EXPI + 0.034FRD + 0.024FRR + \varepsilon \qquad \rightarrow \qquad (05)$$

Source: EViews output for the regression model

GNIPC = GNI Per Capita

EXPI = Export Income

FRD = Foreign Debts

FRR = Foreign Remittances

ε = Standard Error

According to the regression equation, the intercept coefficient, which is generated by independent variables other than EXPI, FRD, and FRR included in the model, is 2.328. When the export income (EXPI) is increased by one dollar while the two variables FRD and FRR remain constant, the gross national income (GNIPC) increases by 0.042, or roughly 0.04 times. This equation depicts the marginal impact of export income on GDP per capita. Furthermore, when foreign debts (FRD) are increased by one unit while the other two variables, EXPI and FRR, remain constant, the gross national income per capita (GNIPC) can increase by 0.034, or approximately 0.03 times This equation depicts the marginal impact of foreign debts on gross national income per capita. When foreign remittances (FRR) are increased by one unit while the other two variables, EXPI and FRD, remain constant, GNIPC can rise by 0.024, or around 0.02 times.

Furthermore, a positive relationship is inferred between export revenue, foreign debt, international remittances, and gross national income per capita (GNIPC).

Results of multiple regression analysis

DDGNIPC -	GNI per capita Atlas method current US$ (MILLIONS) (2ND Difference)
DDFR -	Foreign reserves US$ (MILLIONS) (2ND Difference) – (The aggregate of EXPI, FRD, FRR)

Table 5: Simple Regression Analysis of Factors

Variable	Coefficient	Std. Error	t-Statistic	Prob.
DDFR	0.038738	0.007243	5.348443	0.0001
C	3.982478	23.41046	0.170115	0.8669

R-squared	0.627241	**Mean dependent var**	4.736842
Adjusted R-squared	0.605314	**S.D. dependent var**	162.4250
S.E. of regression	102.0420	**Akaike info criterion**	12.18795
Sum squared resid	177013.5	**Schwarz criterion**	12.28736
Log-likelihood	-113.7855	**Hannan-Quinn criteria.**	12.20477
F-statistic	28.60585	**Durbin-Watson stat**	2.470801
Prob(F-statistic)	0.000053		

Source: EViews output for the Regression Model

The regression equation can be developed using the regression analysis information in Table 5 as follows:

GNIPC≡3.983 + 0.039FR +ε   →   **(06)**

Source: EViews output for the Regression Model

GNIPC = GNI Per Capita

FR   = Foreign Reserves

B₀   = Intercept Coefficient

Ɛ   = Standard Error

According to the regression equation, the intercept coefficient, which is determined by independent variables other than FR that are included in the model, is 3.983. Furthermore, the slope coefficient of foreign reserves is 0.039. When all other factors are held constant and foreign reserves (FR) are increased by one dollar, the Gross National Income per Capita (GNIPC) was predicted to rise by 0.039, or nearly 0.04 times. Furthermore, it is assumed that there is a positive relationship between foreign reserves and GDP per capita (GNIPC).

Model Summary

The goodness of fit of the regression line to the data set is gauged by the adjusted R2 value, also known as the adjusted coefficient of determination. It calculates the fraction or percentage of the dependent variable's overall variation, which the regression equation explains. The adjusted R2 value is 0.57, per the multiple linear regression model summary. It can be concluded that EXPI, FRD, and FRR account

for 57% of Sri Lankan citizens' living standards, while variables other than these three account for only 43% of Sri Lankan citizens' living standards.

The adjusted R2 value is 0.61, according to the simple linear regression model summary. It can be concluded that FR accounts for 61% of Sri Lankan citizens' living standards, while variables other than FR account for 39% of Sri Lankan citizens' living standards.

The "t" statistic (t-test) – The t-test is used to determine the statistical significance of the model's coefficients. If each variable's probability value is less than 0.05, that variable is considered statistically significant; thus, only the EXPI and FRD variables are statistically significant in the multiple regression model. FR is statistically significant in the simple regression model because its probability value is less than 0.05.

The "f" statistic (analysis of variance) - This test is used to determine whether or not the overall model is statistically significant. The R2 value indicates whether the proportion of explained variation is relatively high or low, whereas the "f" statistic indicates whether the independent variables explain a statistically significant share of variation in the independent 'y' variable as a group. If the f-statistical probability value is less than 0.05, we can conclude that the models have overall significance. The multiple regression model has an overall significance because its f-statistic value is less than 0.05. The simple regression model has an overall significance because its f-statistic value is less than 0.05.

Hypotheses Testing

Table 6: Summary of the hypotheses

	Hypotheses	Acceptance
H1	There is a significant impact from foreign reserves on the living standard of Sri Lankan citizens	Accepted
H2	There is an impact of export income on the living standard of the Sri Lankan citizens	Accepted
H3	There is an impact of foreign debt on the living standard of the Sri Lankan citizens	Accepted
H4	There is an impact of foreign remittances on the living standard of Sri Lankan citizens	Rejected

Source: Developed by the researcher

5. CONCLUSION AND RECOMMENDATIONS

5.1 Conclusion

Due to a number of issues, including an unstable exchange rate, non-repayment of debt, and a lack of foreign reserves to import essential goods like LP gas, petroleum, food, and medications, as well as hyperinflation, Sri Lanka is currently going through a severe economic crisis. As a result of the significant impact on everyone's standard of living in Sri Lanka, the government has taken a number of steps to address the issues. There are numerous reasons to keep external reserves. Maintaining a favorable exchange rate, protecting the value of the domestic currency, timely payment of international debt obligations, improving the nation's creditworthiness, acting as a

buffer against external shocks, and so on are a few of these. In this case, anything that can boost the foreign reserves of developing countries should be made public and backed by the government.

There is a significant positive correlation between Sri Lankan citizens' standard of living and their foreign reserves. Furthermore, there exists a noteworthy correlation and positive influence among export earnings, foreign debt, and the quality of life of Sri Lankan nationals. Nonetheless, there is a slight but positive correlation between the living standards of Sri Lankan citizens and their foreign remittances.

5.2 Recommendations

Since foreign reserves improve citizens' conditions of living, particularly in developing nations like Sri Lanka, the government is encouraged to implement policies that will increase the forex reserves in Sri Lanka. This will enhance citizens' living standards. A government should always keep enough and ideal levels of foreign exchange reserves. The findings suggest that Sri Lanka's government needs to re-evaluate its resource management policies and establish a foreign reserve stabilization fund.

5.3 Limitations of the Study

This study only looks at the impact of foreign reserves on the standard of living of Sri Lankans, leaving out the impact on macroeconomic factors like unemployment, consumption, investment, savings, and inflation. Furthermore, in this article, the measurement of living standards is limited to GNP per capita because it is considered an indicator of the average living standard of that particular economy. It would be the most appropriate measure for measuring living standards in a developing country like Sri Lanka. As a result, other measurements are ignored because they are less suitable for measuring living standards.

Throughout the study, historical secondary data from the last two decades will be used to determine the maximum impact that occurred for the factors in the study, with the impact of other decades purposefully left out to avoid the study becoming out of date. Foreign reserve inflows can take many forms; however, to keep the research problem relevant, only export income, foreign debt, and foreign remittances will be considered throughout the write-up.

5.4 Suggestions for Future Research

Further research could extend the time limit or scope, use other living standard measuring indicators as the dependent variable, or employ other statistical techniques. This will allow for comparison, as well as increased reliance on and robustness of the study's findings. This will also confirm the validity of the study's findings, as different models, variables, and time horizons will be used. The researcher recommends that additional research be conducted on the determinants of foreign exchange reserves in Sri Lanka beginning in 2022. Due to a lack of foreign reserves, Sri Lanka is experiencing an economic crisis.

A more rigorous framework for characterizing potential determinants of forex

reserves other than export income, foreign debt, and foreign remittances would be useful as a future step in this research. Another area of study could be the interaction between the government's monetary policy and the accumulation of foreign exchange reserves.

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