Sapienza
International Journal of Interdisciplinary Studies
ISSN: 2675-9780

OPEN ACCESS

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Analysis of value added tax (VAT) collection in Ecuador, period 2015-2023

Análise da arrecadação do imposto sobre valor agregado (IVA) no Equador, período 2015-2023

Análisis de la recaudación del impuesto al valor agregado (IVA) en Ecuador, período 2015-2023

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ABSTRACT

This research focuses on analyzing the Value Added Tax (VAT) collection in the Ecuadorian system for 2015 - 2023. For this purpose, an approach to VAT in Latin America and the Caribbean is made and the analysis is deepened in the official statistics of Ecuadorian collection. It was necessary to apply a methodological route that consisted of a bibliographic-documentary study and a mixed qualitative and quantitative approach that allowed the analysis of numerical data on VAT collection, ratios, and refunds. The main results reflect a trend of constant growth in collection and refunds, with the year 2023, with partial information up to September, being the year that has achieved historical values of collection and refunds. Finally, although the goals remain close to the collection, the deviations of some fiscal years suggest significant economic challenges. Employing ANOVA, significant differences can be considered that go beyond the collection goal and differ in the effectiveness of the tax system concerning VAT.

Keywords: Collection, Value Added Tax, Tax System.

RESUMO

Esta pesquisa se concentra na análise da arrecadação do Imposto sobre Valor Agregado (IVA) no sistema equatoriano correspondente ao período 2015 - 2023. Para tanto, é realizada uma abordagem do IVA na América Latina e no Caribe e a análise é aprofundada. nas estatísticas oficiais da coleção equatoriana. Foi necessário aplicar um percurso metodológico que consistiu num estudo bibliográfico - documental e numa abordagem mista qualitativa e quantitativa que permitiu a análise de dados numéricos sobre cobrança, rácios e reembolsos de IVA. Os principais resultados refletem uma tendência de crescimento constante nas cobranças e reembolsos, sendo o ano de 2023 com informação parcial até setembro o ano que atingiu valores históricos de cobranças e reembolsos. Por último, embora as metas permaneçam próximas da arrecadação, os desvios de alguns exercícios fiscais sugerem desafios económicos significativos.Através da ANOVA podem ser consideradas diferenças significativas que vão além da meta de arrecadação e diferem na eficácia do sistema fiscal no que diz respeito ao IVA.

Palavras-chave: Arrecadação, Imposto sobre Valor Agregado, Sistema Tributário.

RESUMEN

La presente investigación se enfoca en analizar la recaudación del Impuesto al Valor Agregado IVA en el sistema ecuatoriano correspondiente al periodo 2015 – 2023. Para efecto se realiza un acercamiento al IVA en América Latina y el Caribe y se profundiza el análisis en las estadísticas oficiales de recaudación ecuatoriana. Fue necesario aplicar una ruta metodológica que consistió en un estudio bibliográfico – documental y un enfoque mixto cualitativo y cuantitativo que permitió el análisis de datos numéricos de recaudación, ratios y devolución de IVA. Los principales resultados reflejan una tendencia de crecimiento constante en la recaudación y devolución siendo el año 2023 con información parcial hasta septiembre el que ha logrado valores históricos de recaudación y devolución. Por último aunque las metas se mantienen cercanas a la recaudación las desviaciones de algunos ejercicios fiscales sugieren desafíos económicos significativos, mediante el ANOVA se pueden considerar diferencias significativas que van más allá de la meta de recaudación y difieren en la efectividad del sistema tributario respecto al IVA.

Palabras clave: Recaudación, Impuesto al Valor Agregado, Sistema Tributario.

INTRODUCTION

Tax collection is one of the main pillars that sustains fiscal spending worldwide and Value Added Tax is a consumption tax positioned as one of the main items and components of the tax system.

The relevance of the Value Added Tax (VAT) in the tax composition of the American nations is considerable. This levy had its beginnings in the 1960s in Colombia and Brazil, was implemented in Uruguay in 1972, and subsequently expanded progressively to most of the countries of the continent, including the English-speaking Caribbean nations. (Gonzales, 1988 citing Gonzalez and Zambrano, 2021).

At the level of Latin America and the Caribbean, tax collection and the economy resurged in 2021, after one of the largest economic contractions in history in 2020. The tax recovery of LAC (Latin America and the Caribbean) countries is related to the establishment of tax incentives, however, poverty and decelerated growth due to low tax collection is still not resolved at the desired level (OCCE, 2023).

It is important to highlight the presence of Value Added Tax in tax collection in Latin America and the Caribbean since in 2021 it was the main item attributed to the increase in tax revenues in the regions of Central America and Mexico, South America and the Caribbean.

In Ecuador, VAT, as in LAC, has been an important pillar of fiscal revenues and at present it could be said to be the main source of revenue. In 2022, revenues from VAT collection represented more than double the revenues received by the state generated from oil, despite the rise in oil prices last year; in addition, in the same period a record collection was achieved, representing 51% of tax revenues for the entire year (Tapia, 2023). (Tapia, 2023).

The government has undertaken several strategies to encourage tax culture and increase tax collection, fair payment, simplification, digitalization of processes reducing time and increasing transparency, the temporary reduction of the VAT rate from 12% to 8% on holidays in services and tourism activities are tactics undertaken by the government to encourage sales and voluntary payment of taxes. (Subsecretaría de Programación Fiscal del Ministerio de Economía y Finanzas, 2023). This research analyzes VAT collection, refunds and collection targets in the Ecuadorian system for the period 2015 - 2023.

Value-added tax or value-added tax in Latin America and the Caribbean

At the Latin American level the VAT rates applied according to Gosocket (2020):

Figure 1. Current VAT rates in Latin America
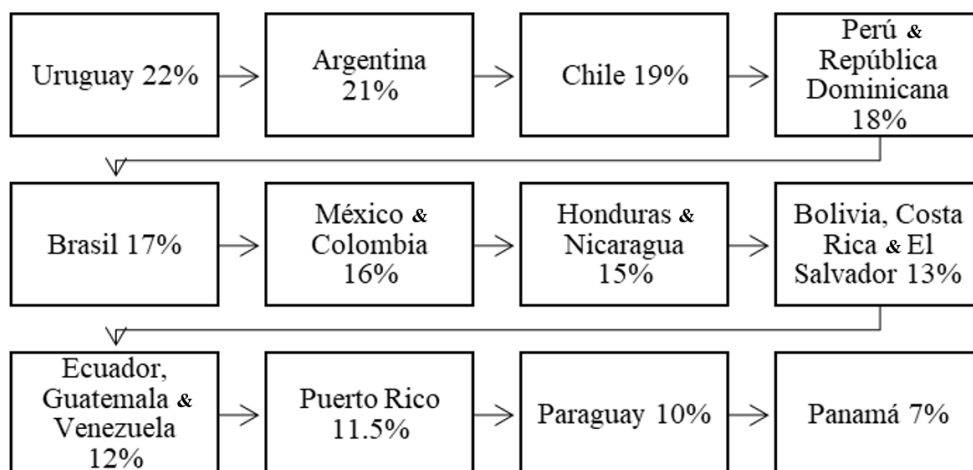
Note: Based on Gosocket 2020.

VAT collection in Latin America and the Caribbean varied, in the graph below, it can be seen that Belize experienced the largest increase in tax collection and economic dependence is mainly focused on Value Added Tax (VAT) and Income Tax (IR). During 2021, revenues derived from taxes on goods and services, expressed as a percentage of Gross Domestic Product (GDP), experienced a significant recovery, increasing by 0.8 percentage points. This offset the equally significant decline recorded in the previous year. Within this category, VAT collected was the type of tax that experienced the largest increase, reaching an increase of 0.6 percentage points. In short, in the three regions of Central America and Mexico, South America and the Caribbean, VAT was mainly responsible for the increase in tax revenues.

Figure 2. Collection by tax item in LAC
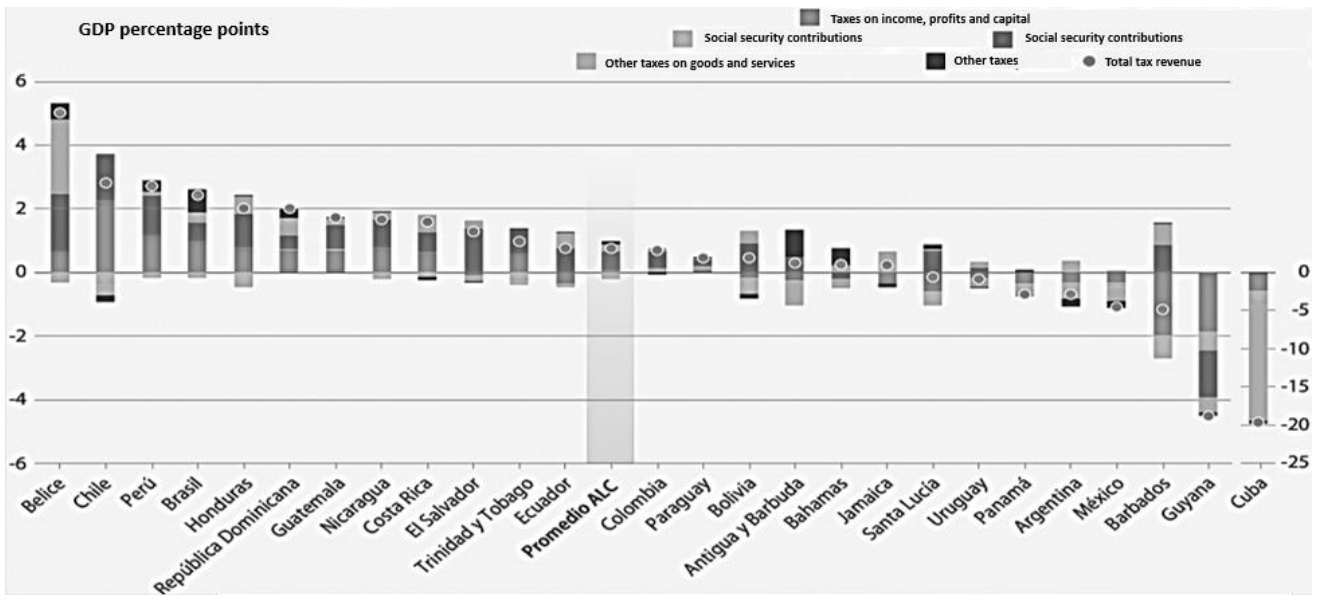
The VAT collection ratio is the indicator that reflects the loss of VAT revenue due to the application of exemptions, tax evasion and refunds. According to the most updated OECD data (2021) the highest VAT ratios are reflected in El Salvador and Bahamas, Caribbean countries also achieved important ratios. The lowest ratios are found in the Dominican Republic, Guyana and Mexico.

Figure 3. VAT collection rates in LAC
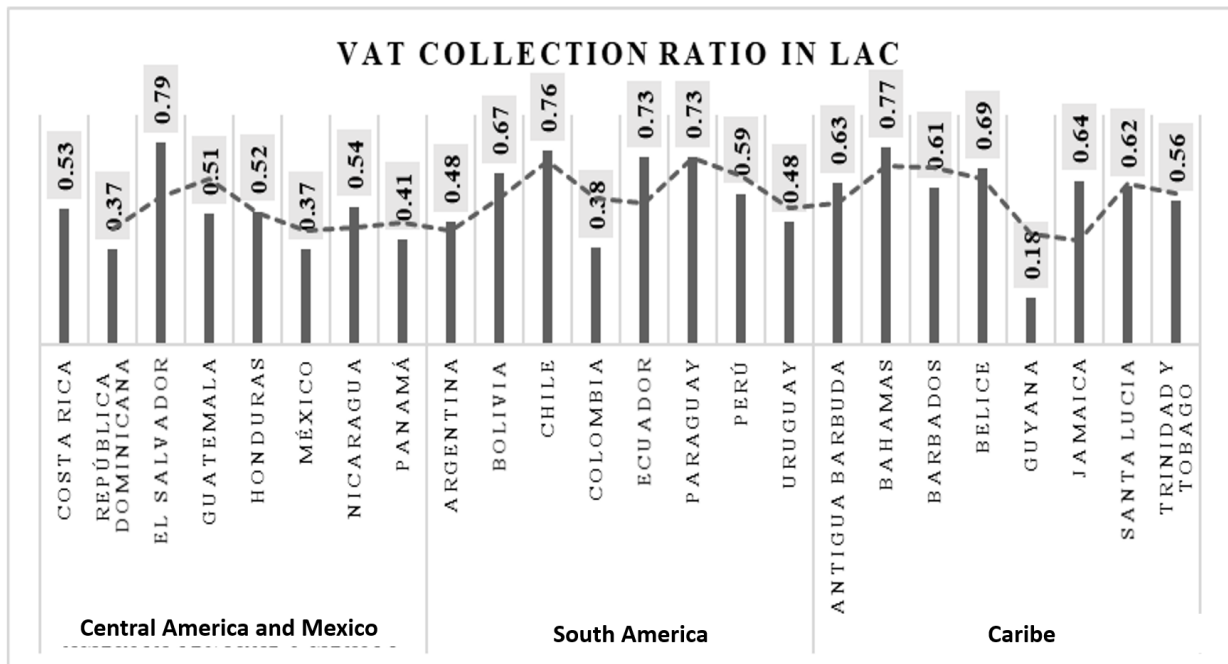
It is important to note that the above figure does not include the countries of Brazil because it has different tax rates for each subnational level, Cuba did not apply VAT until 2021 and there is no clear information on Venezuela.

According to the OECD (2021), the VAT collection ratio in Ecuador is 0.73, which raises important considerations for tax administration and tax policies. In relative terms, the total VAT revenue is not being captured, in this sense it would be important to determine strategies to reduce tax evasion, achieve greater collection efficiency through administrative simplicity that contributes to capture a higher level of this tax to strengthen the sustainability of public spending.

Value Added Tax (VAT) in Ecuador

One of the taxes that is an important item in most of the tax systems of Latin American and Caribbean countries is the one applied to the purchase of goods and services and is known as Value Added Tax or Value Added Tax.

The Organic Law of the Internal Tax Regime of Ecuador (2021) defines it textually as the tax levied on the value of the transfer of ownership or importation of movable goods of a tangible nature, at all stages of commercialization, as well as on copyrights, industrial property and related rights; and on the value of services rendered, in the manner and under the conditions provided for in this Law. (Organic Law and Internal Tax Regime (LRTI), 2021, pp. 60-61).

For purposes of the application of the tax, the LRTI (2021) considers a transfer to be a transfer:

Figure 4. VAT Transfers

Any act or contract carried out by natural persons or companies whose purpose is to transfer ownership of movable property of a tangible nature, even when the transfer is carried out free of charge, regardless of its designation or the conditions agreed upon by the parties.
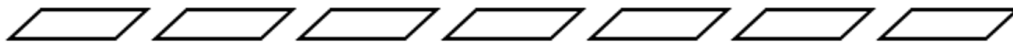
The sale of movable property of a tangible nature that has been received on consignment and the leasing of these with a purchase and sale option, including commercial leasing, under all its modalities;
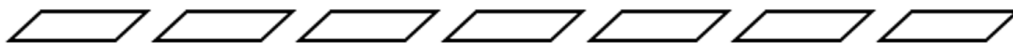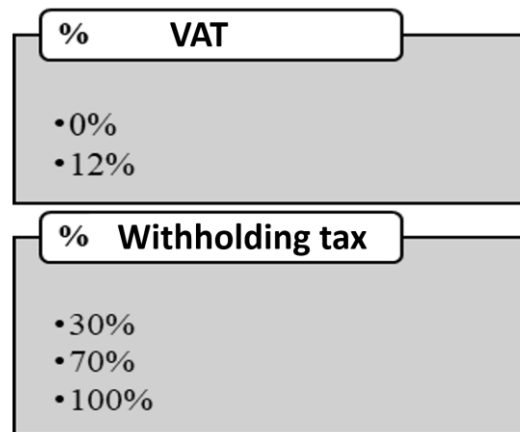
The use or personal consumption, by the taxable person of the tax, of movable property of a tangible nature that is the object of its production or sale.
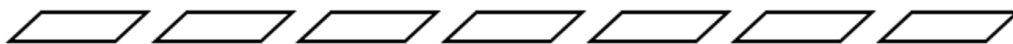
Note: Information obtained from LRTI 2021.

The tax and VAT withholding percentages according to SRI (2020) are as follows:

Figure 5. VAT rates

% VAT
•0%
•12%

% Withholding tax
•30%
•70%
•100%

Note: Based on SRI 2020.

The Value Added Tax (VAT) refund in Ecuador is a benefit available to certain taxpayers to recover a proportion of the tax paid on their taxable purchases (Russell Bedford, 2023).

Government reform of the new government context of VAT 2024

The tax project of the new president of the Republic of Ecuador was expected to reduce VAT from 12% to 5%; however, according to statements made so far, it does not contemplate this option, but rather proposes incentives such as tax refunds and remission of interest as a strategy to capture delinquent taxes, this in a project called "Economic efficiency and employment generation". According to Primicias EC (2023) the main changes proposed by this project related to VAT are:

VAT on construction will not be lowered, but there will be a refund

That is to say, it will not reduce the tax as it had stated in some occasions, rather it raises a refund system that raises for individuals and companies that already paid this tax in local acquisitions or imports for the construction of real estate projects, they are entitled to have that tax refunded to them, without interest.

Benefit for investors through tax residency

Non-residents of Ecuador who enter the country under any immigration regime must apply for 120 days after entry to a regime called tax residency, where they are obliged to pay indirect taxes, including VAT.

MATERIALS AND METHODS

This research focuses on the analysis of VAT tax collection in Ecuador in the period 2015 - 2013. For this purpose, it was necessary to apply a methodological approach that began with a bibliographic and documentary study that allowed reviewing official documents, such as VAT collection reports at the Latin American and Caribbean level, and national regulations that allowed establishing the theoretical context of the research.

Also, it was necessary to apply a mixed quantitative and qualitative approach because statistical values and LAC VAT collection ratios were studied, deepening the analysis in VAT collection in the Ecuadorian tax system referring to the period 2015 - 2023. Additionally, descriptive methods were employed to explain the VAT collection situation, utilizing graphs and tables to present the findings visually. This approach facilitates a comprehensive understanding of the data and aids in identifying potential trends or anomalies in VAT collection patterns, as well as the application of other inferential statistical techniques such as Analysis of Variance (ANOVA).

The ANOVA was conducted to examine the significance of differences between the collection target and total collection across the study period. Two hypotheses were tested: the null hypothesis (H0) stating that there is no significant difference between the collection goal and the total collection for the years studied, and the alternative hypothesis (H1) positing that there is a significant difference between these variables.

Overall, this methodological framework combines both quantitative and qualitative approaches to offer a robust analysis of VAT tax collection in Ecuador. By synthesizing empirical data with theoretical insights, this research aims to contribute to a deeper understanding of VAT collection dynamics in the region.

RESULTS AND DISCUSSION

VAT collection and refund

When analyzing the total VAT collection and refund in domestic operations in Ecuador in the period 2015 - 2023. The following aspects are identified:

The collection has increased since 2022, reaching $5,782,848.00, the lowest collection of the period was in the year 2020 with a value of $4,093,036.00. The year 2023 with partial information until September is the one that registers the highest rate of return (amount of return against the amount of collection), reaching 6.85% which is equivalent to $323,811.00, in second place, is positioned the year 2022 with 4.81% of return.

In general, there is an upward trend over the course of the years studied, with some highs and lows that were possibly due to public health conditions and the recession of activities that occurred during those periods. In addition, the presence of refund amounts alludes to adjustments in tax legislation or as a result of tax payment incentive strategies.

Figure 6. Total VAT collection and refunds 2015 - 2023
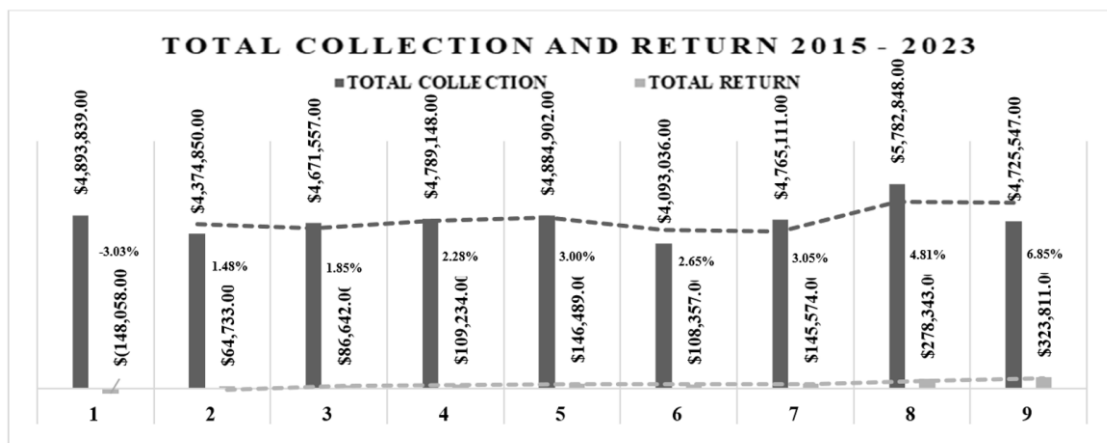
Note: Based on official SRI statistics.

When analyzing the net collection (total collected minus refunds) with the collection goal for each period, some variations are reflected throughout the years, in the first instance the goal in the periods remained close to the goal, this reflects reasonable efficiency in the collection of taxes, there are also periods that are a little further away from the goal related to challenges and specific economic circumstances of those periods, however there are some in which the collection is above the goal indicating an increase in the sufficiency of the tax collection of the Treasury. The slight variations are definitely related to the legislation and specific circumstances of each period.

Figure 7. Net collection vs collection target 2015 – 2023

Note: Based on official SRI statistics.

The collection of the first and second half of the year shows the dynamics of each year, at first glance a consistent trend in revenues is defined, achieving a historical collection in the first half of the year 2023, this can be related to the increase in the taxpayer base and current provisions of the period.

**Figure 8** Collection first and second half of 2015 - 2023 period
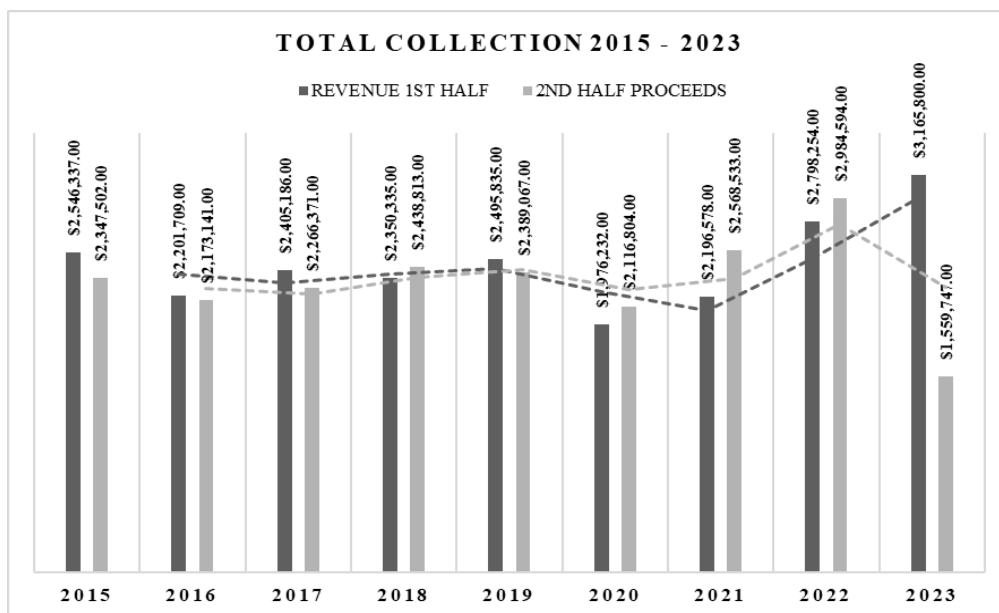
Note: Based on official SRI statistics.

With regard to VAT refunds in the first half of the year, there were fluctuations and, similarly to tax collection, the year 2023 was a notable year in terms of refunds, achieving the historical collection amount in the first half of the year, these variations are due to changes in government tax policy.

Figure 9 Return first and second half of the year 2015 - 2023
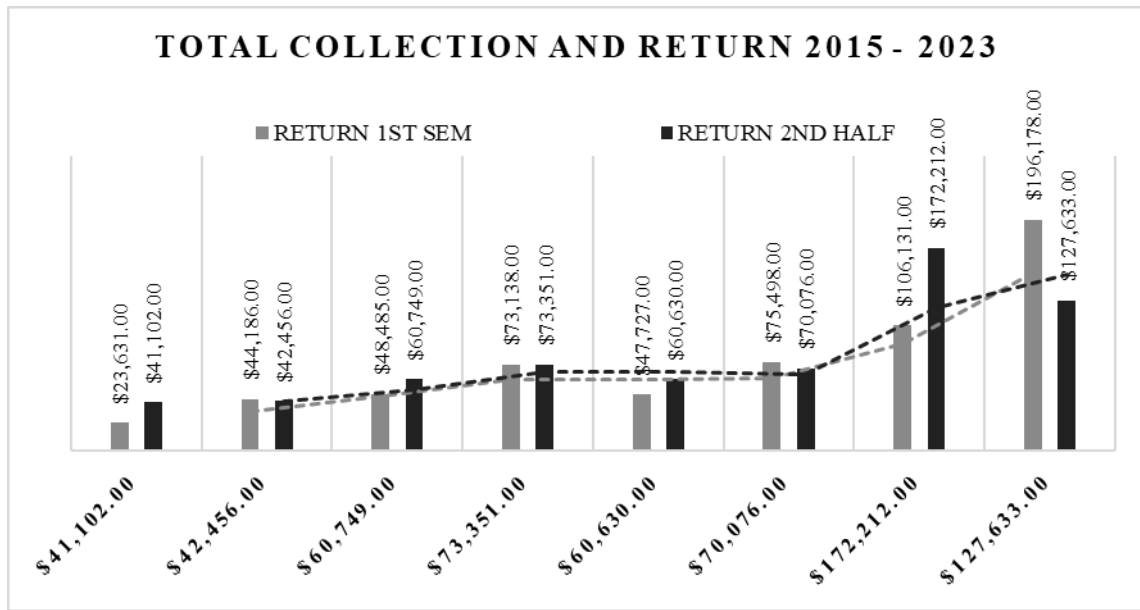
Note: Based on official SRI statistics.

To develop the ANOVA, two hypotheses were used:

- Null Hypothesis (H0): There is no significant difference between the collection goal and the total collection for the years studied.

- Alternative hypothesis (H1): There is a significant difference between the collection target and the total collection for the years studied.

The ANOVA results suggest that there are significant differences between the "Collection Target" and "Total Collection" in the different years studied. The low p-value (in this case, 0.004) indicates that the observed differences are highly significant and unlikely to be due to chance. A p-value of 0.004 is quite low and is generally considered statistically significant.

The F value is a statistic used to determine if there are significant differences between groups. In this case, the F-value is 2.31. A relatively low F-value suggests that the differences between "Collection Target" and "Total Collection without Return" are less significant compared to higher F-values. However, the null hypothesis is rejected and the alternative hypothesis is accepted.

Table 1. ANOVA results

Element	Sum of Squares	Gl	Quadratic Mean	F	P
Collection goal	1.64e+12	7	2.34e+11	2.31	0.004
Residual	4.40e+10	1	4.40e+10		

Note: Based on official SRI statistics.

The analysis of VAT collection and refunds on domestic operations in Ecuador for the period 2015-2023 reveals significant trends. It highlights a sustained growth in collection since 2022, reaching its peak in 2023 with $5,782,848.00. The return presents notable variations, with the year 2023 being the most prominent with a rate of 6.85% over collection, followed by 4.81% in 2022. These results suggest possible adjustments in tax legislation or government strategies to encourage tax compliance.

The comparison between net revenue collection and the established goals shows reasonable efficiency in tax collection in most periods, although certain specific economic challenges are reflected in specific deviations from the goals. The dynamics of the first and second half of the year reveal a consistent trend in revenues, highlighting the first half of 2023 with a historical collection, possibly related to the increase in the taxpayer base and provisions in force.

ANOVA analysis supports the existence of significant differences between the collection target and total collection in the years studied. The low p-value (0.004) indicates that these differences are highly significant and unlikely to be due to

chance. Although the F value is relatively low (2.31), the null hypothesis is rejected, suggesting that the variations between target and unreturned collections are statistically significant. These findings highlight the importance of considering economic circumstances and government policies when evaluating the effectiveness of the tax system.

The findings of this research offer significant insights both for the academic literature and for policymakers in the realm of tax policy and economic management. In terms of academic literature, this study contributes to the understanding of VAT collection dynamics, particularly within the context of Ecuador. The detailed analysis across 2015 to 2023 provides valuable empirical evidence on the trends and patterns of VAT collection, shedding light on factors influencing collection rates and refund dynamics. These findings can enrich existing literature on tax policy effectiveness, offering insights into the implications of tax legislation, government policies, and economic conditions on VAT revenue generation and refund mechanisms (Bahl & Bird, 2008; Pomeranz, 2015).

For policymakers, the research findings hold several implications. Firstly, the observed increase in VAT collections from 2022 to 2023 underscores the effectiveness of certain strategies implemented by the government to enhance tax compliance and revenue generation. Policymakers can leverage these insights to further refine tax policies and administrative measures aimed at improving collection efficiency. Additionally, the variations in VAT refund rates highlight the need for continuous monitoring and adjustment of refund policies to ensure alignment with fiscal objectives while minimizing revenue leakage (Amaglobeli, Crispolti & Sheng, 2022).

Furthermore, the ANOVA analysis revealing significant differences between collection targets and actual collections underscores the importance of flexibility in tax planning and administration. Policymakers should recognize that achieving collection targets may not always be feasible due to external economic factors or shifts in taxpayer behavior. Hence, a more adaptive approach to setting and evaluating collection goals is warranted, considering the dynamic nature of economic conditions and tax compliance dynamics (Burgess & Stern, 1993).

Overall, the research provides valuable empirical evidence that can inform both theoretical discussions in the academic sphere and practical decision-making processes among policymakers, contributing to more informed and effective tax policy formulation and implementation.

Limitations of the study

Despite its contributions, this study is not without limitations. Firstly, the analysis is based on secondary data sourced from official statistics, which may be subject to reporting inaccuracies or data limitations. Additionally, the study focuses solely on VAT collection dynamics in Ecuador, limiting its generalizability to other countries or regions with different socio-economic contexts or tax systems (De Mooij & Ederveen, 2008). Moreover, the research period extents from 2015 to 2023, which may not capture longer-term trends or structural changes in tax policy and economic conditions. Future research could consider extending the study period to provide a more comprehensive analysis of VAT collection dynamics over time.

Furthermore, the study primarily employs quantitative methods, limiting the depth of understanding of underlying factors influencing VAT collection and refund dynamics. Future research could incorporate qualitative approaches such as interviews or case studies to provide more nuanced insights into taxpayer behavior, administrative challenges, and policy implications (Fuest & Riedel, 2010).

CONCLUSIONS AND FINAL REMARKS

The trend of steady growth in VAT collections from 2022 to peak in 2023 suggests an improvement in the tax system's ability to generate revenue. This increase can be attributed to factors such as an increase in the taxpayer base, changes in tax policies or greater collection efficiency. The presence of notable variations in the VAT refund rate, especially in the year 2023, indicates possible adjustments in tax legislation or government strategies to encourage tax compliance. These fluctuations suggest the importance of closely monitoring refund policies and adapting them according to economic conditions and fiscal needs.

Although net collections generally remain close to established targets, deviations in some periods point to specific economic challenges. Tax collection efficiency is influenced by economic circumstances, highlighting the importance of adapting tax strategies in response to changing conditions. ANOVA analysis supports the presence of significant differences, underscoring the need to consider factors beyond established targets to assess the effectiveness of the tax system.

Future studies would address the identified limitations by adopting a more comprehensive approach to analyze VAT collection dynamics and explore the underlying factors shaping taxpayer behavior and administrative practices. By incorporating both quantitative and qualitative methods and considering a broader range of variables and contexts, these studies can provide valuable insights for policymakers and contribute to advancing theoretical understanding in the field of tax policy and administration. The table 2 below outlines a possible agenda for future studies in the field of tax policy and

administration, delineating dependent variables, independent variables, methods or approaches, and the context or subject matter for new research efforts.

Table 2. A research agenda for future studies

Dependent Variable	Independent Variables	Methods or Approach	Context or Subject
VAT collection dynamics	Economic conditions, Tax policy changes	Quantitative analysis	Comparative analysis across Latin American countries
VAT refund dynamics	Taxpayer compliance measures, Administrative policies	Mixed methods (quantitative + qualitative)	Impact of digitalization on VAT administration
Factors influencing compliance	Socio-economic factors, Taxpayer behavior	Qualitative inquiry	Behavioral insights into taxpayer compliance

Source: own elaboration with the research data.

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Contribution of each author to the manuscript:

Task	% of contribution of each author			
	A1	A2	A3	A4
A. theoretical and conceptual foundations and problematization:	25%	25%	25%	25%
B. data research and statistical analysis:	25%	25%	25%	25%
C. elaboration of figures and tables:	25%	25%	25%	25%
D. drafting, reviewing and writing of the text:	25%	25%	25%	25%
E. selection of bibliographical references	25%	25%	25%	25%
F. Other (please indicate)	-	-	-	-