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Comparative study of the contribution of economic sectors to the PIB of Ecuador during the government periods 2012-2022

Estudio comparativo del aporte de los sectores económicos al PIB del Ecuador durante los periodos gubernamentales 2012-2022

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Resumen

Este estudio tiene como objetivo comparar el aporte de los sectores de actividad económica al Producto Interno Bruto (PIB) del Ecuador, durante el periodo comprendido entre los años 2012 y 2022. Esta etapa abarca tres gobiernos presidenciales caracterizados por notables giros en político y económico: Rafael Correa (2012-2017), Lenín Moreno (2017-2021) y Guillermo Lasso (2021-2022). El articulo se basa en un enfoque mixto que comprará las políticas implementadas por los expresidentes para el desarrollo económico del país, sustentando en bases de datos oficiales del Banco Central del Ecuador (BCE) para verificar la investigación y aplicar herramientas econométricas como el software Stata 14 para ejecutar, contrastar y graficar la evolución del PIB sectorial en relación con cada gestión presidencial, se busca responder la interrogante de que ciclo administrativo tuvo un impacto más significativo, no solo en términos de desarrollo económico, sino también en cuanto a su estabilidad y sostenibilidad a lo largo del tiempo. Los hallazgos constituyen una contribución significativa en el análisis económico por sector dado que proporcionan una perspectiva completa de los ajustes estructurales que ha experimentado el Ecuador en esta década, aportando una base sólida para la reformulación de políticas públicas sectoriales que amplíen y diversifiquen la matriz productiva, creando un entorno macroeconómico nacional más robusto.

Palabras claves: aporte, diversificación, crecimiento, economía, sectores, política

Abstract

The main objective of this study is to compare the contribution of economic activity sectors to Ecuador's Gross Domestic Product (GDP) during the period between 2012 and 2022. This stage comprises three presidential administrations defined by notable political and economic shifts: Rafael Correa (2012-2017), Lenin Moreno (2017-2021) and Guillermo Lasso (2021-2022). The article will be based on a mixed approach that will be carried out by comparing the policies implemented by the former presidents for the economic development of the country, based on official databases of the Central Bank of Ecuador (BCE) to give veracity to the research and applying econometric tools such as Stata 14 software to run, and graphing the evolution of sectoral GDP in relation to each presidential administration, we seek to answer the question of which administrative cycle had a more significant impact, not only in terms of economic development, but also in terms of its stability and sustainability over time. The findings constitute a significant contribution to the economic analysis by sector since they provide a complete perspective of the structural adjustments that Ecuador has experienced in this decade, providing a solid basis for the reformulation of sectoral public policies that expand and diversify the productive matrix, creating a more robust national macroeconomic environment.

Keywords: contribution, diversification, growth, economy, sectors, policy

Introduction

This research broadens the scope to include other productive sectors and considers government strategies, allowing for a more accurate determination of each sector's contribution to the national economy. Analyzing these contributions not only enables an understanding of sectoral dynamics and their impact on national economic development but also helps identify opportunities to enhance the country's sustainability and inclusive growth. Regarding this topic, Salinas (2022) analyzes the contribution of the various economic sectors that comprise the tertiary sector to GDP. In his study, he evaluates the evolution of the services segment in conjunction with economic growth; however, the study omits strategies for revitalizing sectors with low significance. Nevertheless, the research is relevant for analysis and comparisons with other studies that enrich the article. The objective of this study is to compare the economic sectors based on Ecuador's GDP from 2012 to 2022, using an econometric measurement to determine which sector contributes the most according to its coefficients and relationship (positive or inverse). It should be mentioned that the corresponding regressions will be carried out together, differentiating the three key economic sectors, each with its corresponding activity. This principle is applied to avoid multicollinearity among the 17 economic activities considered independent variables in the model. Simultaneously, the economic policies and strategies of the three presidents whose terms are included in the study are considered as sources of bibliographic information to strengthen the research and provide a comparative analysis of the political and economic approaches, demonstrating their effectiveness and efficiency in the development of goods and services production in the country. The aim is to emphasize a detailed understanding specifically for the academic reader, serving as a reference guide for future economic research at both the state and governmental levels, as it takes into account the different strategic visions that governed Ecuador and their economic influence during the study period.

GDP: Conceptualization

Gross Domestic Product (GDP) is a measure that represents the production and sale of goods and services in a country over a period of time. According to ECLAC (2022), GDP is used to compare the level of economic development between different countries or regions, as well as to analyze trends over time. However, GDP does not take into account wealth distribution, social welfare, or environmental impacts, which presents several drawbacks in obtaining a complete picture of societal progress or problems. Despite its limitations, it is an essential element for economic policy decision-making in both the public and private sectors.

Productive Sectors in Ecuador

According to Lizarazu (2009), productive sectors are areas where various productive activities take place, generating goods and services in the process to satisfy the needs of society and generate wealth at the microeconomic and macroeconomic levels.

Primary Sector

According to Sánchez et al. (2021), the primary sector corresponds to the activities of extracting and obtaining resources from the land; these are commonly traditional activities. In Ecuador, we can highlight the booms and their economic trajectory, such as cacao between 1880 and 1920, bananas in 1950, oil in 1972, and shrimp in 1980. Currently, the primary sector represents a significant contribution to the national economy and to thousands of Ecuadorian families who work directly and indirectly within it.

Table 1

Sectors of activity, primary sector

Agriculture, livestock, hunting, and forestry	Food production is assumed to be based on plant cultivation, animal husbandry, hunting, and timber harvesting (Sánchez et al., 2021).
Aquaculture and shrimp fishing	This activity includes the cultivation of aquatic organisms such as shrimp (Armijos, 2023)
Fishing (except shrimp)	This activity involves the capture of fish in the open sea, such as tuna, sardines, and various other aquatic species (Fernández et al., 2021).
Oil and mining	This encompasses the exploration, extraction, and sale of hydrocarbons and minerals. In Ecuador, oil, like gold, is one of the most lucrative sources of tax revenue for the state (Larrea, 2016).

Secondary Sector

The secondary sector encompasses economic activities dedicated to the production of intermediate goods from primary resources, through industrial, manufacturing, and technological processes. It contributes to the development of added value and the dynamism of production chains (Campero, 2015). According to Lambert and Romero (2023), the intermediate sector is considered one of the fundamental bases of the market, functioning as a strategic sector in economic development. Furthermore, this segment is responsible for developing innovation, technology, competitiveness, and mass employment.

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Table 2

Sectors of activity, secondary sector

Oil refining	This constitutes the industrial process of transforming petroleum into higher value-added derivative products such as gasoline, diesel, kerosene, and inputs for the petrochemical industry (BCE, 2022).
Manufacturing	It transforms raw materials into intermediate goods through physical, chemical, or mechanical processes; some identified subsectors include the food, pharmaceutical, textile, and metal industries (Zapata et al., 2022).
Electricity and water	According to Barragán (2020), the selected activity is related to the generation of electricity from clean sources such as hydroelectric, wind, and/or solar panels. This area includes water purification, which ensures its treatment process for consumption.
Construction	It involves the creation of infrastructure such as houses, commercial buildings, public works, and industrial projects (Kovalenko et al., 2022). This process provides a large number of employment opportunities and fosters both domestic and foreign investment.

Table 3

Sectors of activity, tertiary sector

Trade	This economic activity refers to the buying and selling of goods, ranging from wholesalers to retailers (Delgado et al., 2023).
Accommodation and food services	Linked to tourism, this activity involves providing lodging and food services (Cadena et al., 2020).
Transportation	It involves the transportation of people and commerce via land, air, or sea. This activity is significant because of its contribution to connecting productive areas in different regions (Mocha-Ayavaca et al., 2023).
Postal and communications	These services encompass information transmission, entertainment, internet, telephony, and media (Ministry of Telecommunications, 2021).
Financial services activities	It involves the relationship between institutions that manage society's finances, through banks, insurance companies, and cooperatives (Ortega et al., 2022). This system is notable for the monetary well-being resulting from its savings, credit, and investment activities, which foster economic development.
Professional, technical, and administrative activities	The income from this economic sector comes from tax payments made by professionals in academia (Morales, 2022). These activities contribute essential knowledge and skills for efficient operation in both the public and private sectors.
Education, social, and health services	A set of essential services for society. These focus on development and skills enhancement in recreational fields, such as education, and, importantly, health (González et al., 2025).
Public administration, defense; Compulsory social security schemes	This category includes the actions taken by the State to maintain public order, and the management and administration of institutions. An example is the IESS, an entity that provides health and pension services to its members (Luxán, 2020).
Other services	This category encompasses all economic activities that are not classified into specific sectors but that collectively contribute to society and the economy. It may include establishments such as hair salons, laundromats, entertainment venues, and community support services (Armijos, 2024). In Ecuador, this category has a moderate but significant impact, complementing the development of other sectors and boosting local economies.

Tertiary Sector

Author Michelle Salinas (2022) mentions that the tertiary or service sector comprises economic activities that differ in their production. This branch focuses on the provision of intangible goods where labor, technical support, consulting, and other similar training activities predominate (Macias-Pisco and Gómez-García, 2024).

In Ecuador, in recent decades, it has become one of the sectors with the greatest contribution to GDP. According to Paredes et al. (2024), in recent years, tourism-related activities have increasingly accounted for a larger percentage, especially in the provinces of Pichincha, Guayas, Azuay, and Galápagos. Other notable activities include transportation, education, health, and commerce. Domestic service is omitted due to the nature of its income, which is minimal compared to other services.

Governments of Ecuador during the Study Period

Rafael Correa

Between 2012 and 2022, the country had three distinct presidential administrations, each with a different political approach to the Ecuadorian economy. The first political figure examined in this research is former President Rafael Correa (2007-2017). During his term, a mixed economy model was implemented with state intervention in strategic sectors, and public spending was stimulated as a Keynesian mechanism to boost aggregate demand and economic growth (Correa, 2021). Implemented laws included:

- Modifications to the hydrocarbons law. According to Pastor (2017), there was a transition from a participation model where companies received a percentage of each barrel extracted, to receiving a fixed payment through the provision of services.

• Strengthening of fuel subsidy policies to control price speculation and inflation, thus providing access to basic necessities (FARO, 2020).
• Investment in clean energy, especially in the construction of hydroelectric plants, representing 92% of electricity generation (Barragán, 2020).
• Tax reforms. The Foreign Exchange Outflow Tax (ISD) was established on December 29, 2007 (Vera & Llanos, 2016).
• Large-scale public investment in social and productive development, addressing projects in road infrastructure, housing, education, and health (Albuja, 2018). The management of the Secretariat of Planning and Development (SENPLADES) successfully promoted the well-being and sustainability of the country during the years of government.

Lenin Moreno

During the term of former President Lenin Moreno (2017-2021), fiscal stability was prioritized as a response to the national budget deficit (Lewis et al., 2024). This led to a political and economic transition toward a model closer to the free market, evidenced by the liberalization of fuel prices, ordered by Decree 883 and agreed upon in the accord with the IMF. This measure triggered strong social protests that forced its reversal (Escribano, 2019). According to Vanderstichel (2021), these policies are part of a neoliberal shift, heavily conditioned by the demands of the International Monetary Fund, implying a reduction in state intervention in subsidies and generating a clear reflection of alignment with external economic agendas. The laws and policies implemented included:

• Reduction of the public deficit through budget cuts and reductions in bureaucracy (Lewis et al., 2024).
• Public-private partnerships to promote innovative projects aimed at improving the economy by reducing dependence on oil (Rodríguez et al., 2023). Sectors benefiting: agribusiness, non-oil exports, and mining (Pinzón, 2024).
• Gradual elimination of fuel subsidies (Mejía et al., 2019).
• Financing process with the IMF for USD 4.2 billion (Dávalos, 2025).

Guillermo Lasso

During Guillermo Lasso's administration (2021-2023), the neoliberal economic model, based on the free market and geared towards fiscal sustainability, attracting private capital, and reducing the size of the state, was deepened. This materialized in the Law for Economic Development and Fiscal Sustainability, whose proposal included the privatization of public companies and the signing of trade agreements aimed at liberalizing tariffs. According to Stoessel (2024), this "avowedly neoliberal" program, with a cabinet headed by a former IMF official and strong tax incentives for the elites, marked the continuation and deepening of the shift initiated in 2017 towards the free market and economic deregulation. However, the political crisis intensified, culminating in the "mutual dissolution" of the ruling coalition. Despite this, the National Accounts showed GDP growth of 2.4% in 2023, driven by exports and government spending, according to the Central Bank of Ecuador (2024a). These official data support the assertion that, even in an environment of legislative instability (Chavero & Rodríguez, 2023), Lasso's pro-market strategy managed to sustain some economic expansion and a climate of confidence for private investment, while prioritizing fiscal discipline. The laws and policies implemented included:

• Integration of public entities into ministries.
• Free Trade Agreements (FTAs) with China (Central Bank of Ecuador, 2024b).
• Trade liberalization through the reduction of the ISD (Juelas et al., 2024), tax exemptions, and public-private partnerships. The necessary conditions were created to increase investment.
• In the face of the imminent health crisis, the mass vaccination campaign was completed within the first 100 days of government (UN, 2021).

Methodology

The selected methodology is quantitative, descriptive, and non-experimental, based on a multiple regression model. The analysis is grounded in time series methodology (Lovato et al., 2019), specifically for modeling linear regressions, identifying the significance of each variable and its contribution (Gujarati & Porter, 2010).

The research design uses time series analysis to model and identify the contribution of different economic activities to GDP. However, to avoid a degree of collinearity and error, the three productive sectors of Ecuador were differentiated, each with its corresponding set of activities. The planned projections provide a source of information for both economic and econometric analysis and interpretation, since data were selected from 2012 to 2022, a period in which the strategies of the three governments that have held office in the country—Correa, Moreno, and Lasso—will also be evaluated.

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The data compiled were obtained from the Central Bank of Ecuador (BCE), specifically from the National Accounts section (2023). The BCE periodically publishes tables and downloadable Excel spreadsheets for transparent and relevant study by public, private, and academic institutions. This information was further supplemented with bulletins related to the different sectors of economic activity and GDP.

The selected figures are in real terms, that is, adjusted for inflation. This eliminates the effect of price variations and considers how much production grew in each period, using 2007 as the standardized base year (millions of USD, 2007=100). The research methodology proposes a multiple regression model to identify the econometric contribution and qualitatively link it to economic policies.

Results

Of the 17 sectors of activity, 4 represent the primary sector, 4 the secondary sector, and 9 the service sector, the latter having the highest income flow and contribution to GDP.

Table 4

The Economic Activity Sectors of Ecuador

Sectors of Economic Activity	
Primary	Oil and mining
	Agriculture
	Shrimp
	Fishing
Secondary	Manufacturing
	Construction
	Electricity and water supply
	Oil refining
Tertiary	Trade
	Education and health
	Transportation
	Public administration
	Professional activities
	Postal and communications
	Financial services
	Accommodation and food services
	Other

Source: Central Bank of Ecuador (BCE, 2023).

Tabla 5

Aportación de los sectores económicos al PIB (Miles de Millones USD)

	Economic Sectors			
Period	Primary Sector	Secondary Sector	Tertiary Sector	GDP
2012	11.691,00	16.113,36	33.765,26	64.362,43
2013	12.233,00	16.913,00	35.598,00	67.546,10
2014	13.096,20	17.338,50	37.018,00	70.105,40
2015	13.134,60	17.361,10	37.510,70	70.174,70
2016	13.287,70	16.899,30	37.194,40	69.314,10
2017	13.453,00	17.097,10	37.913,10	70.955,70
2018	13.065,40	17.253,60	38.949,60	71.870,50
2019	13.378,40	17.089,20	38.975,80	71.879,20
2020	12.914,30	15.227,00	36.193,90	66.281,50
2021	13.197,40	15.282,50	38.326,40	69.088,70
2022	13.183,70	15.454,00	40.076,00	71.125,20

Source: Central Bank of Ecuador (BCE, 2023).

Correlation

To calculate the correlation, all economic activities were summed within their respective economic sectors: primary, secondary, and tertiary. The purpose of summation is to reduce multicollinearity and bias, thereby obtaining a correct interpretation of the variables and identifying the individual effects within the overall context. The statistical software used was STATA 14.

```
. reg PIB Primario Secundario Terciario

      Source |       SS       df       MS              Number of obs =      11
-------------+------------------------------           F(3, 7)       =  407.36
       Model |  57016802.9     3  19005601              Prob > F      =  0.0000
    Residual |  326590.851     7  46655.8359            R-squared     =  0.9943
-------------+------------------------------           Adj R-squared =  0.9919
       Total |  57343393.7    10  5734339.37            Root MSE      =    216

------------------------------------------------------------------------------
         PIB |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
   Primario |   .2645776    .235001     1.13   0.297    -.2911113    .8202666
 Secundario |   1.171554   .0822482    14.24   0.000     .9770682     1.36604
  Terciario |   1.139368    .069809    16.32   0.000     .9742958     1.30444
      _cons |   3894.105   2004.599     1.94   0.093    -846.0187    8634.228
------------------------------------------------------------------------------
```

Source: Central Bank of Ecuador (BCE, 2023).

The R-squared value of 0.9943 indicates favorable causality in the model. The adjusted R-squared value of 0.9919 suggests a favorable fit of the three independent variables to the dependent variable, GDP. Another important measure to note is the root mean square error (RMSE), which highlights data that do not follow a trend line or are relatively far from it. In this case, the residuals are low, with a value of 216, strengthening the study.

The coefficients, for their part, represent the individual association with respect to the dependent variable. Verifying the model, the three variables exhibit a positive trend.

The primary sector yielded a result of 0.2645776, meaning that for every unit or dollar generated by raw

materials, GDP would increase by 0.2645776 units or dollars. However, statistically, this variable is not significant, as its p-value is greater than 0.05. This result does not support the study and may be due to a lack of data. In the Ecuadorian economy, agricultural products were the foundation and cornerstone of the economy before the oil boom (Zapata et al., 2022).

On the other hand, the intermediary sector contributes 1.1716, a statistically significant value with a p-value less than 0.5. The country's industry has been innovating, gaining momentum with the advancement of new and improved technologies. Although it lags behind developed countries, these improvements have significantly contributed to this sector (Zapata et al., 2022).

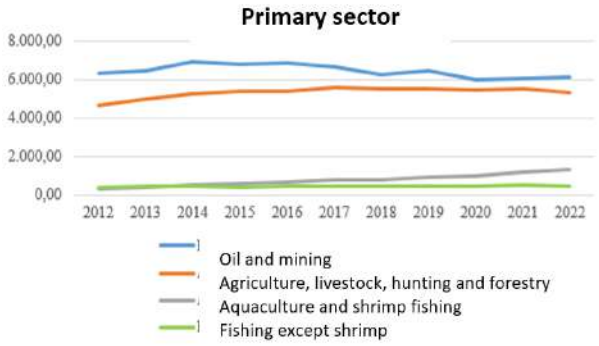
The tertiary or services sector contributes 1.1394 to GDP, a statistically significant value with a p-value of 0.000. These values reflect the importance of service provision in the national economy.

Finally, the constant indicates the estimated value when the variables are zero. In this case, the constant is not significant, making the sectoral variables in the model unpredictable.

While all three economic sectors should be significant due to their contribution to the economy, in practice the primary sector has an undesirable impact, being insignificant. This can be attributed to two factors: a lack of technical infrastructure or a lack of data. According to Allison (2001), a lack of data can reduce statistical power and diminish the ability to detect individual effects.

Figure 1

Primary sector



Source: Central Bank of Ecuador (BCE, 2023).

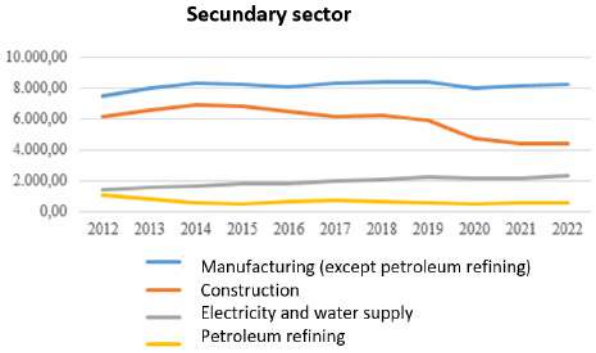
Figure 1 illustrates the primary sector and its productive activities. Of the four activities, oil stands out as the largest contributor; however, the drop in crude oil prices starting in 2014 led to a dramatic decline in revenue for the economy. Fishing, on the other hand, is the activity with the smallest contribution due to its limited production and market demand, with shrimp being the most sought-after product on the international market (Lambert & Romero, 2023). Agriculture, meanwhile, has remained relatively stable, with a slight decline in 2016.

Between 2017 and 2021, prices continued to decline in the oil sector. Agricultural revenues followed the same pattern, largely due to the gradual elimination of the gasoline subsidy (FARO, 2020). Shrimp farming was the only sector that showed growth, while fishing remained constant.

In 2022, with a new administration in Ecuador led by former President Guillermo Lasso, focused on neoliberal economic policies, primary sector activities grew in the first year of government, repeating this pattern in 2022, with the exception of fishing, where revenues decreased.

Figure 2

Secundary sector



Source: Central Bank of Ecuador (BCE, 2023).

In the secondary sector, economic activities tend to be more irregular in terms of income flow. Between 2012 and 2017, manufacturing maintained growth with a slight decline in 2016. Construction entered a phase of decline starting in 2015 due to the drop in oil revenues (Kovalenko et al., 2022), a monetary flow that largely financed the structural projects of that time. The supply of electricity and water, with the clean energy investment projects of the Correa administration, ensured that incomes remained steadily growing (Barragán, 2020). However, oil refining experienced a decline in revenues for two reasons: the fall in crude oil prices and a lack of technological advancement (BCE, 2022). This problem persists today.

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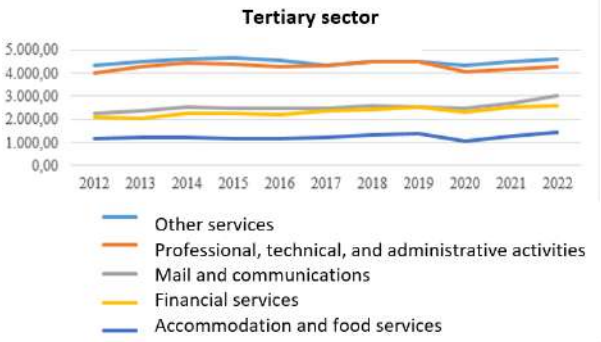
Between 2017 and 2021, construction activity continued to experience declining revenues, a situation that worsened during the 2019-2020 pandemic period. Other sectors also experienced significant deficits during the health crisis.

Between 2021 and 2022, under the Lasso administration, most economic activities showed growth, unlike oil refining, which saw a decline in revenues. Despite institutional problems and political infighting, the government's neoliberal economic model ushered in a phase of monetary growth in the private sector and strategic areas of production (García et al., 2024).

Figure 3

Tertiary Sector



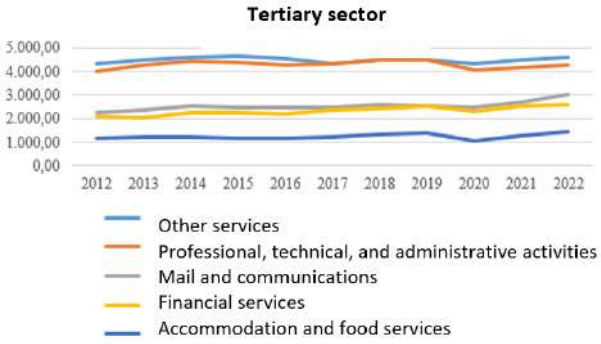
Source: Central Bank of Ecuador (BCE, 2023).

The tertiary or services sector, with nine economic activities, represents the most diversified sector and the largest contributor to GDP. To accurately assess trends, two graphs were created: the first represents the activities with the greatest contribution, and the second, those with the lowest income.

Analyzing Figure 3, all services show a positive trend during the Correa administration. No significant changes were observed, except for commerce, which experienced a decline in 2016. According to López (2021), the April 16 earthquake had a negative impact on the sales growth rate in the commercial sector and other sectors. During the Moreno administration, the situation was uneven in most sectors, and the environment became more challenging between 2019 and 2020. Under the Lasso administration, production increased in a short period, and consequently, so did income flow, as a result of economic policies promoting private investment and free markets.

Figure 4

Tertiary sector



Source: Central Bank of Ecuador (BCE, 2023).

The remaining five activities maintain a consistently positive trend, despite some revenue decreases in certain years, which generally recover in the following period. A noticeable drop in revenue from other services and professional activities was evident in 2016; however, the most acute period was 2020, and from 2021 onward, significant economic growth is evident across all sectors.

Expanding the analysis of which government had the best results with its economic policies and laws from 2012 to 2022, it is clear that economic stability and growth were most pronounced under the Correa administration. Regulation and social investment formed the basis of the economy, linked to Keynesian theories. Furthermore, the government protected national production through the Foreign Exchange Outflow Tax (ISD), a measure that boosted trade for small and medium-sized producers. However, adverse effects emerged over time, such as public debt, a factor that the Moreno administration was unable to stabilize. This generated social crisis as the government attempted to stabilize the fiscal deficit, shifting its policy to try to restrict the free market in order to cover debt through the IMF. A growing negative factor in both the Moreno and Lasso administrations was the growing inequality with the legislature; this intensified under Guillermo Lasso, as his neoliberal measures were controversial and numerous bills failed to pass. Despite the system's complexity, it managed to inspire confidence in foreign economies, boosting the productive sector and consequently increasing incomes in almost all sectors of economic activity.

The length of a presidential term is a key factor linked to political stability and the conditions provided by the government, its model, policies, and laws that foster confidence, production, and investment.

Discussion

The purpose of this study was to identify which sectors contribute to Ecuador's GDP and under which government there was economic and social stability (2012-2022). The results obtained confirm a strong predictive power of the model (adjusted $R^2 = 0.9919$; overall F-test, $p < 0.01$). In percentage terms, the primary, secondary, and tertiary sectors are associated with 99.19% of GDP. This predictive power places the model among the most robust reported for developing Latin American economies (ECLAC, 2022).

Of the three variables studied, the tertiary sector predominates in the model with a coefficient of (β1) 1.1394; A standard error (SE) of 0.123 and a favorable p-value of 0.001 were obtained. However, the service sector predominates in terms of revenue, though not statistically. According to Salinas (2022), the added value and diversification obtained have provided real and constant growth in the economy. Complementing Salinas's (2022) argument, Paredes et al. (2024) emphasize demand and digitalization as a sustainable source that allowed for recovery during periods of crisis, such as the 2016 earthquake and the 2020 pandemic. Most activities recovered in the following period, as shown in Figures 3 and 4.

The industrial sector exhibits the highest coefficient ($\beta = 1.1716$; $SE = 0.154$; $p = 0.012$). This magnitude agrees with the evidence from Lovato et al. (2019) and with the validity of Kaldor's first law estimated for Ecuador by Zapata et al. (2022), where each additional percentage point in manufacturing pushes GDP by between 1.17 and 1.3 points. This makes industry the sector with the largest statistical contribution to GDP. However, the observed volatility (slowdown in 2015-2016 and contraction in 2020) suggests that it is the most unstable sector. This may be due to a lack of support from the government, as well as limited investment, innovation, and infrastructure.

The primary sector exhibits an unexpected shift in the economy; the variable shows a positive coefficient ($\beta = 0.2645$), however, it lacks statistical significance ($p > 0.10$), suggesting structural instability. According to Sánchez et al. (2021), Latin American agricultural productivity depends critically on mechanization and rural credit; the low elasticity observed suggests that Ecuador is not exempt from this constraint. The prolonged drop in crude oil prices since 2014 (Larrea, 2016) and technological advancements explain the idiosyncratic variance. Nevertheless, shrimp maintains a counter-cyclical performance, in line with the export boom reported by Lambert and Romero (2023). This is due to its demand over the years.

Sectoral patterns are modulated by the fiscal priorities adopted by each administration. During Correa's administration (2007-2017), social and energy investment increased, strengthening manufacturing and public services (Correa Varga, 2021). Moreno's shift (2017-2021) toward fiscal consolidation and agreements with the IMF limited government spending, exacerbating the 2020 recession (Lewis et al., 2024). Under Lasso (2021-2023), trade liberalizations incentivized exports and financial services (Stoessel, 2024). Thus, empirical evidence supports the idea that free-market policies, combined with fiscal discipline, favor the recovery of the service sector, while public investment remains key to revitalizing industry and agriculture.

Conclusion

The exhaustive analysis of the contribution of economic sectors to Ecuador's Gross Domestic Product (GDP) during the 2012-2022 government terms has allowed us to draw several key conclusions. First, it is concluded that Ecuador's economic growth between 2012 and 2022 was strongly influenced by the performance of the tertiary sector, and subsequently by the secondary sector. These sectors showed positive and significant coefficients in the econometric model, corroborating their crucial role in creating added value and driving the Ecuadorian economy. Specifically, the services sector has proven resilient to crises, establishing itself as the main engine of the Gross Domestic Product.

In contrast, the primary sector, despite its historical relevance, showed a limited statistical connection with GDP. This situation highlights a gradual decline in its role and the urgent need to modernize and adopt new technologies, especially in the areas of fishing, agriculture, and oil and mining.

It is recommended to design sector-specific policies that promote investment in productive infrastructure, technological innovation, and access to credit, especially for small and medium-sized producers, entrepreneurs, and business owners. Likewise, the importance of improving the availability and quality of national statistical data is emphasized, since limiting the study to an 11-year annual series reduces its statistical power and hinders short-term and seasonal analysis. Future studies

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could benefit from using quarterly or monthly data with a similar or longer timeframe, as well as advanced time series models (such as VAR or ARDL), incorporating external variables such as population, exchange rates, and political climate, among others, to obtain a more precise, comprehensive, and dynamic view of the determinants of sectoral growth.

Literature

Albuja, W. (2018). Inclusión productiva y social en Ecuador. *Problemas del Desarrollo, 49(197)*, 109-126. https://doi.org/10.22201/iiec.20078951e.2019.197.64747

Allison, P. D. (2001). Missing data. Sage Publications.

Armijos Narváez, X. J. (2024). *Estrategias de marketing para la peluquería Lbprofessional en la ciudad de Guayaquil* [Tesis de pregrado, Universidad Católica de Santiago de Guayaquil]. Repositorio UCSG. https://repositorio.ucsg.edu.ec/handle/3317/23606

Banco Central del Ecuador. (2022). *Análisis del sector petrolero.* https://contenido.bce.fin.ec/documentos/Estadisticas/Hidrocarburos/ASP202204.pdf

Banco Central del Ecuador. (2023). *Cuentas Nacionales Trimestrales. Cuentas nacionales.* https://contenido.bce.fin.ec/documentos/informacioneconomica/cuentasnacionales/ix_cuentasnacionalestrimestrales.html

Banco Central del Ecuador. (2024a). *La economía ecuatoriana registró un crecimiento de 2,4 % en 2023. Boletín de prensa.* https://www.bce.fin.ec/boletines-de-prensa-archivo/la-economia-ecuatoriana-registro-un-crecimiento-de-2-4-en-2023

Banco Central del Ecuador. (2024b). Suscripción del Tratado de Libre Comercio con China: Una gran oportunidad para Ecuador. *Boletín de prensa.* https://www.bce.fin.ec/boletines-de-prensa-archivo/suscripcion-del-tratado-de-libre-comercio-con-china-una-gran-oportunidad-para-ecuador

Barragán, R. (2020). *La generación de energía eléctrica para el desarrollo industrial en el Ecuador a partir del uso de las energías renovables* [Tesis de pregrado, Universidad Internacional SEK Ecuador]. Repositorio de la Universidad Internacional SEK Ecuador. https://repositorio.uisek.edu.ec/handle/123456789/4023

Cadena, J., Llumiquinga, K., Sarzosa, M., & Sarrade, F. (2020). Análisis de la cadena de suministro de las grandes empresas del sector de alojamiento y servicios de comida en el Distrito Metropolitano de Quito - Ecuador. *Revista Espacios, 41(34),* 1–18. https://www.researchgate.net/publication/344220997_Analisis_de_la_cadena_de_suministro_de_las_grandes_empresas_del_sector_de_alojamiento_y_servicios_de_comida_en_el_Analysis_of_the_supply_chain_of_the_large_companies_of_the_accommodat

Campero, E. (2015). Las cadenas productivas como fuente de oportunidades para emprendedores en el medio rural. *Ingieneria Solidaria , vol. 11,* no. 18, pp. 75–85. https://revistas.ucc.edu.co/index.php/in/article/view/993

Correa Varga, E. A. (2021). *Gasto público y crecimiento económico en el Ecuador desde una perspectiva keynesiana* [Tesis de pregrado, Universidad Técnica de Ambato]. Repositorio Digital UTA. https://repositorio.uta.edu.ec/bitstreams/64a353a4-9c75-47ae-89aa-4111a313c6bd/download

Cepal. (2022). Descentrar el producto interno bruto (PIB): bienestar, cuidados y tiempo. https://repositorio.cepal.org/entities/publication/aa6e21d0-2103-4735-a8c0-d566dfa50a3d

Chavero, P., & Rodríguez, R. (2023). Comunicación estratégica en crisis políticas: el caso de Guillermo Lasso (2023). *Revista Latinoamericana de Estudios de Seguridad, (37),* 8–27. https://www.redalyc.org/articulo.oa?id=552676127001&utm_source

Dávalos, P. (2025). *Los acuerdos del FMI y el Ecuador 2019-2024.* https://www.cadtm.org/IMG/pdf/los_acuerdos_del_fmi_con_el_ecuador_2019-2024_versioi_n_final_nov-24.pdf

Delgado, D. D., & Suárez, J. A. (2023). Análisis de crecimiento económico China - Ecuador. *ECA Sinergia, 14(1),* 110–123. https://www.redalyc.org/journal/5885/588575260010/588575260010.pdf?utm_source

Escribano, G. (2019). *Ecuador y los subsidios a los combustibles. ResearchGate.* https://www.researchgate.net/profile/Gonzalo-Escribano-2/publication/347004632

Faro. (2020). *Subsidios a combustibles en Ecuador: Análisis y propuestas.* https://grupofaro.org/analisis/subsidios-combustibles-en-ecuador/?utm_source

Fernández, C., Brito, P., Mendoza, G., & Villavicencio, C. (2021). Tradición pesquera artesanal e identidad sociocultural de Puerto Bolívar: Contexto del Golfo de Guayaquil-Ecuador. *Revista de Ciencias Sociales (Venezuela), 27(4),* 386–400. https://www.redalyc.org/articulo.oa?id=28066593027

García Salazar, A., Gómez Lorenti, D., Magallanes Galarza, C., Jadan Solís, K., & Maldonado Castro, Á. (2024). Evaluación del impacto de las políticas fiscales en el desempeño macroeconómico del Ecuador: Assessing the impact of fiscal policies on Ecuador's macroeconomic performance. LATAM *Revista Latinoamericana de Ciencias Sociales y Humanidades, 5(5),* 998–1015. https://doi.org/10.56712/latam.v5i5.2662

González, J. T., Gracia, K. E., Sornoza, S. E., Cetre, M. E., & Moran, I. N. (2024). *La educación en salud como herramienta para la prevención de enfermedades en comunidades vulnerables en Ecuador. Arand*u, 12(1), 2965–2982. https://doi.org/10.69639/arandu.v12i1.783

Gujarati, D., & Porter, D. (2010). Econometría. McGraw-Hill.

Juelas Yépez, E. V., Zurita Moreano, E. G., Juelas Carrillo, P. D., & González Bautista, M. G. (2024). Relaciones de umbral entre el impuesto a la salida de divisas y la inversión extranjera directa en Ecuador período 2008–2021. *Boletín de Coyuntura, (43),* 25–35. https://doi.org/10.31243/bcoyu.43.2024.2495

Kovalenko, I. E., Rosas, K. P., & Barro, J. (2022). El sector de la construcción en la economía ecuatoriana, importancia y perspectivas. *Revista de Ciencias Sociales y Económicas, 6(2),* 58–69. https://doi.org/10.18779/csye.v6i2.598

Lambert, L. E., & Romero, K. H. (2023). Análisis comparativo de las exportaciones de camarón, cacao y banano del Ecuador de los años 2018–2022 y su incidencia en la balanza comercial. *Revista Metropolitana de Ciencias Aplicadas, 6(2),* 116–126. https://www.redalyc.org/articulo.oa?id=721778123014

Larrea, C. (2016). *Petróleo, pobreza y empleo en el Ecuador: De la bonanza a la crisis.* En Nada dura para siempre (p. 131).

Lewis, P., Trillo, V., Siles, F., & Manrique, P. (2024). Políticas de reactivación económica y su influencia en la bancarización postpandemia COVID-19. *Aula Virtual, 5(12),* e325. https://ve.scielo.org/scielo.php?pid=S2665-03982024000202029&script=sci_arttext&utm_source

Lizarazu, E. (2009). Un modelo macroeconómico de dos sectores productivos de precios flexibles con perfecta movilidad del trabajo e inmovilidad del capital físico. *Análisis Económico, 24(55)*, 127–153. https://www.redalyc.org/articulo.oa?id=41311453007

López Bermeo, C. G. (2021). *Impacto de los desastres naturales sobre el crecimiento empresarial: Un análisis del terremoto del año 2016 en Ecuador* [Tesis de maestría, Universidad de Cuenca]. Repositorio Institucional de la Universidad de Cuenca. https://dspace.ucuenca.edu.ec/items/4025a1ef-8d28-4bf9-b1c1-d8ff953e4209

Lovato, S., Hidalgo, W., & Fienco, G. (2019). Incidencia del crecimiento económico del sector manufacturero sobre el Producto Interno Bruto en Ecuador. . *Revista de la Universidad de Guadalajara, 86(Especial 17)*, 121–138. https://www.redalyc.org/journal/290/29059356014/

Luxán, J. M. (2020). La estacionalidad en el empleo público desde una perspectiva de género: Un análisis de la estadística de afiliación de la Seguridad Social (2014–2019). *IgualdadES, 3,* 473–517. https://doi.org/10.18042/cepc/IgdES.3.08

Macias-Pisco, A. C., & Gómez-García, S. L. (2024). El sector servicios y su aporte al crecimiento económico del cantón Rocafuerte. *Revista Científica Multidisciplinaria Arbitrada Yachasun, 8(14)*, 59–74. https://editorialibkn.com/index.php/Yachasun/article/view/447

Mejía, O., Jordán, R., & Parrales, C. (2019). Políticas tributarias y la evasión fiscal en la República del Ecuador: Aproximación a un modelo teórico. *Revista Venezolana de Gerencia, 24(88),* 1147–1165. https://www.redalyc.org/journal/290/29062051010/html/?utm_source

Ministerio de Economía y Finanzas. (2023). *Resultados económicos 2022: Orden fiscal, enfoque social y reactivación microeconómica.* https://www.finanzas.gob.ec/wp-content/uploads/downloads/2023/05/22.05.2023_ResultadosEconomicosPositivos2022-_001.pdf

Ministerio de Telecomunicaciones. (2021). *Ley Orgánica de Protección de Datos Personales.* https://www.telecomunicaciones.gob.ec/wp-content/uploads/2021/06/Ley-Organica-de-Datos-Personales.pdf

Mocha-Ayavaca, K. D., Pinos-Luzuriaga, L. G., & Mejía-Matute, S. R. (2023). Productividad del sector transporte en el Ecuador: Un análisis empírico del periodo 2012–2021. *INNOVA Research Journal, 8(3.1)*, 202–224. https://doi.org/10.33890/innova.v8.n3.1.2023.2322

Morales, S. (2022). *Análisis de las actividades profesionales, técnicas y administrativas trimestral (2000l -2021l).* https://rpubs.com/Steven10Morales/937294

ONU. (2021). *El presidente de Ecuador muestra el logro de la vacunación contra el COVID-19 como parte de un éxito de la diplomacia internacional*. https://ecuador.un.org/es/145506-el-presidente-de-ecuador-muestra-el-logro-de-la-vacunaci%C3%B3n-contra-el-covid-19-como-parte-de

Ortega, F., Ramírez, T., & Zúñiga, G. (2022). El sistema financiero y el rol que cumple en el desarrollo económico y social del Ecuador. *593 Digital Publisher CEIT, 7(6)*, 168–179. https://doi.org/10.33386/593dp.2022.6.1367

Paredes, C. R., Brito, L. M., Albán, E. J., & Bonilla, R. C. (2024). Análisis de la participación del turismo en los ingresos

e-ISSN: 2790-2145 ISSN: 2618-1207

nacionales ecuatorianos durante el período 2012–2023. *Aula Virtual, 5(12),* e286. https://doi.org/10.5281/zenodo.11121898

Pastor, J. (2017). *Análisis económico del modelo de contrato de prestación de servicios para la exploración y explotación de hidrocarburos conforme la ley reformatoria a la ley de hidrocarburos* [Tesis de pregrado, Pontificia Universidad Católica del Ecuador]. Repositorio PUCE. https://repositorio.puce.edu.ec/handle/123456789/27995

Pinzón, J. (2024). *Análisis del impacto de la producción minera en la recaudación tributaria del Ecuador: Un estudio econométrico para el periodo 2018–2023* [Tesis de pregrado, Universidad Nacional de Loja]. Repositorio Institucional de la Universidad de Loja. *https://dspace.unl.edu.ec/jspui/handle/123456789/31514*

Rodríguez, F., Vera, D., & Carrera, C. (2023). Alternativas y desafíos para enfrentar la transición de la era post petrolera en el Ecuador. F*IGEMPA: Investigación y Desarrollo, 16(2),* 143–162. http://scielo.senescyt.gob.ec/scielo.php?script=sci_arttext&pid=S2602-84842023000200143

Salinas, M. E. (2022). *Sector terciario y su aportación al PIB del Ecuador durante los diez últimos años* [Tesis de pregrado, Universidad Técnica de Ambato]. Repositorio Institucional de la Universidad Técnica de Ambato. https://repositorio.uta.edu.ec/server/api/core/bitstreams/b87e6bcd-1838-40db-81f5-0d7935545ca0/content

Sánchez, Y., Terrones, A., & Guzmán, E. (2021). Analysis of primary activities in the Mexican economy, 1970–2022. *CIENCIA ergo-sum, 30(1),* 1–13. https://www.redalyc.org/journal/104/10474149005/

Stoessel, S. (2024). Crisis estatal en Ecuador: del Estado posneoliberal al Estado predatorio. *Papel Político, 29,* e38571. https://doi.org/10.11144/Javeriana.papo29.ceee

Vanderstichel, S. (2021). Condicionalidades en la política económica durante los gobiernos de Lenín Moreno en Ecuador (2017–2021) y Mauricio Macri en Argentina (2015–2019). *XIV Jornadas de Sociología, Universidad de Buenos Aires,* p. s/p. https://www.aacademica.org/000-074/275

Vera, S., & Llanos, S. (2016). Ecuador: La democracia después de nueve años de la "Revolución Ciudadana" de Rafael Correa. *Revista de Ciencia Política, 36(1),* 89–114. https://www.redalyc.org/pdf/324/32446000007.pdf

Zapata, K. P., Nieves, W. J., & Vega, A. (2022). Manufacturing and economic growth in Ecuador, 1990–2019: Validity of Kaldor's first law. *Revista Metropolitana de Ciencias Aplicadas, 5(1),* 245–258. https://www.redalyc.org/pdf/7217/721778113021.pdf