



*Analyzing the Influence of Regulatory, Economic,
and Policy Factors on Cost Models*

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Agenda

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Introduction

- The telecommunications industry is a **dynamic and highly regulated sector** that **plays a critical role in modern society and the global economy.**
- The **cost structures within this industry are significantly impacted** by a complex interplay of regulatory, economic, and policy factors.
- **Analyzing these factors is essential for telecom companies** to make informed decisions, allocate resources efficiently, and remain competitive in a rapidly evolving landscape.
- **The cost models employed by telecom companies play a pivotal role** in shaping the affordability, accessibility, quality of services, and financial sustainability for the orderly growth of the Industry.

Regulatory Factors

Regulatory bodies often use significant influence over the telecom sector. They are tasked with creating a level playing field, protecting consumers' interests, and ensuring fair competition. Regulatory decisions can directly affect cost models in several ways:

- **Licensing and Spectrum Costs:** Telecom companies need licenses and spectrum allocations to operate. Access to radio spectrum is vital for telecom operators. The cost of acquiring spectrum through auctions can significantly impact a company's CAPEX & OPEX, affecting long-term cost models.
- **Pricing Regulations:** Telecom regulators set price caps, tariffs, and interconnection charges. These decisions directly impact a telecom company's revenue and cost structures. Companies must adapt their cost models to comply with these regulations while maintaining profitability.
- **Quality of Service Requirements:** Regulatory authorities often impose stringent quality of service standards. Meeting these standards may require substantial investments in infrastructure and technology, impacting cost structures.

Economic Factors

The telecom sector operates within the broader economic landscape, and various economic factors have a profound influence on cost models:

- **Inflation and Exchange Rates:** Fluctuations in inflation rates and exchange rates can affect the cost of network equipment, international connectivity, and imported technologies, all of which impact the overall cost structure.
- **Economies of Scale:** Telecom companies often benefit from economies of scale. As subscriber bases grow, the average cost per user tends to decrease. Expanding the network to cover more areas may involve substantial upfront costs.
- **Income Levels:** The economic well-being of the population also plays a role. In regions with higher income levels, consumers may be more willing to pay for premium services, allowing telecom providers to invest in advanced technologies.

Policy Factors

National and international policies can shape the telecom sector in various ways:

- **Broadband Access Goals:** Government policies aimed at improving broadband access, such as the deployment of fiber-optic networks in underserved areas, can result in infrastructure investments and impact cost structures.
- **Data Privacy Regulations:** Stringent data privacy regulations require telecom companies to invest in cybersecurity measures, which can drive up operational costs.
- **Taxation Policies:** Taxation policies, Revenue share license fees including spectrum usage fees, property taxes on infrastructure, and value-added taxes/Goods and Services Tax on services, can influence pricing and profitability.

Methodological Choices in Cost Modeling

- When developing cost models, several critical methodological aspects need to be addressed.
- These include the costing approach, cost standard, cost elements, treatment of capital-related costs, treatment of revenues, the definition of the reference operator, services, increments, and geographical modeling.

Costing Approaches

Two primary cost modeling approaches are commonly used:

- **Top-Down Cost Model:** Built from an operator's financial data and suitable for forecasting but less flexible.
- **Bottom-Up Cost Model:** Built from basic inputs and allow for forecasts, scenarios, and assessing market contestability. They can be developed by both NRAs and operators.

The cost standard in cost models determines how costs are allocated to services. Three common approaches are:

- **Fully Allocated Costs (FAC)/Fully Distributed Costs (FDC):** Allocates costs based on service utilization.
- **Pure Long-Run Incremental Costs (Pure LRIC):** Calculates the costs saved if specific services or activities were not provided.
- **Long-Run Incremental Costs Plus Common Costs (LRIC+):** Allows for the recovery of common and joint costs on top of pure LRIC.

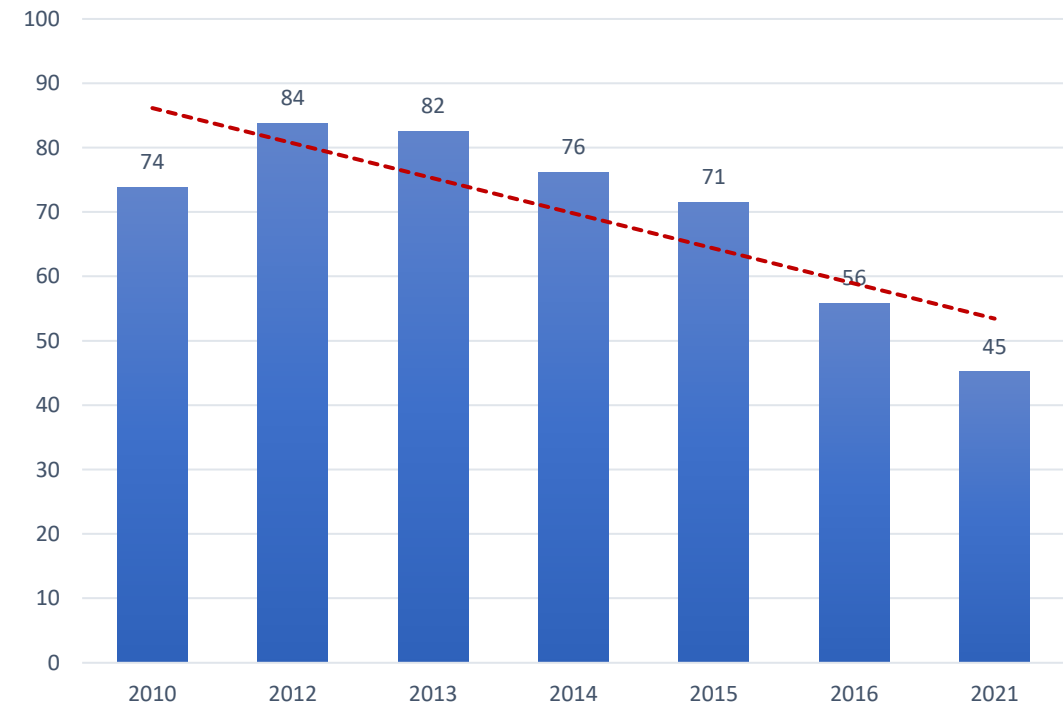
Case Study: Effects of Spectrum Auctions on Cost Models



Statement of Spectrum sold and its annualised spectrum amortisation per year as a % of annual revenue (Historical Basis)

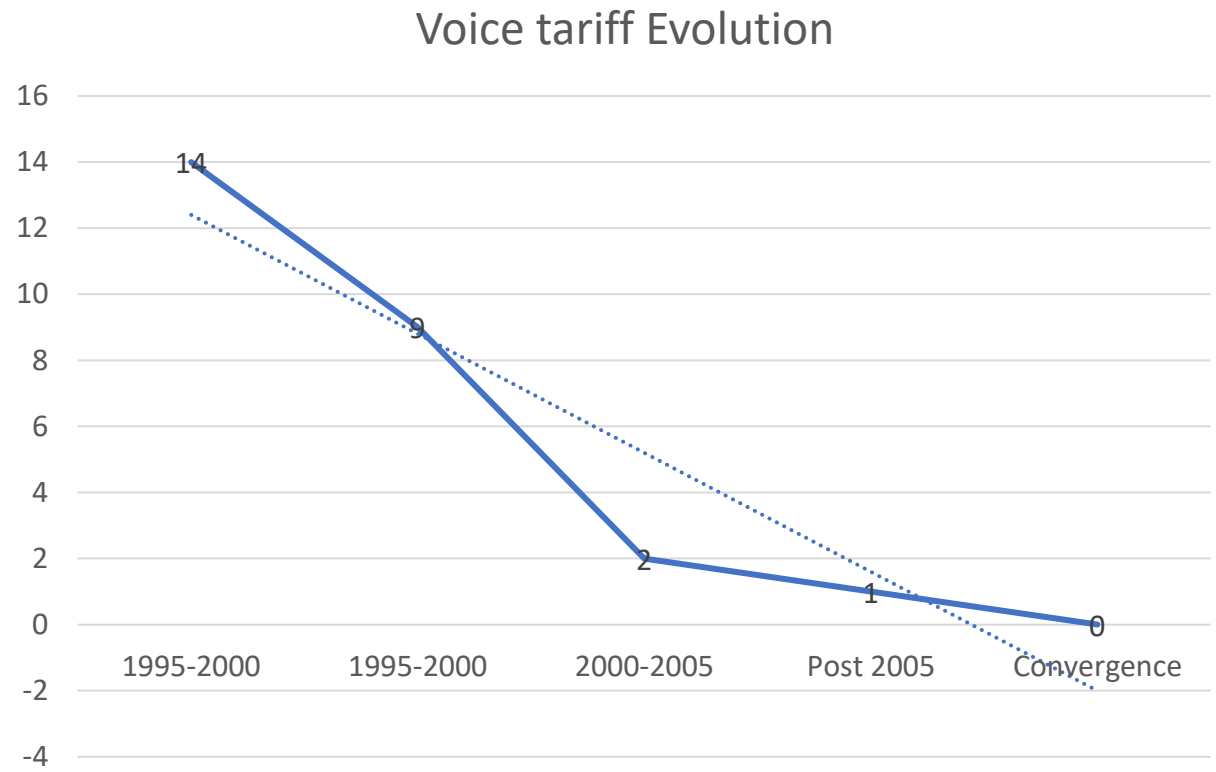
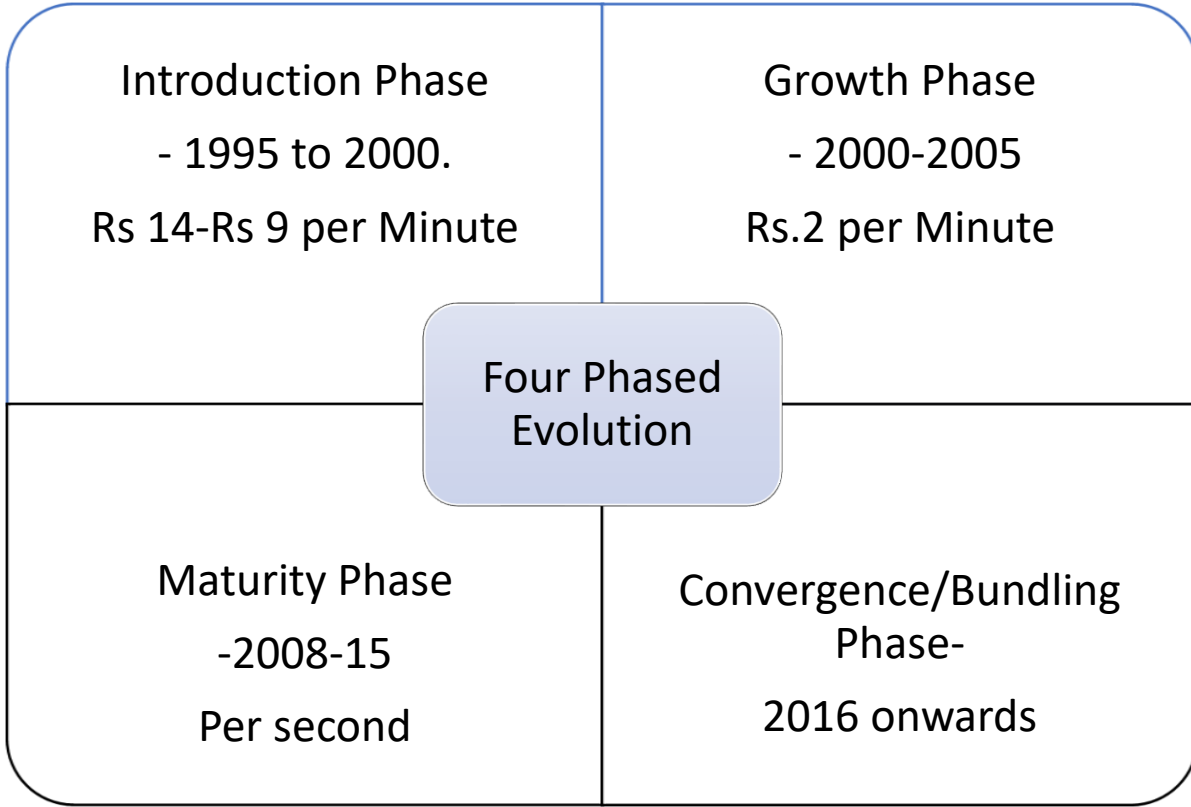
Year of Spectrum Auction	Gross Revenue of the year for Access Services	Auction Value generated (in cr.)	Quantity of Spectrum sold (in MHz)	Period of spectrum	Annual spectrum cost	Cummulative spend per year on Spectrum repayment	%age of GR for AS	%age of GR for Wireless
2010(2010-11)	131,682	76,664	1,785.00	20	3,833	3,833	2.91%	
2012(2012-13)	160,176	9,642	127.50	20	482	4,315	2.69%	
2013 (2012-13)	160,176	4,114	30.00	20	206	4,521	2.82%	
2014(2013-14)	174,811	61,162	353.20	20	3,058	7,579	4.34%	
2015 (2014-15)	193,902	113,932	418.25	20	5,697	13,276	6.85%	
2016(2016-17)	205,502	64,809	964.80	20	3,240	16,516	8.04%	
2021(2020-21)	204,742	77,815	855.60	20	3,891	20,407	9.97%	11%
		408,138	4,534.35		20,407			

Access Revenue per MHz per year (Rs in Cr)



Spectrum acquisition(Capex) costs about 60% of the capital employed..

India- Evolution of Tariff and Economies of Scale



Data tariff in India is one of the cheapest in the world. According to Cable Co. UK (Sept-23):

- The global average price of 1GB was \$2.59.
- India's average price of 1GB was \$0.16 – just 6% of the global average.

Entry-level all-inclusive telecom services at Rs. 7(\$0.08)/day -Less than the price of a cup of tea (Rs. 10/\$0.12)

Summing-Up

- The telecom sector is **not just a business** but a **critical enabler of our modern way of life** and the **backbone of our digital society**.
- **The influence of regulatory, economic, and policy factors on cost models in this sector is undeniable.** Therefore, **understanding these influences is essential** for policymakers, industry stakeholders, and consumers alike.
- To **ensure that cost models in the telecom sector remain fair, efficient, and aligned with the needs of society**, it is imperative that **regulatory bodies, governments, and telecom companies work together collaboratively**.
- This cooperation will ensure that the **cost structures in the sector evolve in a manner that promotes innovation, affordability, equitable access to telecommunications services for all, and the sustainability of the telecommunications sector for orderly growth**.