

Effective spectrum pricing in Ecuador

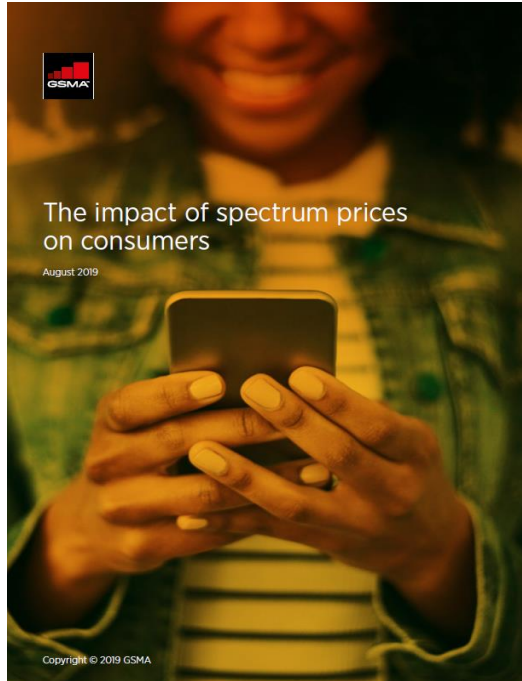
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AUTHOR




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Background: The impact of spectrum pricing on mobile consumers



- In 2019, GSMA carried out a study to assess the impact of spectrum pricing on mobile markets and consumers
- We analysed 229 operators in 64 countries (34 high income and 30 middle and low income) between 2010-2017.
 - Most comprehensive study to date on the impact of spectrum policy on consumers.
 - Econometric model that assesses the impact of spectrum cost on coverage, network quality and final prices for users.
 - Robust statistical methods that isolate the effect and its direction from other factors.
- The results of the GSMA pricing study are used to assess the impact of spectrum policies on consumers in Ecuador.

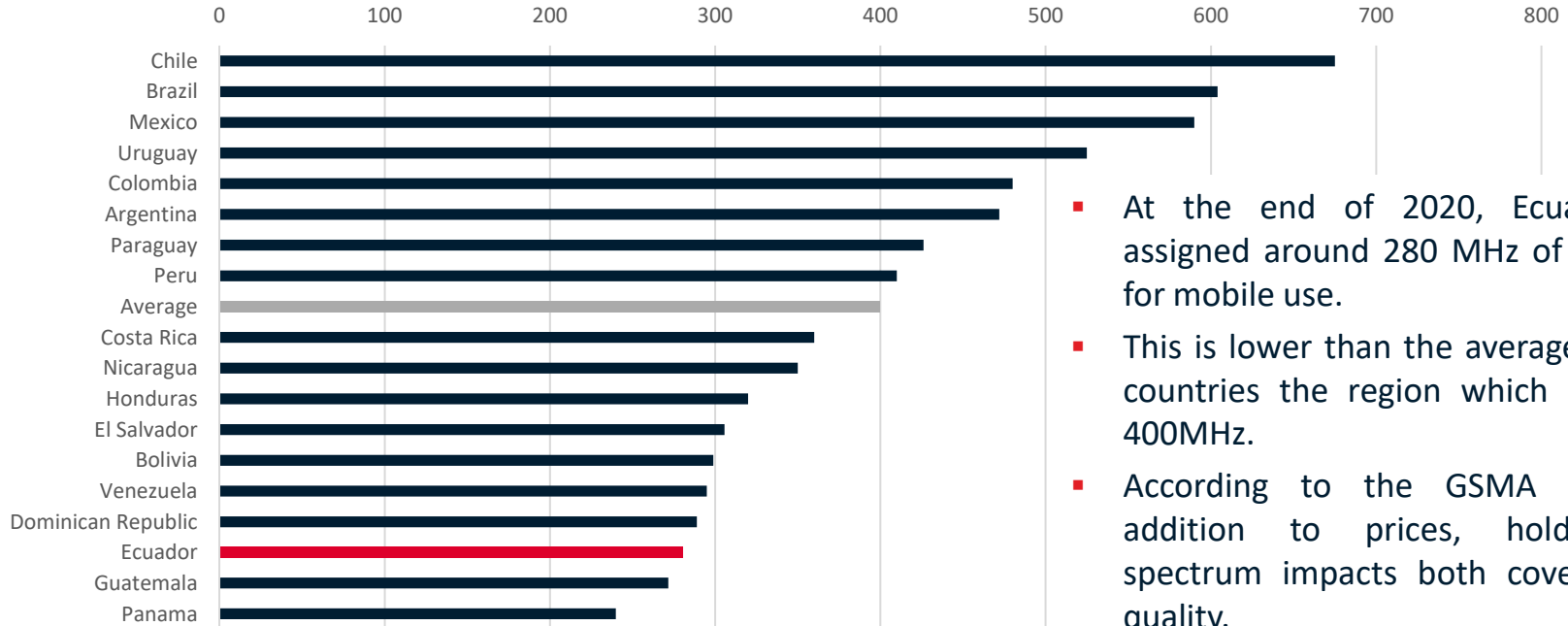
The negative impact of higher spectrum prices

	Lower/middle-income countries	High-income countries
 Network coverage	Slower deployment of 3G and 4G networks	Slower deployment of 4G networks
 Network quality	Worse network quality (on all networks)	Slower download speeds on 4G networks
 Consumer prices	Indications that prices are higher, but inconclusive results	Inconclusive results – better data needed

1. Spectrum price benchmarking

Mobile spectrum in Latin America

Total spectrum assigned to mobile (MHz)



- At the end of 2020, Ecuador had assigned around 280 MHz of spectrum for mobile use.
- This is lower than the average of other countries the region which is around 400MHz.
- According to the GSMA study, in addition to prices, holding less spectrum impacts both coverage and quality.

The cost of spectrum in Ecuador

- The total cost of spectrum is made up of different components:
 - Initial payments and upfront costs (direct financial cost to operators for assignments and renewals)
 - Annual fees or charges. In Ecuador these include:
 - Fees as a percentage of revenue for initial assignments or renewals.
 - The USO payment which is based on number of connections and spectrum radiant.
- In Ecuador, annual fees represented around 60% of the total annual cost of spectrum in 2019. Annual fees now primarily consist of USO payments - they have increased from 50% to 70% of total annual fees between 2010 and 2019.

Measuring the price of mobile spectrum

- All measures of the cost of spectrum in this study include both upfront costs (e.g. price paid at the moment of the assignment or renewal), and annual fees.

Measures:

\$PPP per year

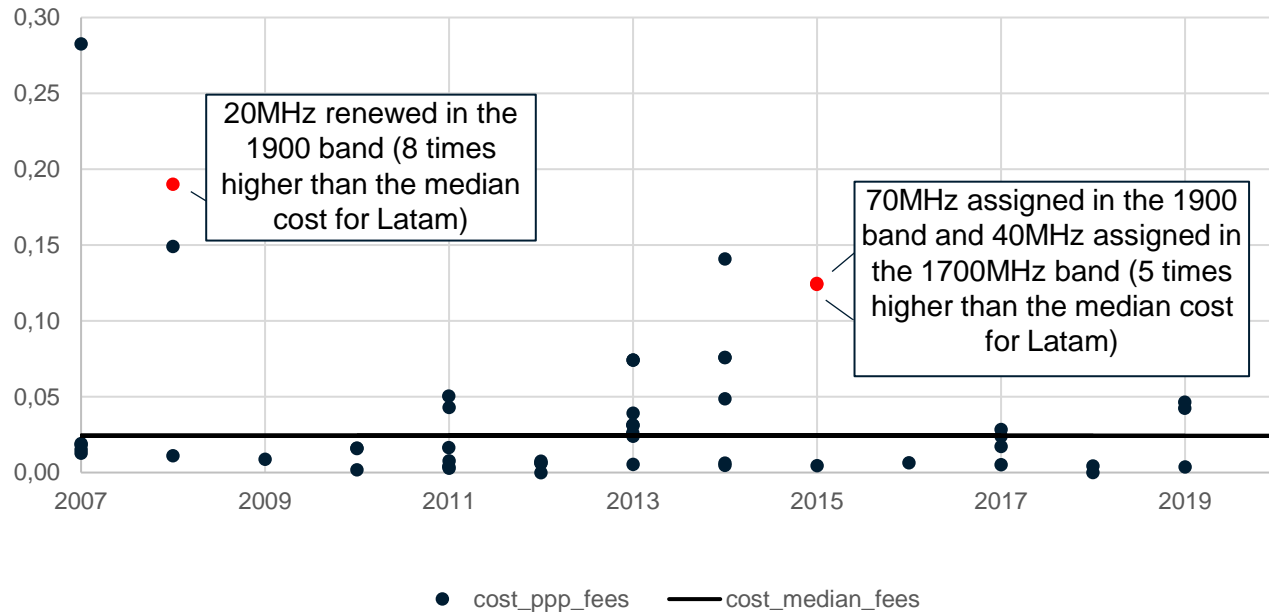
- The unit cost of spectrum per person (\$PPP per MHz per person per year) – this gives an indication of spectrum costs faced by operators to serve the potential customer base in a country during the spectrum licence period. This differs from other commonly used measures that do not take the licence length into account.

CPR

- The unit cost of spectrum as a percentage of revenues (CPR) or recurring revenues (CPRR) – this includes total revenue generated by operators over the relevant period, including both recurring and nonrecurring revenues. It gives an indication of the profitability or returns on spectrum costs as an investment. The higher the unit costs, the lower the rate of return made on the spectrum licence

Assignment costs per year in Ecuador have been higher than the median in Latin America

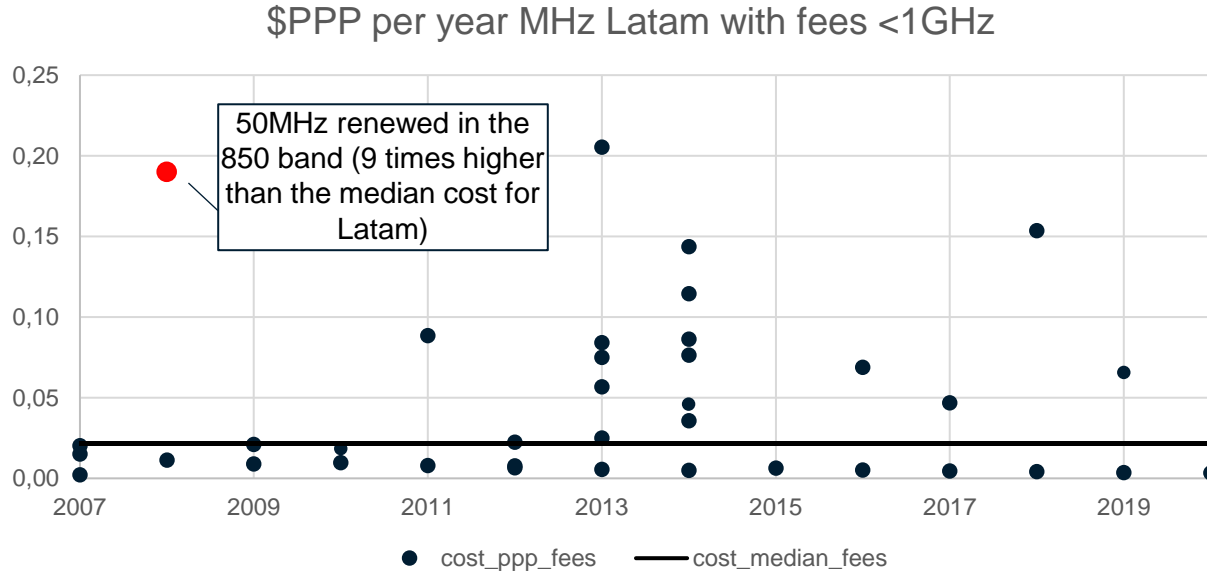
\$PPP per year MHz Latam with fees >1GHz



Assignments for Ecuador highlighted in red.

Source: GSMA Intelligence.

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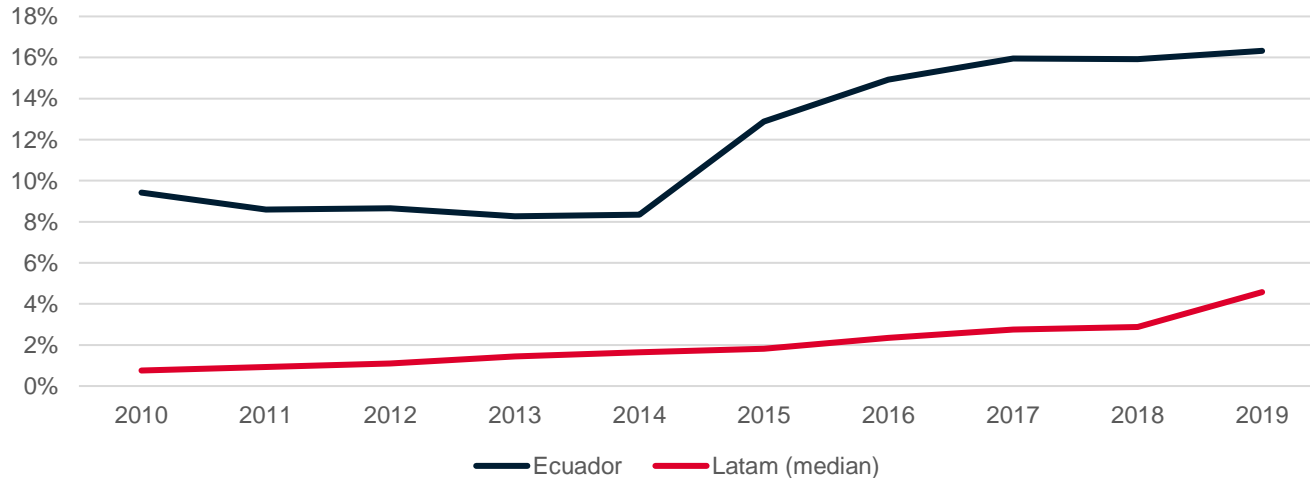


Assignments for Ecuador highlighted in red.

Source: GSMA Intelligence.

Price of mobile spectrum in Ecuador: CPRR for Ecuador has been consistently higher than the average for Latin America and has continued to increase in recent years. The aggregate unit cost of spectrum (one-off payments over the duration of the licences and annual fees) as a percentage of recurring (service) revenues for Ecuador in 2019 was just over 16%, which is the highest in the region and more than three times the median for Latin America (5%).

Cost per recurring revenue - cumulative

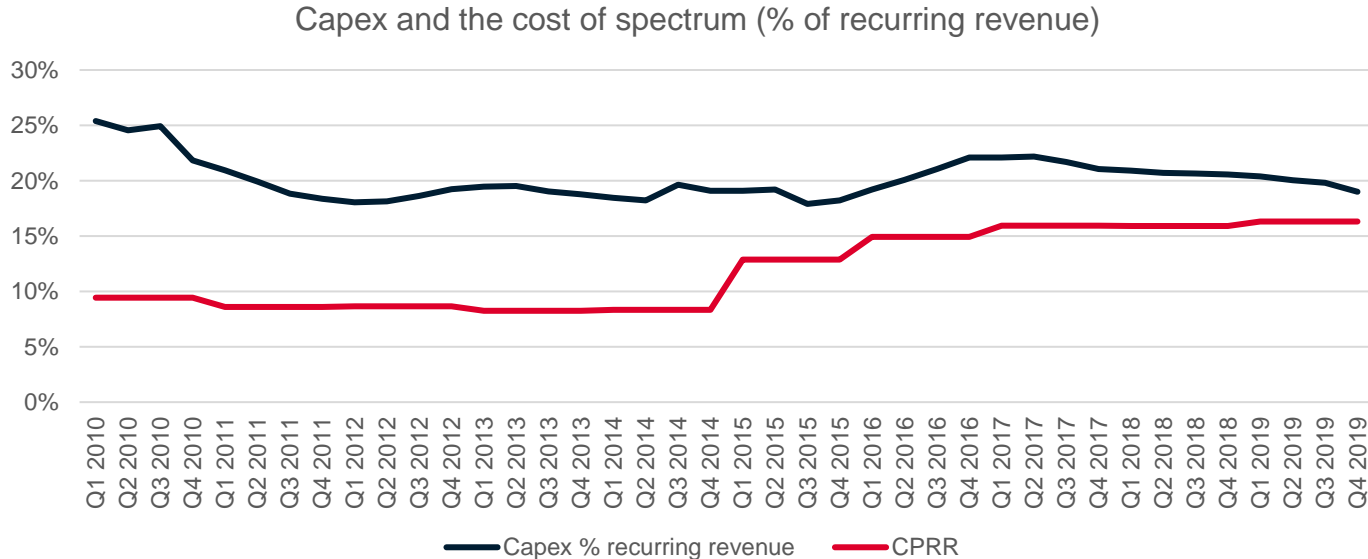


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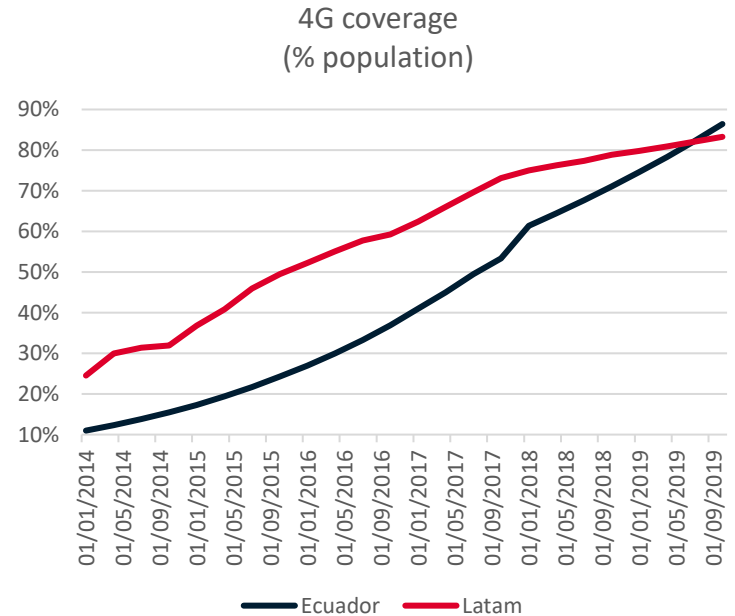
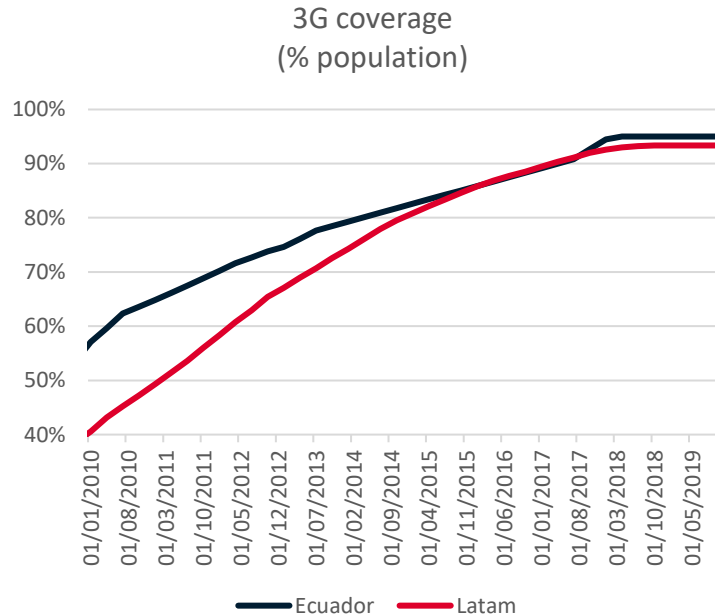
2. Ecuadorian mobile market

Spectrum and capital costs have followed opposite trends since 2010

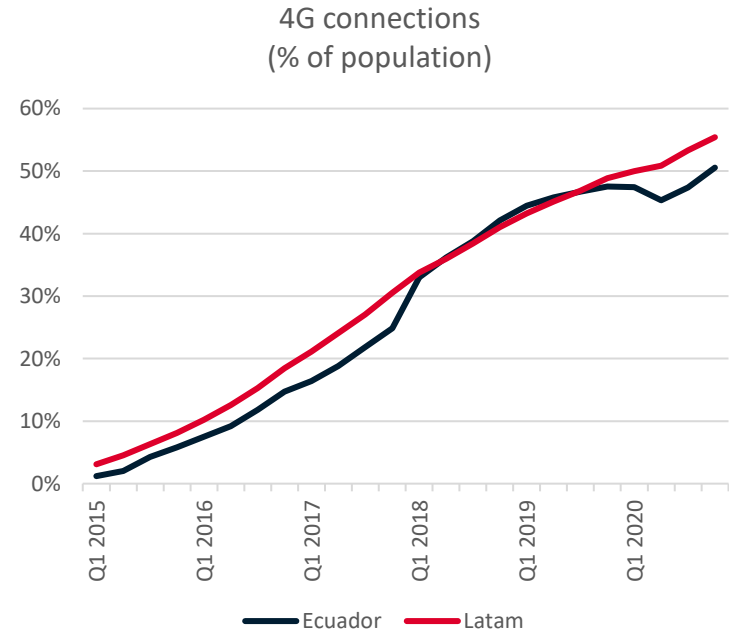
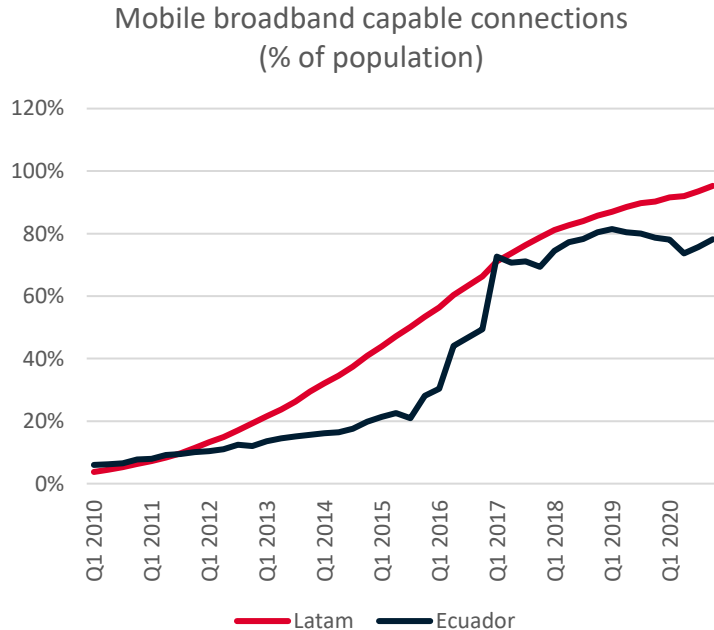
- The annual cost of spectrum has increased from around **10%** of recurring revenue in 2010 to over **16%** of recurring revenue in 2019
- Capex as a percentage of recurring revenue has fallen from **25%** to **19%** in the same time period.



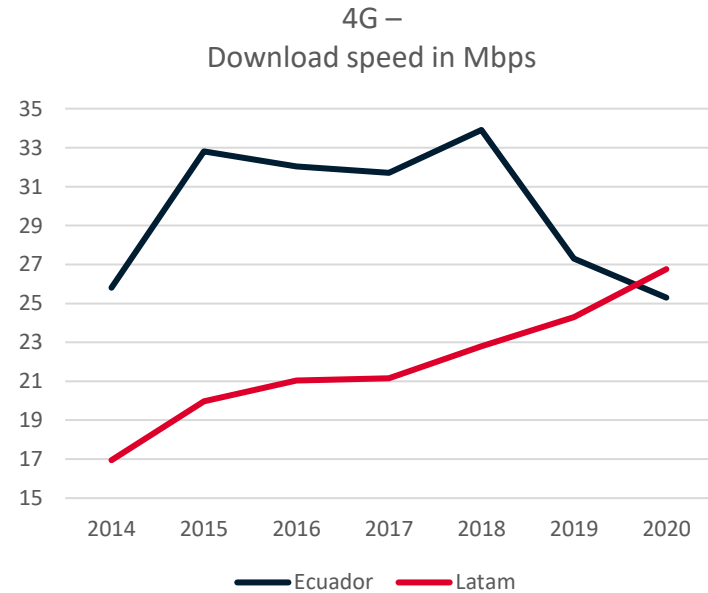
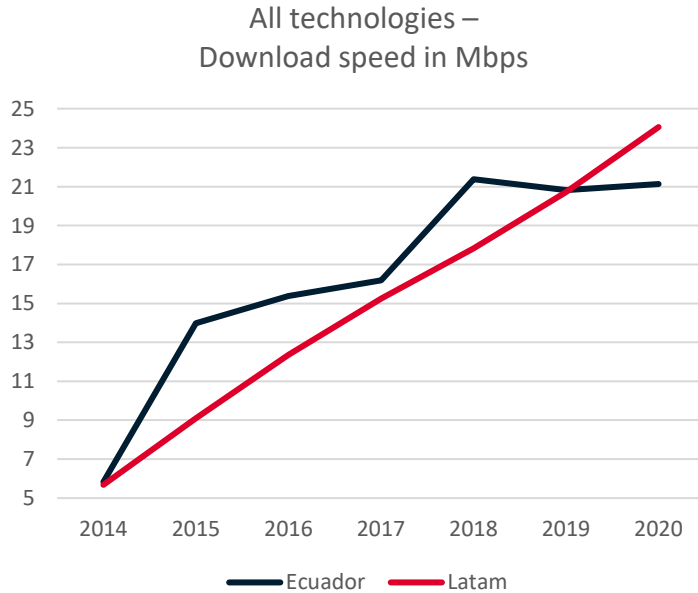
Deteriorating investment conditions may be linked to the slower roll out of 4G coverage in Ecuador: Ecuador has lagged behind the Latam region for 4G population coverage.



Potentially leading to lower adoption in Ecuador: Ecuador is below the Latam benchmark for mobile broadband and 4G connections as a percentage of the population.



...and, more recently, lower network quality: Ecuador was performing better than Latam for all and 4G download speeds up until 2018, when they started to decline as 4G adoption caught up with the region.

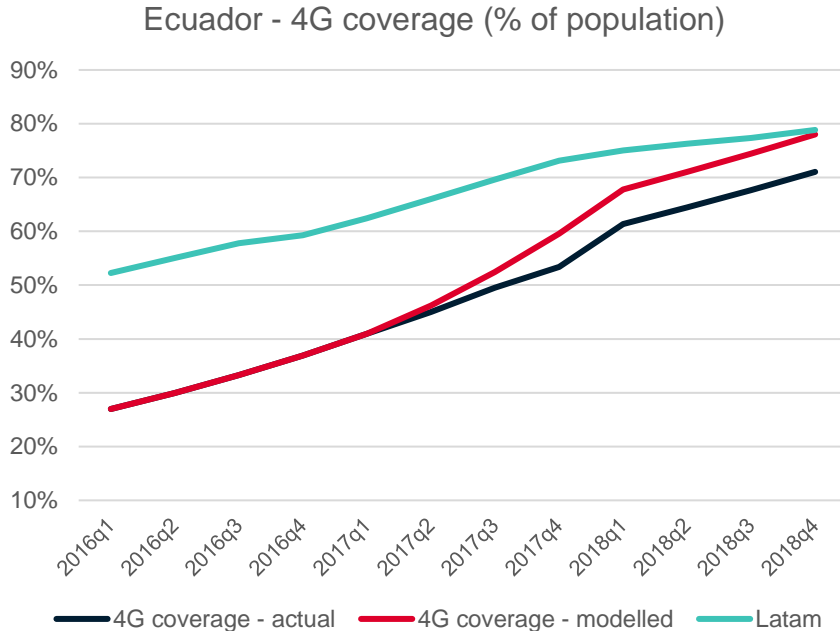


3. Impact of high spectrum prices in Ecuador

Simulation applied to the Ecuadorian market

- We have analysed how alternative spectrum prices would have impacted the historical development of the Ecuadorian mobile market.
- We focus on the impact on 4G coverage and download speeds. We do not consider the effect on consumer prices, since the global results in the economic study are not conclusive.
- To simulate the effects on the development of the mobile market (coverage and quality of service), we consider a scenario where the price of spectrum (CPRR) is in line with the level of the average price in Latin America.

Modelled 4G coverage in Ecuador using Latam benchmark spectrum prices

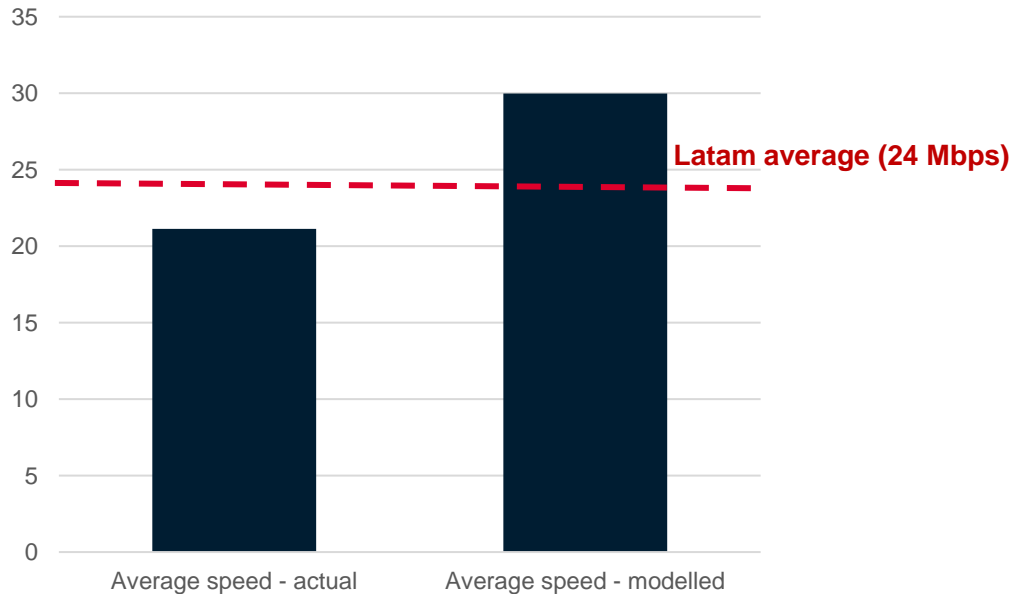


- This graph presents the 4G coverage in Ecuador as a percentage of the market population.
- Higher spectrum prices caused Ecuador to lag behind reaching 80% of population coverage by **a year**, compared to the modelled scenario and the regional average.

Modelled download speeds in Ecuador using Latam benchmark spectrum prices



Ecuador download speeds in Mbps
All technologies (end-2020)



- This chart presents the average download speeds (all technologies) for operators in Ecuador at the end of 2020.
- Based on the results of our simulation, lower costs of spectrum would have increased speeds by around 5 Mbps for the average customer between 2014 and 2020, and by 9 Mbps in 2020.
- This is equivalent to just over **40% faster download speeds** in 2020.

4. Conclusions

The GSMA global study shows that spectrum prices:



Are not fully explained by supply and demand factors



Some governments prioritise goals such as higher collection of fees



This has repercussions for businesses and consumers



Less coverage



Lower speeds



More expensive services?

Conclusions

1

The increasing annual cost of spectrum, and the relatively low amount of spectrum assigned to mobile, may have led to more challenging investment conditions in Ecuador.

2

A negative impact on investments in the 4G network is associated with lower consumer outcomes – coverage by population, adoption, and speeds in Ecuador have underperformed compared to a regional average.

3

Since high spectrum prices also reduce the capacity and incentives to invest in new generations, the success of 5G in Ecuador is also dependent on future spectrum pricing decisions.

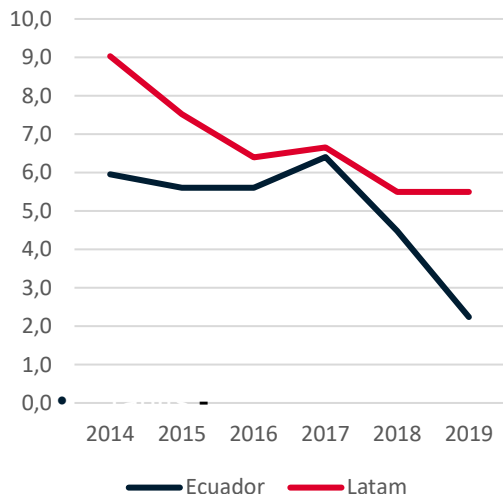
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Annual fees, in particular USO payments that increase with connectivity and spectrum use, have become an increasing proportion of the cost of spectrum in Ecuador. This may disincentivise efficient use of spectrum and improvements in connectivity.

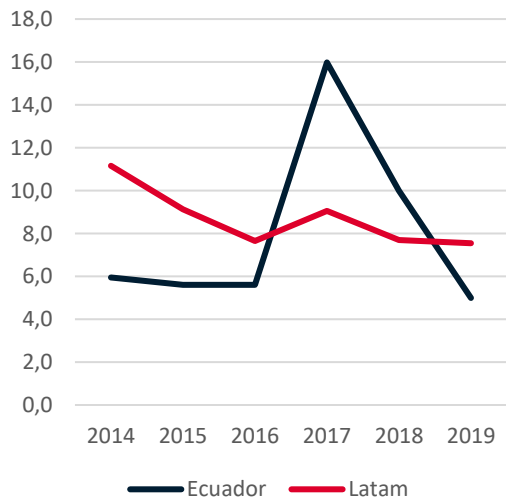
4. Appendix

Prices in Ecuador: The monthly price of data (for low- middle- and high-usage baskets) for consumers in Ecuador is around the average for the Latin America region.

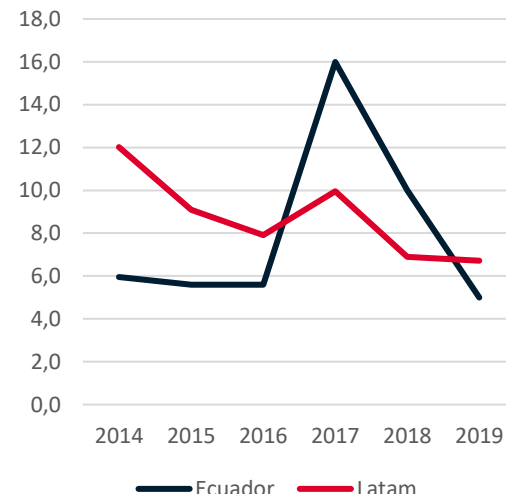
Low data-usage
(monthly cost in USD)



Medium data-usage
(monthly cost in USD)



High data-usage
(monthly cost in USD)



ARPUs in Ecuador: Average revenue per user (ARPU) in Ecuador was below the Latam benchmark, however the gap has closed as the average has come down for the Latam region in recent years.

