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# Impact of Covid-19 on sales revenues of private companies in Ecuador

Impacto del Covid-19 en los ingresos por ventas en las empresas privadas del Ecuador

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**Abstract:** The economic impact of the Covid-19 pandemic on the economy of Ecuador generated a 6% drop in GDP between March and December 2020 according to the Central Bank of Ecuador (BCE, 2020), most companies have been affected by the decrease in supply and demand caused by the closures of the economy to try to stop the advance of Covid-19. In the present work it has been aimed to describe the variation of sales revenue in 2020, the year of the beginning of the pandemic in relation to 2019. The analysis was performed through a quantitative approach, applying the descriptive method with contrast of means based on the data collection of the Superintendence of Companies, where 35,906 companies were analyzed. The results determined a decrease of 11% in sales revenues compared to 2019, with the most affected sectors being tourism, construction and garment manufacturing.

**Keywords:** COVID-19, Economy of Ecuador, Sales revenue Ecuador 2020.

**Resumen:** El impacto económico producto de la pandemia Covid-19 en la economía del Ecuador generó una caída del 6% del PIB entre marzo y diciembre 2020 de acuerdo el Banco Central del Ecuador (BCE, 2020), la mayoría de empresas se han visto afectadas por la disminución de la oferta y demanda provocadas por los cierres de la economía para tratar de detener el avance del Covid-19. En el presente trabajo ha tenido como objetivo describir la variación de los ingresos por ventas en el 2020, año de inicio de la pandemia con relación al 2019. El análisis se realizó mediante en enfoque cuantitativo, se aplicó el método descriptivo con contraste de medias basado en la recolección de datos de la Superintendencia de Compañías, donde se analizaron 35.906 empresas. Los resultados determinaron una disminución del 11% en los ingresos por ventas comparado con el 2019, siendo los sectores más afectados el turismo, la construcción y la fabricación de prendas de vestir.

**Palabras clave:** COVID-19, Economía del Ecuador, Ingresos por ventas Ecuador 2020.

## INTRODUCTION

The economic crisis stimulated by the Covid-19 pandemic has caused, according to the Central Bank of Ecuador, a 6% drop in GDP between March and December 2020, according to the same entity, losses totaled USD 16,381.7 million during the same period, 78.11% corresponds to the private sector and 21.9% to the public sector, while the International Monetary Fund (IMF) forecasts that Latin America will recover its pre-pandemic GDP levels in 2023.

Most companies have been affected by the decrease in supply and demand caused by the closures of the economy to try to stop the advance of covid-19, a disease that as of July 23, 2021 has caused 21.5 thousand deaths confirmed by the Ministry of Public Health of Ecuador (Ecuador, n.d.).

The dimension and duration of the economic effects of the pandemic are complicated to quantify and estimate due to virus outbreaks due to the appearance of new and more contagious strains such as the Delta variant according to some published studies (BBC, 2021). The pandemic will be the cause of the greatest economic and social crisis in the region in decades, with negative effects on employment, the fight against poverty and the reduction of inequality (ECLAC, Report on the economic impact in Latin America and the Caribbean of the coronavirus disease (COVID-19).

The economic hibernation was reflected not only in a sharp increase in unemployment, but also in a fall in the labor force participation rate, which, by reducing the pressure on the labor market, partially offset the rise in the unemployment rate (Esteves, 2020).

The pandemic has set in motion a train that has as its destination the world of the future, that of the IV Industrial Revolution based on technology, but also on respect for the environment, rights and social balances (Ríos, 2020). The magnitude of the global economic recession will almost certainly be greater than that caused by the global financial crisis of 2008, or even by the Great Depression (Mundial, 2020).

The Telework modality has been an opportunity for some companies to reactivate economically, the sectors that in greater proportion have been able to work in this modality are the information technology "ICT", education and financial (Franco-Crespo, 2020).

The objective of this research is to determine the economic impact of Covid-19 on the sales revenue of private companies in Ecuador. In order to answer the question posed and the objective of the research, a quantitative approach of descriptive type with contrast of means is used to determine the variation of sales in the year 2020 in relation to 2019. The information was obtained from the Superintendence of Companies, where 35,906 companies that registered information in said entity in the years evaluated were analyzed.

From the onset of the Covid-19 pandemic, concerns arose about its impact on the economies of countries worldwide, as well as its impact on labor markets. Public and private organizations and consumers of products and services were the most affected by the pandemic problem, reflected in reduced sales and changes in consumption (Ortega, 2020). The situation at the Latin American level had already been complicated since 2019 where economic growth was 0.1% according to data reported by the World Bank (WB).

The uncertainty in the economy generated by the global pandemic caused global stock markets to plummet due to the negative expectations of economic agents towards the dates either future or current of a possible immunization of the population in the short or long term, the uncertainty

took hold of investors and the nervousness of betting on a given market (Baker, Bloom, Davis, & Terry, 2020).

According to the International Labor Organization (ILO) warns that 305 million people will lose their jobs, the ILO also states that 1.6 billion informal workers, almost half of the world's workforce, are in eminent danger of losing their livelihoods.

The impact of the crisis unleashed by the pandemic in Ecuador has been very hard, more than 431,000 new poor and 532,359 jobs lost due to the pandemic in the country according to the Government of Ecuador in its National Development Plan (Commerce, 2021).

The economy in companies or organizations has been hit hard and has led to restructuring and layoffs in order to survive; in this context, the fall in employment has left many people who had formal jobs, unemployed and others in informal employment (Costa, 2020).

As a result of the pandemic, teleworking has increased and companies have dispensed with a percentage of their staff as they have been replaced by duplicating or tripling the functions to a worker or by robots or automatic systems (Becerra, Valencia, & Revelo, 2021).

Unemployment is a social problem since not only the individual is affected, the impact extends to his or her family and therefore to his or her social environment (Becerra, Valencia, & Revelo, 2021),

Unemployment affects the economy in a way that is associated with cash flow. A steady cash flow is essential for any economy that wants to prosper, both inward and outward. Failure to achieve this leads to slow economic growth, which in turn makes it more difficult to make a turnaround in the future (nvindi).

According to the Central Bank of Ecuador, household final consumption expenditure presented a decrease of 7.0% during 2020 in relation to 2019 due to a 17.9% reduction in imports of consumer goods and a 23.4% decrease in consumer credit operations (ordinary and priority), granted by the private financial systems and the popular and solidarity economy (BCE, 2021).

Consumption expenditures made by the General Government experienced a decrease of 6.1% with respect to 2019. This is mainly due to the 7.6% decrease in remunerations, which reached accrued expenses of USD 8,592.2 million, a value USD 705.3 million lower than that presented in 2019 (BCE, 2021). Likewise, there was a 25.8% reduction in the purchase of goods and services, since the General State Budget (PGE) presented an execution of USD 1,688.2 million, i.e. USD 588.4 million less than in 2019 (BCE, 2021).

The COVID-19 pandemic left costs and a reduction of income for Ecuador for USD 6,421 million, between March and May 2020. This was revealed by the "Evaluation of the effects and impacts of the health emergency in the country", which was led by the Technical Secretariat Planifica Ecuador (SNP, 2021). According to the document, the total costs and revenue reduction (USD 6 421 million) is equivalent to 6% of the country's current nominal Gross Domestic Product (GDP) in 2019,

which was USD 107 436 million, according to bulletins from the Central Bank of Ecuador (BCE).

By sector, the losses recorded between March and May 2020 were as follows: Economic and Productive Sector, USD 4 095 million; Social Sector, USD 1 300 million; Natural Resources, Habitat and Infrastructure Sector, USD 999 million; and Security Sector, USD 27 million (SNP, 2021).

## MATERIALS AND METHODS

The research was conducted under the quantitative approach of descriptive type with contrast of means to determine the variation of sales in 2020 in relation to 2019, for which a longitudinal research is conducted to track sales revenue in the years 2019 and 2020, information reported in the Superintendence of Companies. Additionally, the "decision trees" data mining technique is used to determine the profile of the companies with the greatest decrease in sales in 2020 compared to 2019.

## RESULTS

In the present work, a total of 35,906 private companies with revenues over 10 thousand dollars in 2019 were analyzed, and then compared with the revenues obtained in 2020, for this purpose the companies were classified by their sales revenue according to the figures reported to the Superintendence of Companies in 2019:

### **Comparison of means for related samples by type of firm**

Based on the hypothesis that "there are no significant differences in sales revenues in the year 2019 before the pandemic and the year 2020 in the pandemic", a t-test for related samples was performed which gave us the following result: The average revenues of the companies during the year 2020 were \$ 2,457.820 million dollars, 11% less than what was recorded in the year 2019 with \$ 2,774.699 million dollars.

The related samples statistical test allows us to interpret that, with a "t"= 10.9 and a significance of 0.0 less than 0.05, there is statistical evidence to reject the initial hypothesis that there is no difference in revenues, i.e. the pandemic caused a reduction in sales revenues in the country's companies.

We note that there are statistically significant differences in revenues among the different types of companies. Microenterprises were the only ones that achieved a positive result with 45% of revenues higher than 2019.

Despite the pandemic-induced downturn, 31% of businesses overall earned revenues higher than 2019, 36% of microenterprises, 30% of small businesses, and 28% of medium and large businesses respectively. The 11,237 businesses that earned revenues higher than 2019 recorded sales of \$34.3 billion, \$7 billion higher, while businesses that decreased revenues achieved sales of \$53.9 billion, \$18.4 billion lower than 2019.

### **Revenues by Sector**

The construction sector, logistics and cargo activities had the largest decrease in revenues with 26% and 20%, respectively, while the agriculture, livestock, forestry and fishing sector practically maintained revenues compared to last year.

### **Revenues by Activity Group**

The first six groups that recorded higher revenues compared to 2019 were: Extraction of stone materials, timber production, research and development, application and website services, wood products manufacturing and the health sector, these six groups achieved a 34% increase in revenues.

While the six groups that decreased the most compared to 2019 were: restaurants, maritime transportation, air transportation, accommodation services, recording production activities and tour operators, these six groups recorded a decrease in revenues of 45% compared to 2019.

### **Revenues by Province**

The provinces of Guayas and Pichincha account for 75% of the companies in the study. The reduction in sales in Guayas was 8%, in Pichincha 17%, while in the rest of the provinces the reduction was 12%.

The province of Galapagos with 163 registered companies had the largest reduction in sales with 68%, most of the companies registered in this province are engaged in the tourism sector, while the province of Zamora with 89 registered companies had an increase of 367%, due to the increase in sales in companies engaged in the extraction of stone materials.

### **Top Ten companies in the country**

The ten companies with the highest sales in 2019 recorded a 10% decrease in sales in 2020. Difare, Corporación el Rosado and Corporación Favorita achieved an increase in sales with 12%, 7% and 3% respectively, while the rest of the companies recorded decreases, with General Motors Ecuador being the company that recorded the largest decrease with 59%.

### **Decision tree in the profile of companies with the greatest decrease in sales recorded in 2020 compared to 2019.**

Decision trees is one of the techniques of nonparametric supervised inductive learning, used for prediction and used in the field of artificial intelligence, where from a database logical construction diagrams are built, very similar to prediction systems based on rules, which serve to represent and categorize a series of conditions that occur repeatedly to solve a problem. (Solarte Martínez & Soto Mejía, 2011).

One of the properties of this technique is that it allows an efficient organization of a set of data, because the trees are built from the evaluation of the first node (root) and according to its evaluation or value taken, it goes down the branches until the end of the path (leaves of the tree), where the leaves represent classes and the root node represents all the training patterns which have to be divided into classes. (Solarte Martínez & Soto Mejía, 2011)..

Using the decision tree methodology, it was possible to obtain the profile of the companies with the greatest variation in their sales in 2020 compared to 2019, the results were:



38.4% of companies with revenues less than equal to \$52k in 2019 recorded higher revenues in 2020, 6.7 points higher than the overall average 31.7%.

Companies domiciled in the coastal region performed better than companies in the rest of the country's regions.

Companies with domicile other than the coastal region and with revenues above \$252.7 thousand dollars in 2019, obtained the worst results in 2020, 76.6% recorded revenues lower than 2019, 8.3 points higher than the overall average (68.3%)

#### **Affecting employment**

The COVID-19 crisis poses a particularly salient threat to employment, both in terms of a reduction in the quantity of jobs and a deterioration in their quality (OECD, 2020). Many companies have reduced their demand for employees in the face of the decline in their economic activities, according to figures presented by the National Survey of Employment, Unemployment and Underemployment (ENEMDU) of the National Institute of Statistics and Census, adequate employment fell by 7.6 points between December 2019 and June 2021.

*Graph 1 Labor Distribution in Ecuador*

Source: ENEMDU (INEC)

A total of 2,505 companies that registered 50 or more employees in 2019 reduced their job openings by 4.5% in 2020. 63% decreased their number of jobs, while 37% increased their job openings.

*Workload Variation 2. Graph*

Source: SUPERCIAS

## **CONCLUSIONS**

Sales revenue in 2020 decreased by 11% compared to 2019. Large companies recorded a decrease of 13%, while medium and small companies decreased 8%. Micro-enterprises obtained revenues of \$ 738 thousand dollars, 45% higher than what was achieved in 2020 (\$ 508 thousand dollars). Sixty-nine percent of the companies evaluated recorded revenues 25% lower than in 2019.

The construction sector, logistics and cargo activities had the largest decrease in revenues with 26% and 20% respectively, while the agriculture, livestock, forestry and fishing sector practically maintained revenues compared to last year.

The provinces of Guayas and Pichincha account for 75% of the companies in the study, the reduction in sales in Guayas was 8%, in Pichincha it was 17%, while in the rest of the provinces the reduction was 7%. The ten companies with the highest sales in 2019 recorded a decrease of 10% overall. Of these, only three registered an increase in sales in 2020: Difare, Corporación el Rosado and Corporación Favorita, obtaining increases in their sales with 12%, 7% and 3% respectively. Companies located in the coastal region performed better than companies in the rest of the country's regions.

According to figures presented by the National Survey of Employment, Unemployment and Underemployment (ENEMDU) of the National Institute of Statistics and Census, adequate employment decreased by 7.6 points between December 2019 and June 2021. Of the 35,906 companies evaluated in the present study, 2,505 representing 7% reported having 50 or more employees in 2019, these companies reduced their workplaces by 4.5%. The agriculture, livestock and forestry sector may have a faster recovery in its economic activity, since the levels of reduction in income (2%) were the lowest compared to other sectors of the economy. According to the International Monetary Fund (IMF), Latin America is expected to recover its pre-pandemic GDP levels by 2023.

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