

Study of Income for Companies that Provide Mobile Internet Service in Colombia

Luis Fernando Pedraza, Cesar Hernandez and Ernesto Cadena

Distrital Francisco Jose de Caldas University

Ifpedrazam@udistrital.edu.co



UNIVERSIDAD DISTRITAL
FRANCISCO JOSÉ DE CALDAS



Agenda

- Introduction
- Statistics for Telecommunications
- Data
- Results
- Conclusions

Introduction

- This work aims to analyze the income for the three companies that obtained more than 90% of the total market revenue corresponding to mobile Internet service from 2012 to 2022 to determine how income is distributed in companies in this sector. For this, statistical measures are used.
- The data is obtained from the Communications Regulation Commission of Colombia.

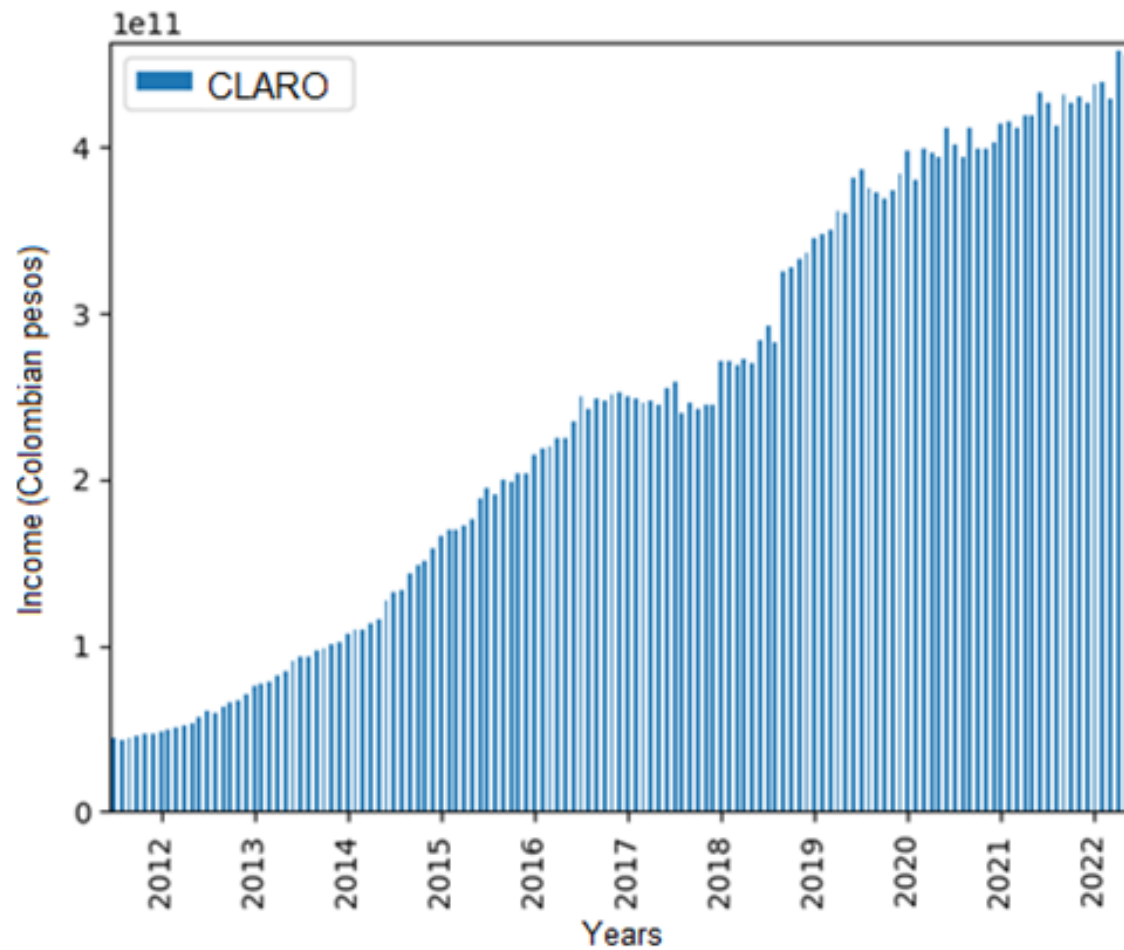
Statistics for Telecommunications

Our statistical analysis presents the basic quantitative measures offered by descriptive statistics (mean, standard deviation, and so on), the relationship between the variables analyzed using correlation, and the verification of a hypothesis through analysis of variance (ANOVA) for the characterization of income in the mobile Internet service of the three companies with the most significant penetration in the Colombian market.

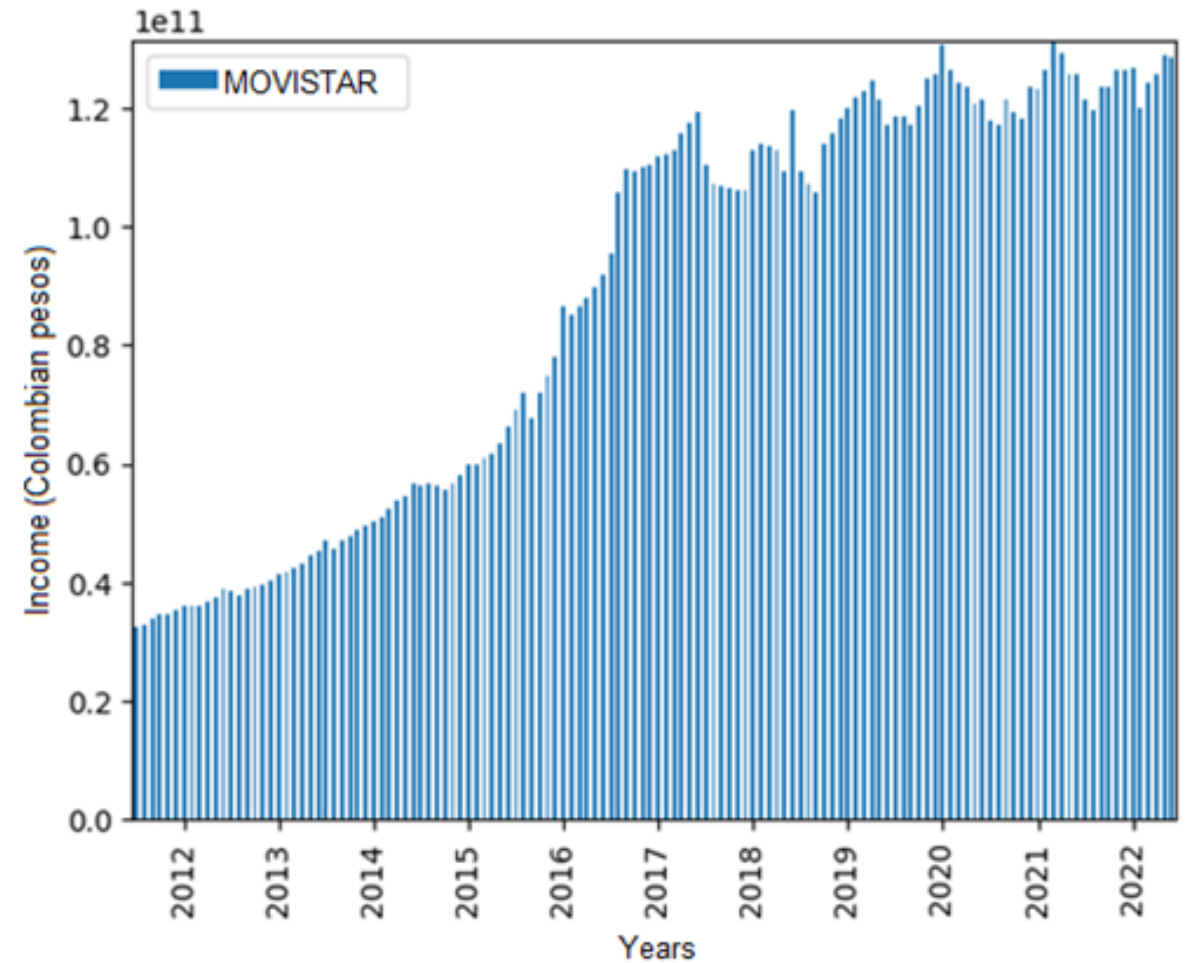
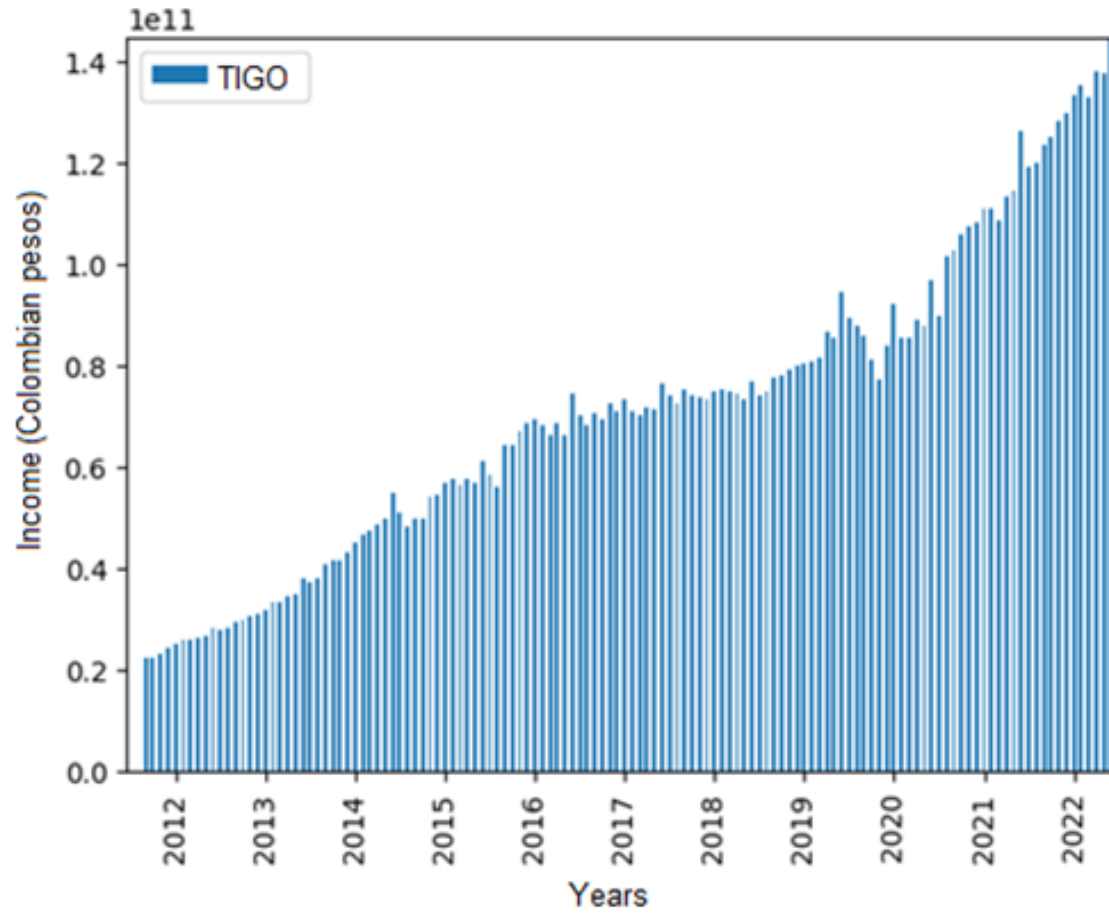
Data

The data used for this study corresponds to the sum of postpaid (fixed charge) and prepaid data (on demand). This data is organized, treated, and debugged to filter the information necessary for the subsequent statistical analysis. With this information, the income of the companies “Claro”, “Tigo” and “Movistar” are graphed.

Results

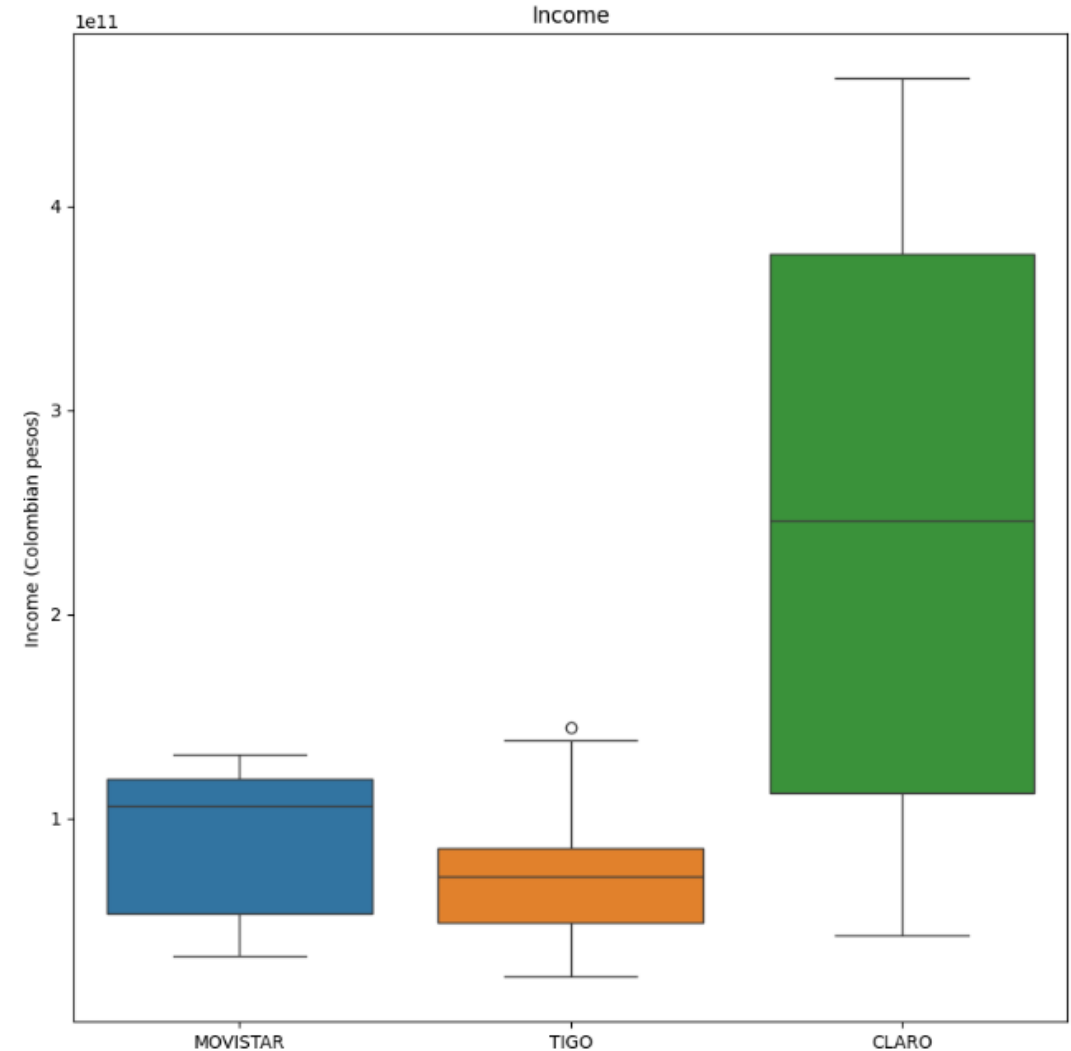


Results



Results

Index	Claro	Tigo	Movistar
count	132	130	132
mean	242.972.245.121	71.155.903.596	88.576.078.279
std	132.142.308.577	30.241.219.067	34.615.171.364
min	42.717.665.502	22.412.389.160	32.386.111.291
Q₁(25%)	112.687.051.935	49.008.466.545	53.418.243.260
Q₂(50%)	245.620.245.469	71.566.749.718	106.526.211.467
Q₃(75%)	376.555.779.779	85.722.526.660	119.730.605.411
max	462.660.494.175	144.650.203.048	131.331.643.922



Results

Coefficient of Correlation

	Claro income	Tigo income	Movistar income
Claro income	1	0,9586	0,9519
Tigo income	0,9586	1	0,8872
Movistar income	0,9519	0,8872	1

ANOVA

	Claro- Movistar income	Tigo- Movistar income
Mean squares	1,57E24	1,98E22
F	168,6319	18,795
Probability	4,197E-30	0,0000208
The critical value of F	3,87719	3,87747

Results

- Income growth for Claro and Tigo have a linear trend. For Movistar, growth is exponential until 2017, and then it grows oscillatory because of competition in the prices of other operators' plans.
- Claro recorded the highest mean income, \$242.972.245.121, with a standard deviation of \$132.142.308.577. Tigo presented the lowest mean income, \$71.155.903.596, with a standard deviation of \$30.241.219.067.

Results

- A high correlation coefficient is observed between the income of the companies evaluated.
- For ANOVA, the value of F is greater than the critical value for F and that the probability value is less than 0,05, which means that the hypothesis is rejected. Therefore, the compared mean values are statistically different.

Conclusions

- The free competition market for the telecommunications sector established in Colombia shows that, for mobile Internet, the operator Claro received, on average, more than twice the income of the operators Tigo and Movistar during the ten years covered by this study.
- The high correlation between the incomes of the mobile Internet companies analyzed indicates that operators have increased their income from this service over time.

Conclusions

- The ANOVA test between the companies' income confirms the information obtained regarding the significant difference in the mean income.
- Although a high degree of income concentration is observed in the operator Claro, in Colombia, the dynamics of the mobile operator market are one of competition at a technological level and a decrease in rates.