FINANCING THE PUBLIC FISCAL DEFICIT: IN FACE OF THE SHORTAGE OF DOLLARS IN BOLIVIA

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Abstract

The shortage of foreign currency, especially dollars in Bolivia, is mainly due to the fall in natural gas exports, generating a fall in foreign exchange income and savings and affecting the entire productive community social economic model, leading to a macroeconomic imbalance. In this understanding, this research analyzes and identifies the independent variables that were progressively affected and that all of them are registered and accounted for in foreign currency dollars, such as gas exports, international reserves, external debt, trade balance, foreign remittances and the pension portfolio, to cover the obligations and expenses contemplated in the General State Budget and its fiscal deficit. The latter being our dependent variable. Thus, these variables are studied over the time in which the aforementioned economic model has been applied, i.e., the series sample is from 2006 to 2023. To analyze the data, we will first make the polynomial projections of each of the study variables individually, where we were able to identify cyclical patterns or complex curves with increasing and decreasing trends. Subsequently, we developed a multiple regression, the results obtained were a multiple correlation coefficient of 99.4%, noting that the variables trade balance and the pension portfolio showed negative and significant coefficients and the rest of the variables positive and significant coefficients, except gas exports.

Key Words: *financing, scarcity of dollars, budget, fiscal déficit*

Introduction

Bolivia has been facing significant economic challenges in recent years, this is mainly due to the fall in the export of natural gas mainly and the significant decrease in the foreign currency dollars, getting worse and having a shortage of dollars, affecting the entire productive community social economic model, leading to a macroeconomic imbalance and affecting all the independent variables of economic income in dollars to cover the obligations that exist in the budget with its fiscal deficit (Vargas, Delgadillo, & Vásquez, 2022b).

In addition to the above, it is essential to review studies on the financing of fiscal deficits, we can mention some research, for example, the macroeconomic model in which public deficits are financed with bonds and the stock of bonds according to the authors Holmes and Smyth (1979), the author Inman (1982) examines the causes and consequences of financing the fiscal deficit through the pensions of public employees. On the other hand, there is the research of Blejer and Cheasty (1991), Bohn and Inman (1996) and Cuddington (1997) where they highlight that capital funds, pensions and social security are potential sources of financing the fiscal deficit. However, international research includes the authors Fatás and Mihov (2006), Maltritz and Wüste (2015), Habib (2019), Mawejje and Odhiambo (2020) study the determinants of fiscal deficits, including the study by Ying and Jun Lyu (2023) who propose to reduce fiscal deficits with transparency in the disclosure of their budget execution in China through local e-governments. In this regard, it is worth mentioning at the Latin American level, studies that proposed reducing fiscal deficits through the economic information transparency indices of the electronic governments of Vargas, López and Helal (2012), Organization for Economic Cooperation (2021). and Vargas, Delgadillo, and Villca (2022a).

In the case of Bolivia, mention should be made of the studies by Vargas, Delgadillo and Villca (2022b) where they argue that the fall in gas exports and international reserves, the same authors argue a deterioration in economic growth to continue financing the fiscal deficit, for more than ten years through exports of raw materials with little specialization and added value and with a fixed exchange rate and low inflation (Vargas, Delgadillo & Villca, 2023a). But in another study, Vargas, Delgadillo and Villca (2023b 2024a), consider the weakness of a productive export sector and high labor informality, added to the lack of transparency in the dissemination of information and predict a risk of inflation through the collapse of net international reserves, the increase in internal and external public debt, the increase in public spending with strategic public companies, generating higher levels of fiscal deficit, with progressive subsidies for fuel imports generating a vicious circular economy (Vargas, Delgadillo, & Villca, 2024b).

In addition to the above, in the first section we will study the theories and references on the financing of the fiscal deficit, we will also identify in another section the independent variables and the dependent variable registered and accounted for in foreign currency and that are being executed by the public policies that the current government of Bolivia has been carrying out, to analyze the data we will make the polynomial projections of each and every one of the variables individually and also with multiple regression to determine the analysis of the results and conclusions.

1. Experiences to finance the fiscal deficit

We can mention, the article by Holmes and Smyth (1979) presents a macroeconomic model in which public deficits are financed with bonds and the stock of bonds can affect both expected revenues and liquidity. Inman (1982) examines the causes and consequences of the financing of public employees' pensions by local governments. The decision to fund pensions is analyzed in the context of two models, the first in which current taxpayers stay and pay future employee retirement benefits and a second model in which current taxpayers move and therefore expect to avoid paying future retirement benefits.

The authors Bohn and Inman (1996) look for balanced budget and public deficit rules, highlighting that state limits apply only to the general fund, leaving other funds, capital, pensions, social security as potential sources of deficit financing. According to the authors Blejer and Cheasty (1991), with their respective measurements of fiscal deficits in analytical and methodological matters, they can be controlled through gradual policies. Cuddington (1997) analyzes the sustainability of fiscal deficits in developing countries through gradual fiscal, exchange rate, and monetary policies.

At the international level, the authors Maltritz and Wüste (2015) identify the determinants of fiscal deficits in Europe and the role of fiscal pacts through creative accounting and the euro, in the face of huge fiscal deficits and their role in causing the current European debt crisis. Similarly, authors Fatas and Mihov (2006) analyze the macroeconomic effects of fiscal rules on U.S. states with explicit and implicit constraints on fiscal policy, using estimates of the cyclical elasticities of public spending, because these constraints impair the ability of governments to implement countercyclical fiscal policies.

According to (Habib, 2019) the fiscal deficit puts high-interest rate borrowing at risk, deducing that the approach of pulling the economy out of recession puts a limit on excessive borrowing by linking the funds collected to the real economy and increasing productive capacity in the long term with infrastructure gaps. The authors Mawejje and Odhiambo (2020) deduce that the determinants of fiscal deficits are country-specific, highlighting the role of Ricardian equivalence theory, Keynesian theory, neoclassical theory, and the political budget cycle hypothesis.

However, authors Ying and Jun Lyu (2023) argue that e-government can reduce local government financial deficits in the case of China, consider that the impact of e-government on the fiscal deficit differs significantly between regions with different levels of economic development, the fundamental reason for this problem lies in the contradiction between the disclosure of information required for effective e-government and concentration of information characteristic of unitary countries.

## 2. How to finance the fiscal deficit in Bolivia

In the case of Bolivia, we can mention the authors Afcha et. to the. (1992). Vargas, Delgadillo, and Villca (2022b) argue that the fiscal deficit in the Bolivian economy is especially dependent on exports with little specialization and added value, such as natural gas, minerals, mainly gold, among others. In addition, the collapse of savings due to the gradual fall in net international reserves, leaving the vaults of the Central Bank of Bolivia (2024) with scarce gold and foreign exchange reserves to cover the obligations of the fiscal deficit, with a fixed exchange rate and low inflation (Vargas, Delgadillo, & Villca, 2023a). According to international

organizations (International Monetary Fund, 2024, World Bank, 2023 and ECLAC, 2023) the slowdown in economic growth with respect to the Gross Domestic Product since 2021 registered a drop from 6.21% in 2023 to 2.7% and they project 1.4% for 2024.

Once the reserves are exhausted, the fiscal deficit is covered by the increase in internal and external public debt, both of which have reached the Gross Domestic Product according to Vargas, Delgadillo and Villca (2023b), at the same time, the increase in public spending in the public sector and public administration in general and the incorporation of public policies by strategic public companies, the latter seeking to replace imports of the productive apparatus, generating a more robust state apparatus and with the higher levels of fiscal deficit recorded in the last ten years and taking into account the progressive subsidies on fuel imports, leaving the trade balance in deficit Vargas, Delgadillo and Villca (2024a), generating instability in the exchange rate and higher inflation and a vicious circular economy Vargas, Delgadillo and Villca (2004b) and the World Bank (2006).

In view of the excess indebtedness, another public policy measure is taken by the Central Bank of Bolivia (2024) to capture dollars through remittances from workers abroad by retaining dollars and delivering national currency to Bolivian families. Finally, it is considered to use the pensions of contributing and retired workers to cover the fiscal deficit through the placement of bonds to the nation's general treasury, the central bank, and bonds abroad (Central Bank of Bolivia, 2024). In addition to all of the above, international bond risk rating agencies, such as the risk rating agency Morgan (2024), place Bolivia in the second worst position in Latin America with 2,065 points after Venezuela with 16,878 points, see Graph 1.

Graph 1: Country risk in Latin America (In thousands of points)
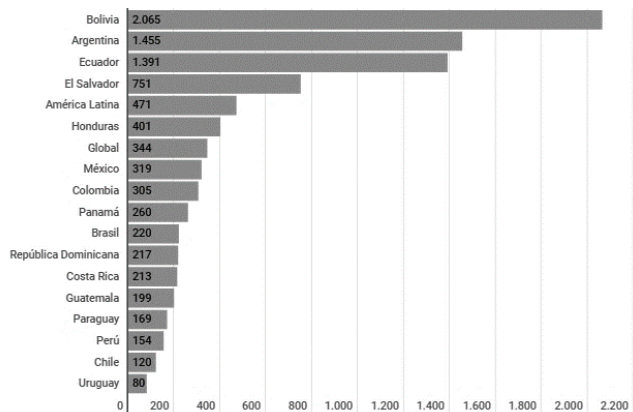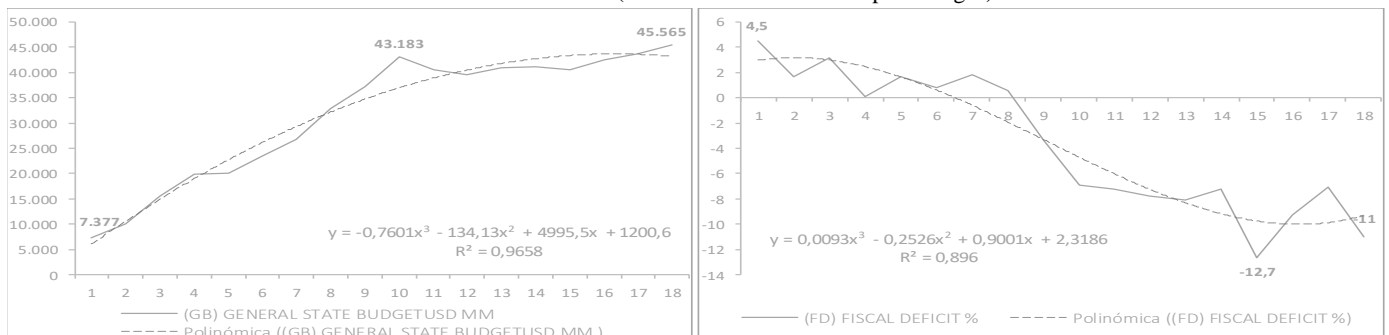
Thus, we can identify the independent variables, all of them recorded and accounted for in foreign currency dollars and that were used as public policy to finance the fiscal deficit in the face of the scarcity of dollars, see Table 1:

Table 1. Financing the fiscal deficit in foreign currency

Financing funds recorded in foreign currency (Independent Variables)	Obligations To finance in foreign currency (Dependent Variable)
(GX) GAS EXPORTS	
(IR) INTERNATIONAL RESERVES	
(ED) EXTERNAL DEBT	(GB) GENERAL STATE BUDGET AND ITS FISCAL DEFICIT
(BT) BALANCE OF TRADE	
(RA) REMITTANCES ABROAD	
(CP) PENSION PORTFOLIO	
(RA) REMITTANCES ABROAD	
(CP) PENSION PORTFOLIO	

Source: Central Bank of Bolivia (2024) and Ministry of Economy and Finance (2024)

In addition to the above, we will study these variables since the economic, social, community and productive model has been applied in Bolivia, that is, from 2006 to 2023 from the Jubilee Foundation (2023), the National Institute of Statistics of Bolivia, (2023 and 2024) and the Ministry of Economy and Finance (2014, 2022 and 2023). To analyze, we will first make the polynomial projections of each and every one of the variables individually and then, we develop the multiple regression model to determine the factors and correlation coefficients to finance the fiscal deficit.

2.1. Aggregate budget and its fiscal deficit

As can be seen in Graph 2, based on sources from the Central Bank of Bolivia (2024), the National Institute of Statistics (2023 and 2024) and the Ministry of Economy and Finance (2023). The aggregate budget has grown considerably since 2006 from 3,377 to 45,565 billion dollars by 92.5% in 2023. as shown by the third-degree polynomial projection and with a coefficient of determination R^2 squared equal to 0.96. With respect to the fiscal deficit or surplus, with a decrease in the surplus in 2006 from 4.5% to 0.6% in 2013, going from that year to a fiscal deficit and increasing year after year reaching -7.8% by 2023, in the same way the polynomial projection shows us a cyclical curve and with a coefficient of determination R^2 squared equal to 0.90.

Graph 2: Aggregate budget and fiscal deficit or surplus
Period: 2006 to 2023 (In millions of dollars and percentages)

Source: Ministry of Economy and Finance (2024)

We can mention that the fiscal challenges that Bolivia has faced in recent years due to factors such as the fall in the prices of raw materials and the higher public expenditure mainly of civil servants and public consultants, as well as the investments of public companies, as well as the subsidy of fuels led to the growth of the budget. but financed by a fiscal deficit that has grown for more than ten years.

2.2. The fall in gas exports and net international reserves

Bolivia nationalized its hydrocarbon resources, which generated significant changes in the gas industry, the Bolivian State assumed greater control and prominence in the exploitation and export of natural gas, according to the reports and sources of information of Yacimientos Petrolíferos Fiscales de Bolivia (2024) the evolution of Bolivia's natural gas exports in the period 2006 to 2023, We can mention that in 2006, exports reached around 14.4 million cubic meters per day, with respect to the value exported, the sustained increase since 2006 going from 1,668 to 6,113 billion dollars by 2013 where it reached its highest level of export to reach approximately 30.5 million cubic meters per day. this increase was mainly due to the expansion of production capacity and the signing of new export contracts, mainly with Argentina and Brazil.

As of 2016, Bolivia's natural gas exports began to show a decreasing trend, reaching an export value of 1,880 million dollars by 2023, by 2023, it is estimated that Bolivia's natural gas exports were around 23 million cubic meters per day (Yacimientos Petrolíferos Fiscales de Bolivia, 2024). With respect to its tendency is circular of the polynomial projection of the third degree and with a coefficient of determination R^2 squared equal to a non-significant 0.40. This decline has been attributed to a variety of factors, including falling demand from major trading partners, shrinking gas reserves, and production challenges, see Graph 3.

Graph 3. Gas Exports and Net International Reserves

Period: 2006 to 2023 (Millions of dollars)
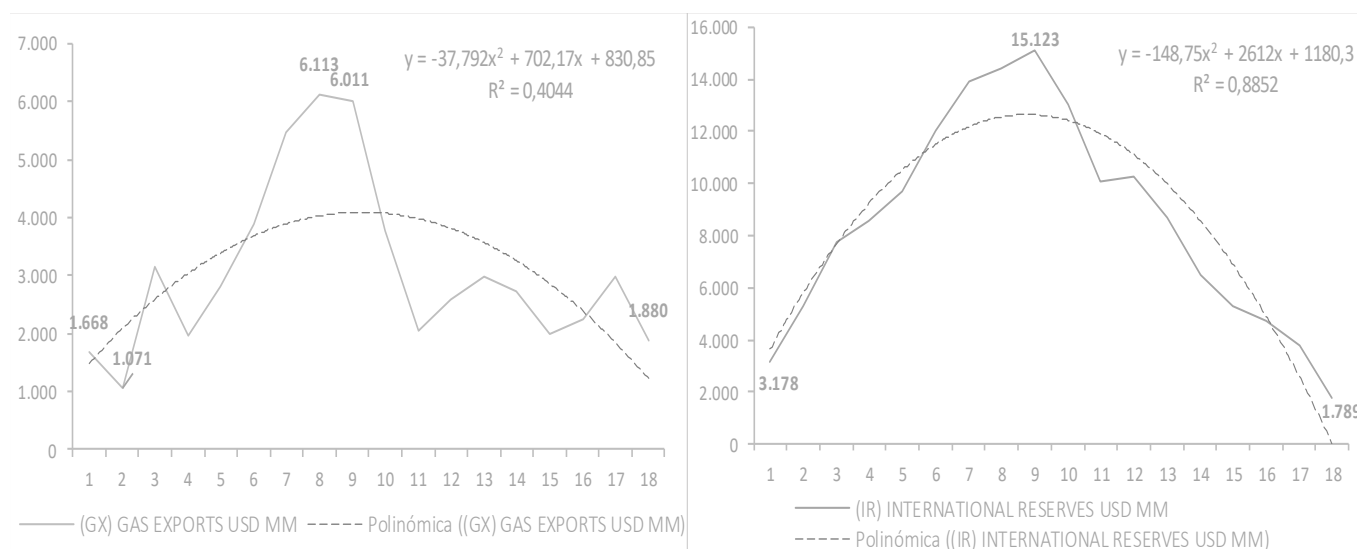
Source: Yacimientos Petrolíferos Fiscales (2024) and Central Bank of Bolivia (2024)

With respect to savings measured through Net International Reserves, we can see Graph 3, from 2006 from 3,178 million dollars to 2014 to 15,123 million dollars, reserves had an increasing trend in the same way due to the greater export of natural gas and minerals, from that year onwards reserves had a significant decrease reaching 1,709 million dollars by 2023 Central Bank of Bolivia (2024) and Ministry of Economy and Finance (2023). This is mainly due to the fall in gas exports and the significant import of diesel and gasoline, both in foreign currency, as well as gas exports, its tendency is circular from the polynomial projection of the third degree and with a coefficient of determination R^2 squared equal to 0.88 but more significant.

2.3. Increasing external debt and attracting remittances

After a series of restructurings and write-offs, Bolivia managed to significantly reduce its external debt in the early 2000s. However, in the years since, external debt has increased again. In the recent report of the Central Bank of Bolivia (2024) on external debt over the last ten years, it is growing and amounts to 13,669 million dollars, as can be seen in Graph 4, Bolivia's external debt tends to increase year after year from 2006 to 2023, an increase of 85% according to official data from the Central Bank of Bolivia (2022a and 2022b). In addition, financing costs could continue to increase in the face of a greater risk of default on external debt, due to lower revenues and increased interest payments and amortizations (Morgan, 2024). With respect to the third-degree polynomial projection and with an increasing trend over the years, the coefficient of determination R^2 squared is equal to a significant 0.99. However, it is important that Bolivia continue to implement policies aimed at generating fiscal surpluses and diversifying its sources of financing, in order to avoid excessive growth in external debt and preserve macroeconomic stability.

Graph 4. External debt and remittances from abroad

Period: 2006 to 2023 (Millions of dollars)
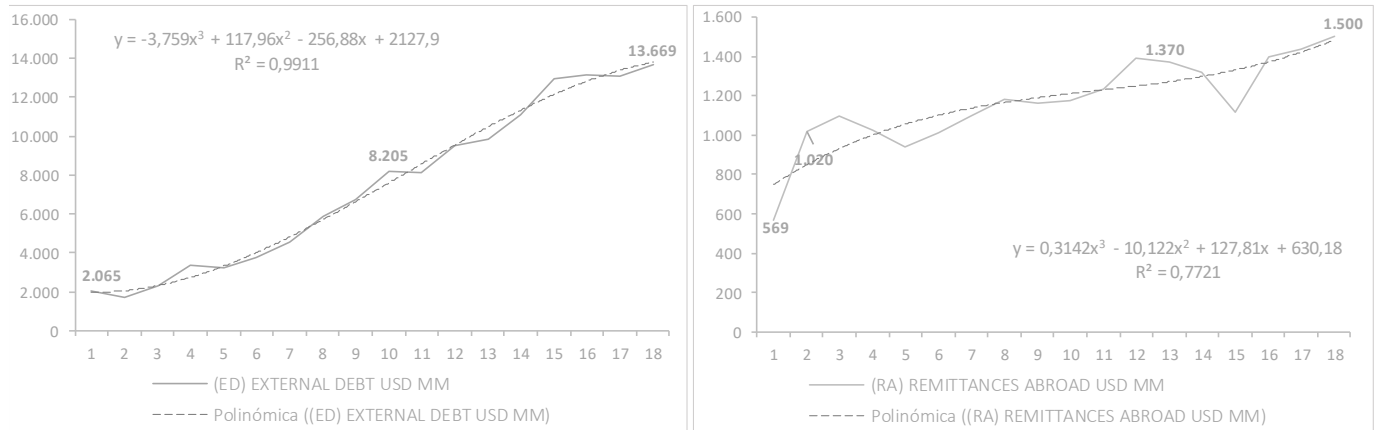

Source: From the Central Bank of Bolivia (2024)

Remittances from Bolivians working abroad are an important source of income for the country. In 2016, remittances to Bolivia reached a record $569 million dollars Central Bank of Bolivia (2022a and 2022b). By 2023, remittances reached around 1,500 million dollars from the Central Bank of Bolivia (2024). Remittances account for about 3% of Bolivia's GDP and are a key source of foreign exchange for the country. Bolivia faced a shortage of foreign currency and a crisis of confidence in the financial system starting in 2023, as a measure to avoid a massive flight of deposits and speculation, the government implemented a temporary banking "corralito" (Vargas, Delgadillo, & Vásquez, 2024b). This implied the restriction of cash withdrawals and limits on international transfers. Like external debt, remittances have a cyclical upward trend in the third-degree polynomial projection and with a squared coefficient of determination R^2 equal to a moderate 0.77, see Graph 4.

2.4. The trade balance and the pension savings portfolio

As you can see in Graph 5, Bolivia has maintained a positive trade balance of surplus since 2026 of 1,306 million dollars, reaching its highest peak in 2012 of 3,401 million dollars and with a surplus until 2015, but since then it has entered a trade deficit due to reaching 2023 of -697 million dollars. This is due to the increase in imports and the fall in natural gas exports, due to the lack of public policies to promote the export productive apparatus and political instability, and this trend has been accentuated in recent years. With respect to Bolivia's trade balance, its trend is cyclical from 2006 to 2023 in the third-degree polynomial projection and with a coefficient of determination R^2 squared equal to a non-significant 0.42.

Graph 5. Trade balance and pension savings portfolio

Period: 2006 to 2023 (Millions of dollars)
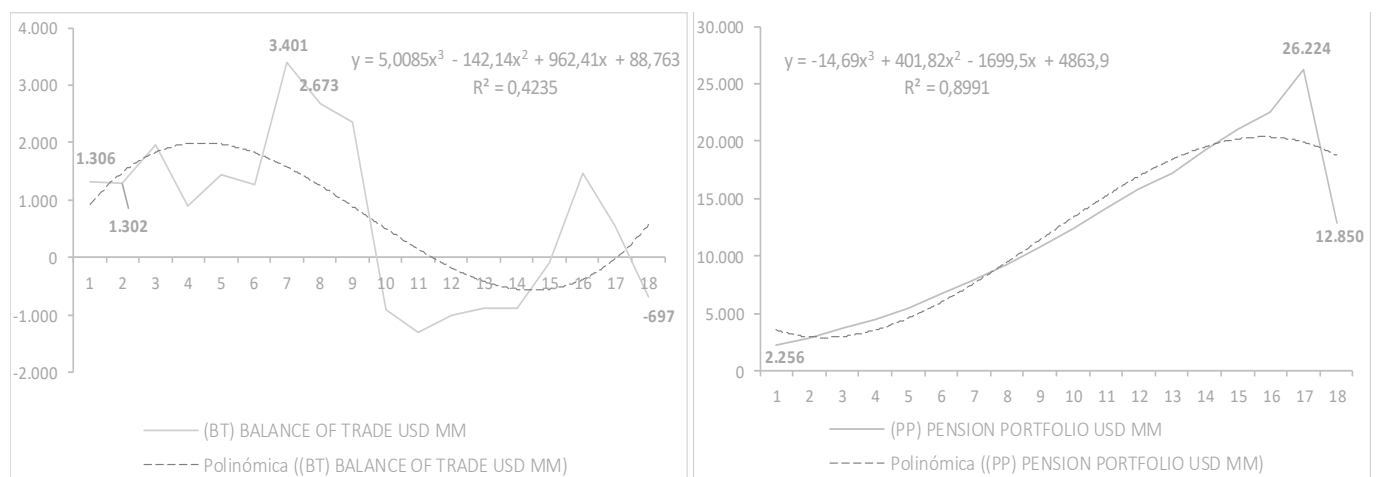
Source: Ministry of Economy and Finance (2023) and Jubilee Foundation (2023)

As we can see in Graph 5, pension savings in Bolivia have grown steadily, going from US$2,256 million in 2006 to around US$26,224 billion by 2023. It should be noted that pension savings represent 51% of the country's GDP in foreign currency, but given the shortage of dollars, now the long-term Public Management Company that replaced the Pension Administrator, had to make investments in fixed-term bonds in foreign currency to the General Treasury of the Nation, the Central Bank and abroad (Public Manager, 2024). This increase reflects the expansion of the coverage of the pension system and the increase in workers' contributions. With respect to the third-degree polynomial projection, an increasing trend can be seen over the years, but in recent years an investment in bonds was arranged, so the coefficient of determination R^2 squared is equal to a non-significant 0.099.

3. Regression model of the Bolivian case

In this section, the analysis of the multiple linear regression model according to the author (Vargas *et. al.*, 2012 and Montero, 2016) on economic growth, the analysis of the economic variables of interest with a view to the construction and formulation of an econometric model, analyzing the correlation between the dependent variable and each of the independent variables, an analytical tool widely used in this type of study; In addition, to estimate the multivariate linear regression model, following the proposed methodology and the variables mentioned in previous sections, the following equation was used:

$$GB = \beta1 * GX + \beta2 * IR + \beta3 * ED + \beta4 * BT + \beta5 * RA + \beta6 * PP + u$$

In this way, we will apply this equation to the joint analysis of macroeconomic variables following the methodology (Vargas *et. al.* 2012) where the General State Budget and its fiscal deficit (GB) as a dependent variable and the independent variables that support the theory seen in previous sections of the budget and its fiscal deficit and the variables that finance Gas Export (GX), savings through Net International Reserves (IR), External Debt (ED), Balance the Trade (BT), Remittances Abroad (RA) and Pension Portfolio (PP) and the coefficient (u).

4. Regression and correlation results

Based on the previous section and the variables of the studies explained, historical data from the period 2006 to 2023 were constructed to apply regression estimates. The multivariate linear regression equation of the general state budget and its fiscal deficit of the Bolivian economy is as follows:

$$GB = 0.79 * GX + 1.04 * IR – 2.80 * ED – 1.64 * BT + 5.99 * RA – 0.17 * PP + u$$

Application of the multivariate linear regression test for the economic determinants of foreign currency income to finance the budget of the Bolivian economy. Table 2 presents the results of the adjustment to a multivariate regression model to describe the relationship between the GB and the six independent economic variables GX, IR, ED, BT, RA and PP. It can be observed that the regression and linear correlation model with respect to the budget with fiscal deficit is significant with adjusted R^2 of 99.4% and four coefficients are positive, these are GX, IR, ED, RA and two negative coefficients BT and PP, see Table 2.

As can be seen in Table 2, of these four variables with a positive coefficient, the most explanatory with a coefficient of 5.99 is workers' remittances, this is because many Bolivians are abroad in search of formal employment and send remittances to their families in foreign currency. but their families can only access these remittances in national currency, that is, the government had to apply corralito due to the shortage of dollars in the country, it is evident that this variable will continue to increase due to the lack of formal employment policies and productive incentives.

Table 2. Results of the variables studied

| Regression statistics	
Multiple correlation coefficient	0,9946849
Coefficient of determination R^2	0,98939805
R^2 Adjusted	0,98361517
Typical error	1612,57228
Remarks	18
	Coefficients
Interception	-4184,20934
(GX) GAS EXPORTS USD MM	0,797899613
(IR) INTERNATIONAL RESERVES USD MM	1,040498533
(ED) EXTERNAL DEBT USD MM	2,805837444
(BT) BALANCE OF TRADE USD MM	-1,643401591
(RA) REMITTANCES ABROAD USD MM	5,990746579
(CP) PENSION PORTFOLIO USD MM	-0,17554184

Source: Own elaboration

Next is the external debt, see Table 2, although it is significant, but to a lesser degree with a coefficient of 2.80 this is mainly due to the fact that it is still possible to access external credits despite the fact that there was an increase of 85%, as can be seen in Graph 6, the trend is increasing and will continue as long as there is a shortage of dollars. despite the fact that there is a barrier in parliament. In the case of international reserves, it is positive and even less explanatory with a coefficient of 1.04, this can be explained by the scarcity of dollars, the government chose to consume all the savings in the reserve, both currency, gold and special drawing rights (Central Bank of Bolivia, 2024), but there are still mechanisms and instruments to strengthen the reserves according to the public management policies implemented by the current government.

Finally, with a positive and less significant coefficient is the export of gas with only 0.79 as we have been mentioning, this is due to the depletion of gas reserves and the drop in exports despite the fact that the government made gas explorations, but without results, but it will continue to be explored, although with less intensity because in the economic bonanza it was not used to the maximum. now with the scarcity of dollars it will be more difficult, see Table 2 and Graph 6.

With respect to the independent variables with negative coefficients, both the BC and CP, it can be seen in Table 2 and in Graph 6, the most explanatory with a negative and significant coefficient is the trade balance of (-1.64), this is due to public policies of little incentive to the export productive sector, a trade balance deficit for many years, but this variable could change if a policy of greater incentive to the export productive apparatus were applied and they generate employment for the economically active population that is in 85% of labor informality (World Bank, 2023).

Graph 6. The trend of independent variables

Period: 2006 to 2023 (Millions of dollars)
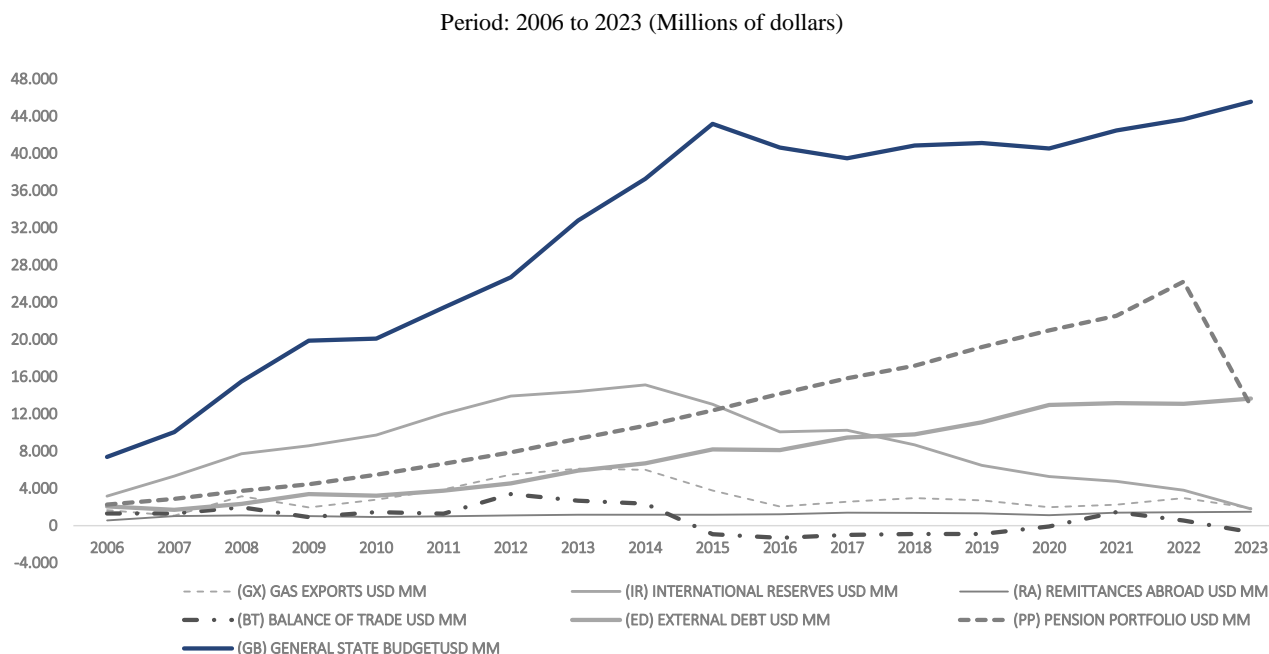
Source: Ministry of Economy and Finance (2023) and Jubilee Foundation (2023)

Finally, the independent variable of the budget with fiscal deficit is the pension savings portfolio, although this variable is explanatory but to a lesser degree with a negative coefficient of (-0.17) despite the income of the workers, the government of the day used these savings to cover the shortage of dollars and investing in bonds in the general treasury of the nation. in the central bank and abroad by more than 51% and will surely continue to use these private savings to keep the economic model working, see Table 2 and Graph 6.

Conclusions

The conclusions we reached is that the economic, social, community and productive model of Bolivia is in an instability and macroeconomic imbalance with all its sources of economic income in US dollars, this could be evidenced by the fall in income from natural gas exports, which financed, mainly the fiscal deficit of the budget for many years. among them, the subsidization of fuels and investments by strategic public companies mainly, under a monetary policy of a fixed exchange rate and price controls and low inflation.

Continuing to sustain the economic model with these characteristics, for more than sixteen years, led to resorting to all sources of income in dollars, to continue financing the fiscal deficit, affecting each variable with increasing, decreasing and cyclical trends according to the polynomial projections studied for each variable, thus, a drastic fall in gas exports and net international reserves, an increase in the external debt, a deficit trade balance, a corralito in the remittances of workers abroad and the fall of the pension portfolio, the latter to invest mainly in bonds of the General Treasury of the Nation and the Central Bank.

With respect to the results of the adjustment to a multiple regression model, we can conclude that the export productive apparatus must be strengthened to get out of the trade deficit and the pension portfolio must be independent and managed by actors such as employees and employers and not only by the State, it is essential to change the economic model and not depend on a single non-renewable sector such as natural gas. on the contrary, diversify and enhance the economy with a virtuous economic circularity through renewable productive factors, recover international reserves, lower external debt and avoid financial corralitos such as remittances and not use pension income.

Reference

1. Afcha G., Devarajan S., de Franco M. Larrazábal E. (1992). External Vulnerability, Fiscal Policy and Macroeconomic Adjustment: The Bolivia Case. Journal of Economic Analysis, Economic Policy Analysis Unit (UDAPE) 1992. Vol. 3: Bolivia. https://www.udape.gob.bo/portales_html/analisisEconomico/analisis/vol03/art03.pdf
2. Blejer, Mario I. and Cheasty, Adrienne (1991). Journal of Economic Literature. Vol. 29, No. 4 (Dec., 1991), pp. 1644-1678 (35 pages) Published By: American Economic Association https://www.jstor.org/stable/2727793

3. Bohn, Henning and Inman Robert P., (1996). Balanced-budget rules and public deficits: evidence from the U.S. states, Carnegie-Rochester Conference Series on Public Policy, Volume 45, 1996, Pages 13-76, ISSN 0167-2231, https://doi.org/10.1016/S0167-2231(96)00017-6

4. Bolivian National Institute of Statistics (INE) (2024). Electronic statistics. https://www.ine.gob.bo/index.php/comunicacion/

5. Central Bank of Bolivia (BCB) (2022a). Inflation and policies. BCB Publications. https://www.bcb.gob.bo/webdocs/publicacionesbcb/2023/05/28/CAP%202.pdf

6. Central Bank of Bolivia (BCB) (2022b). Report on the Balance of Payments and the International Investment Position. Publications from 2013 to 2022. https://www.bcb.gob.bo/webdocs/publicacionesbcb/2022/11/28/Bop%201T%2022022.pdf

7. Central Bank of Bolivia (BCB) (2024). Statistical Bulletins (2006-2023) https://www.bcb.gob.bo/

8. Cuddington, John T. (1997). Analysis of the Sustainability of Fiscal Deficits in Developing Countries (31 March 1997). Available at SSRN: https://ssrn.com/abstract=597231

9. Economic Commission for Latin America and the Caribbean (ECLAC) (2023). Economic and Social Development Plan (PDES) 2021-2025 of Bolivia. Regional Observatory for Development Planning in Latin America and the Caribbean. Ministry of Development Planning. https://observatorioplanificacion.cepal.org/sites/default/files/plan/files/PDES_2021-2025a_compressed_0.pdf

10. Fatás, Antonio and Mihov, Ilian (2006). The macroeconomic effects of fiscal rules in the US states, Journal of Public Economics, Volume 90, Issues 1–2, Pages 101-117, ISSN 0047-2727, https://doi.org/10.1016/j.jpubeco.2005.02.005.

11. Habib, Ahmed (2019). Fiscal Policy and Deficit Financing: Islamic Perspectives (2019). Journal of King Abdulaziz University: Islamic Economics, Vol. 32, No. 1, 2019, Available at SSRN: https://ssrn.com/abstract=3465620

12. Holmes, James M. and Smyth, David J. (1979). Deficit financing, liquidity, and the government budget constraint, Journal of Macroeconomics, Volume 1, Issue 1, 1979, Pages 83-106, ISSN 0164-0704, https://doi.org/10.1016/0164-0704(79)90023-5.

13. Inman, Robert P. (1982). Public employee pensions and the local labor budget, Journal of Public Economics, Volume 19, Issue 1, 1982, Pages 49-71, ISSN 0047-2727. https://www.sciencedirect.com/science/article/abs/pii/0047272782900512

14. International Monetary Fund (IMF) (2023). The outlook is uncertain again, surrounded by turbulence in the financial sector, high inflation, the effects unleashed by the Russian invasion of Ukraine and three years of COVID-19, April 2023. https://www.imf.org/es/Publications/WEO/Issues/2023/04/11/world-economic-outlook-april-2023

15. Jubilee Foundation (2023). Analysis of the 2023 General State Budget. the public budget without a change of course. Situation Report No. 47, February 2023. https://jubileobolivia.org.bo/download.php?k=1202

16. Maltritz, Dominik and Wüste (2015). Sebastian, Determinants of budget deficits in Europe: The role and relations of fiscal rules, fiscal councils, creative accounting and the Euro, Economic Modelling, Volume 48, Pages 222-236, ISSN 0264-9993. https://doi.org/10.1016/j.econmod.2014.12.001.

17. Mawejje, J. and Odhiambo, N.M. (2020). The determinants of fiscal deficits: a survey of literature. *Int Rev Econ* **67**, 403–417 (2020). https://doi.org/10.1007/s12232-020-00348-8

18. Ministry of Economy and Finance (2014). Economic, social, community and productive model. https://repositorio.economiayfinanzas.gob.bo/documentos/2018/UCS/materialesElaborados/publicaciones/modelo_decima_edicion.pdf

19. Ministry of Economy and Finance (2022). Memoria de la Economía Boliviana. https://www.economiayfinanzas.gob.bo/memorias-economia-boliviana

20. Ministry of Economy and Finance (2023). The 2023 Fiscal-Financial Program. https://repositorio.economiayfinanzas.gob.bo/documentos/2018/UCS/materialesElaborados/publicaciones/modelo_decima_edicion.pdf

21. Morgan, JP. (2024). Latin American Bonds and Country Risk in the First Half of 2024, Risk Rating Agency. Quoted by bloomberglinea on: https://www.bloomberglinea.com/2024/07/02/asi-les-fue-a-los-bonos-y-al-riesgo-pais-de-latam-en-el-primer-semestre-de-2024/

22. National Institute of Statistics of Bolivia (INE) (2023). National Institute of Statistics: Statistical Yearbook 2023. Plurinational State of Bolivia. Ministry of Development Planning. https://www.ine.gob.bo/index.php/publicaciones/bolivia-en-cifras-2023/

23. Organization for Economic Cooperation (OECD) (2021). A new economy: the changing role of innovation and information technology in growth. https://libgen.is/book/index.php?md5=8C3CC94C0EBEBD56A79BBB4BD6249260

24. Public Manager (2024). Presentation of the initial public accountability 2024. https://www.gestora.bo/Transparencia/RendicionDeCuentas/

25. Vargas Díaz, César D., López H., Manuel Antonio and Helal Ouriachen El Housin (2012). The Indices of Transparency of Economic Information and Latin American Electronic Government. World Economy. Vol. 13, No. 1, January-March 2012. https://www.world-economics-journal.com/Papers/The-Indices-of-Transparency-of-Economic-Information-and-the-Latin-American-e-Government.aspx?ID=510

26. Vargas Díaz, César; Delgadillo Dorado, Hernán and Vásquez De la Vega, Álvaro Ramiro (2024b). The Factors Of Economic Growth In Virtuous And Vicious Circularity: Applied To The Case Of Bolivia. Journal of economics, business & management. Vol. II, Issue III (May – June) 2024. DOI: 10.5281/zenode.11180208

27. Vargas Díaz, César; Delgadillo Dorado, Hernán and Villca Copali, Eloy Wilson (2022a). The Social, Economic and Financial Information of Electronic Governments in Latin America. Scientific Journal of Business and Administration. Vol. 10, No. 2, 2022, pp. 107-117. ISSN: 2331-0626 (Print); ISSN: 2331-0634 (online). http://www.sciencepublishinggroup.com/j/sjbmdoi:10.11648/j.sjbm.20221002.17

28. Vargas Díaz, César; Delgadillo Dorado, Hernán and Villca Copali, Eloy Wilson (2022b). The fall in gas exports, international reserves and economic growth in Bolivia. International Journal of Economics, Energy and Environment 8(4), 91-98 https://www.researchgate.net/publication/373008067_The_Fall_in_Gas_Exports_International_Reserves_and_Economic_Growth_in_Bolivia

29. Vargas Díaz, César; Delgadillo Dorado, Hernán and Villca Copali, Eloy Wilson (2023a). The deterioration of economic growth and the lack of transparency in Bolivia: in the face of the fall in gas exports, net international reserves and the increase in external debt and fuel imports. Newman Business Review. Vol 9 N° 1 | June 2023, p. 04 – 23. http://dx.doi.org/10.22451/3002.nbr2023.vol9.1.10080

30. Vargas Díaz, César; Delgadillo Dorado, Hernán and Villca Copali, Eloy Wilson (2023b). Inflation is a risk in Bolivia: given the decumulation of natural gas and RINs and the vulnerability of external debt and fiscal deficit. Newman Business Review. Vol 9 No. 2 | December 2023, p. 21-39 ISSN: 2412-3730 https://www.researchgate.net/publication/377318063_La_inflacion_un_riesgo_en_Bolivia_ante_la_desacumulacion_del_gas_natural_y_las_RIN_y_la_vulnerabilidad_de_la_deuda_externa_y_el_deficit_fiscal

31. Vargas Díaz, César; Delgadillo Dorado, Hernán and Villca Copali, Eloy Wilson (2024a). The Economic Model of the Fixed Exchange Rate in Bolivia: Towards Price Stability and Economic Instability February 2024. February 2024 9(1):13-21. https://article.sciencepublishinggroup.com/pdf/j.ijeee.20240901.12#:~:text=The%20objective%20of%20having%20a,export%3B%20But%20once%20natural%20gas

32. World Bank (2006). Poverty reduction and growth: virtuous circles and vicious circles. World Bank studies on Latin America and the Caribbean. https://documents1.worldbank.org/curated/en/952741468276883172/pdf/353480PUB00SPA00Box0361520B0PUBLIC0.pdf

33. World Bank (2023). Global Economic Outlook. Report of 10 January 2023.https://www.bancomundial.org/es/publication/global-economic-prospects

34. Ying-Chao Yan and Shou-Jun Lyu (2023). Can e-government reduce local governments' financial deficits?. Analysis based on county-level data from China Government Information Quarterly. Volume 40, Issue 3, June 2023, 101812. https://www.sciencedirect.com/science/article/abs/pii/S0740624X23000126