

Spectrum Pricing

Past Issues and Possible Solution

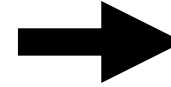
Parag Kar

What is the difference between Valuation & Pricing?

What is value?

The [CBV Institute](#) refers to the theoretical value (also called notional value) of a business/asset as the “fair market value.”

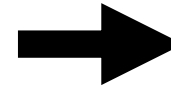
This is defined as “the highest amount of cash at which a business would change hands between a willing and able buyer and seller, in an open and unrestricted market when neither is forced to buy or sell and when both parties have reasonable knowledge of the facts.”



Open & Unrestricted



No Coercion – Buy & Sell



Knowledge of Facts

Value

What is price?

Price is what you pay and value is what you get
Warren Buffet



Demand & Supply

Price

Why is Price so Different from Value?

Why some buyers are willing to pay more than others?

- Strategic reasons – market superiority or dominance
- Leveraging Existing assets – synergies with existing assets
- Emotional reasons – these are beyond sound economics
- Demand & Supply – Less than optimal supply of assets

Hence, market leaders are always willing pay a higher price for bottleneck resources

High price of assets becomes an opportunity than a bane

Gives a leverage to capture market share to drive competitive edge

Raise the barrier for others to enter the market at any time in future

Driving Price to a much Higher Level than its “Intrinsic Valuation”

Indian Spectrum – What has been the experience?

- Lack of demand & supply synergies
 - 2010, 2014, 2015 saw very high demand very a low supply of spectrum
 - 2016, 2021, 2022 saw a very low demand vs a high supply of spectrum
- Most valuation were based on past auction prices
 - Raised the barrier to entry for new operators
 - Drove weaker players out of the market
 - Left huge quantum of spectrum lay unused
 - Drove the sector uncompetitive
 - Reduced consumer choices
 - Prevented us from unlocking value of auctions

Telecom Market Shrunk
from 14 to just 3 players

Remaining Players are
heavily levered

Govt's Leverage has
decreased significantly

What approach should have been followed?

- Spectrum should have been valued ground up
 - Using intrinsic valuation models based on mathematical models
 - Auction price should have been used on for reference
 - Maintaining balance between supply and reserve price
 - Correcting pricing distortion across bands and circles
 - Laying out the models in public for scrutiny and discussions
 - Holding on to the valuation principles for consistency
 - Setting reserve prices aligning with the weakest player

Would have helped prevent
“winners curse”

Make the bidder more
responsible in bidding

Would have preserved
market competitiveness

What about level playing field?

- **The key is to ensure a fair opportunity for all**
 - By ensuring level playing condition for access to resources
 - By not needing to hold a parity of price for spectrum
 - Acquired at different times and different conditions
 - By transparently laying out principles for pricing of spectrum
 - By penalizing reckless behavior during auction
 - By encouraging responsible bidding of spectrum
 - By ensuring Must the weakest player is not disadvantaged

Would help drive competition in the market

Would help reduce barrier to entry in the market

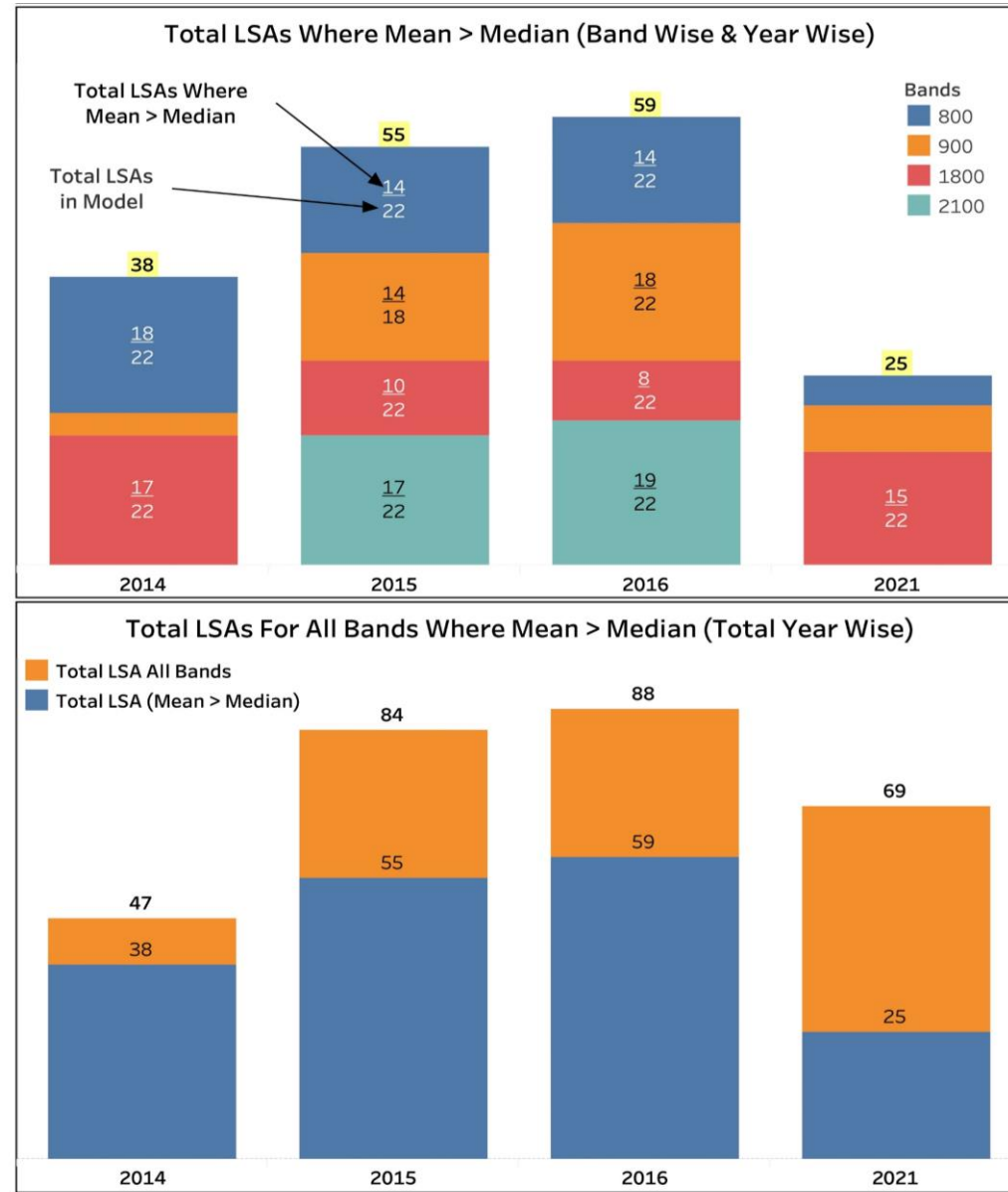
Would enable the consumers more choices

Key Issues of all Auctions

- Pricing Strategies Mixed “Market Price” As “Valuation”
- Pricing Models Become too Simplistic
 - It threw up indexed value of past auction as RP
- Pricing Models did not filter Outliers
 - Mean was used instead of Median for Aggregation
- Pricing became a barrier to market entry
- Pricing left a large quantum as unsold

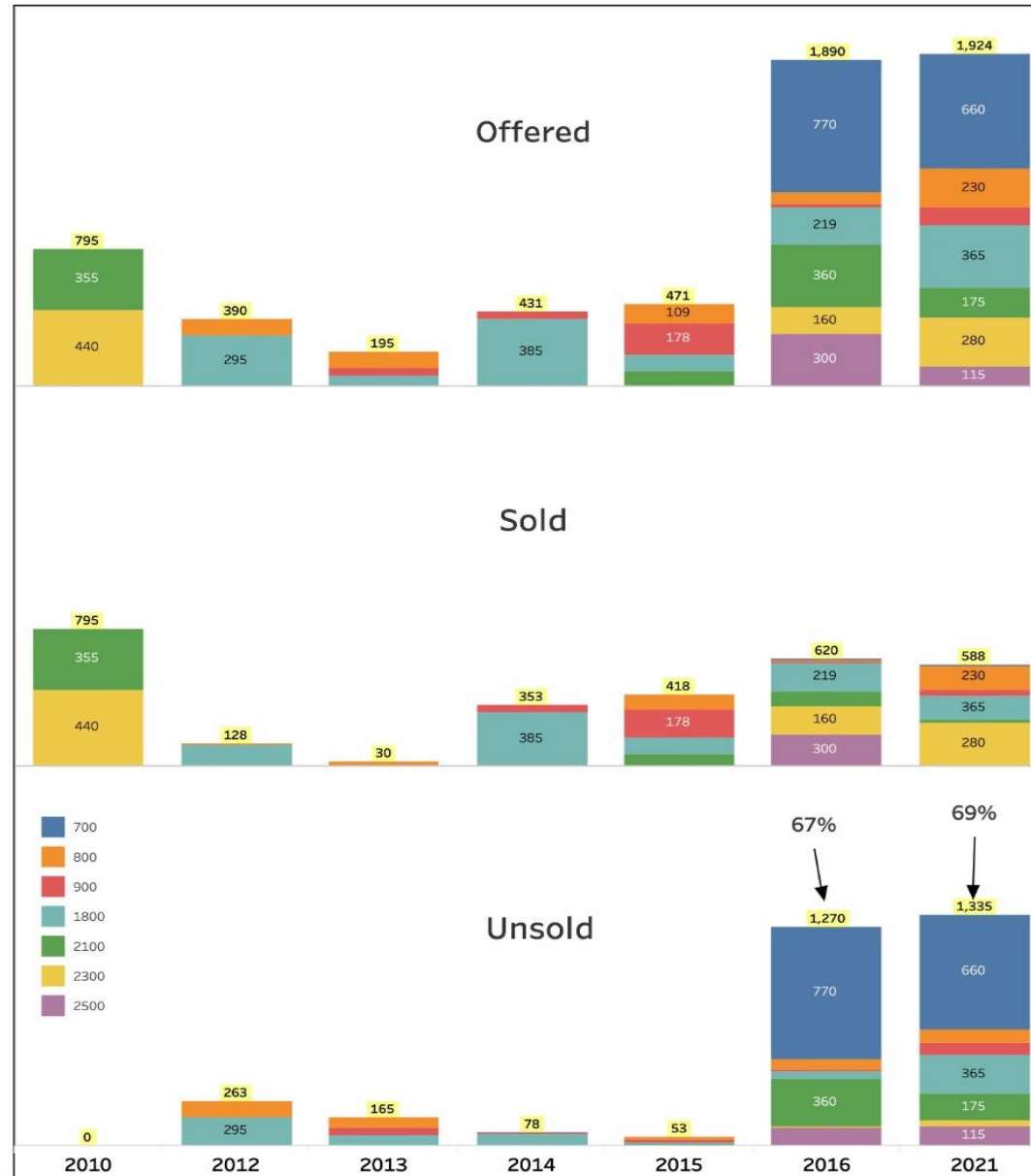
TRAI's Pricing Models – Issues

Mean vs Median



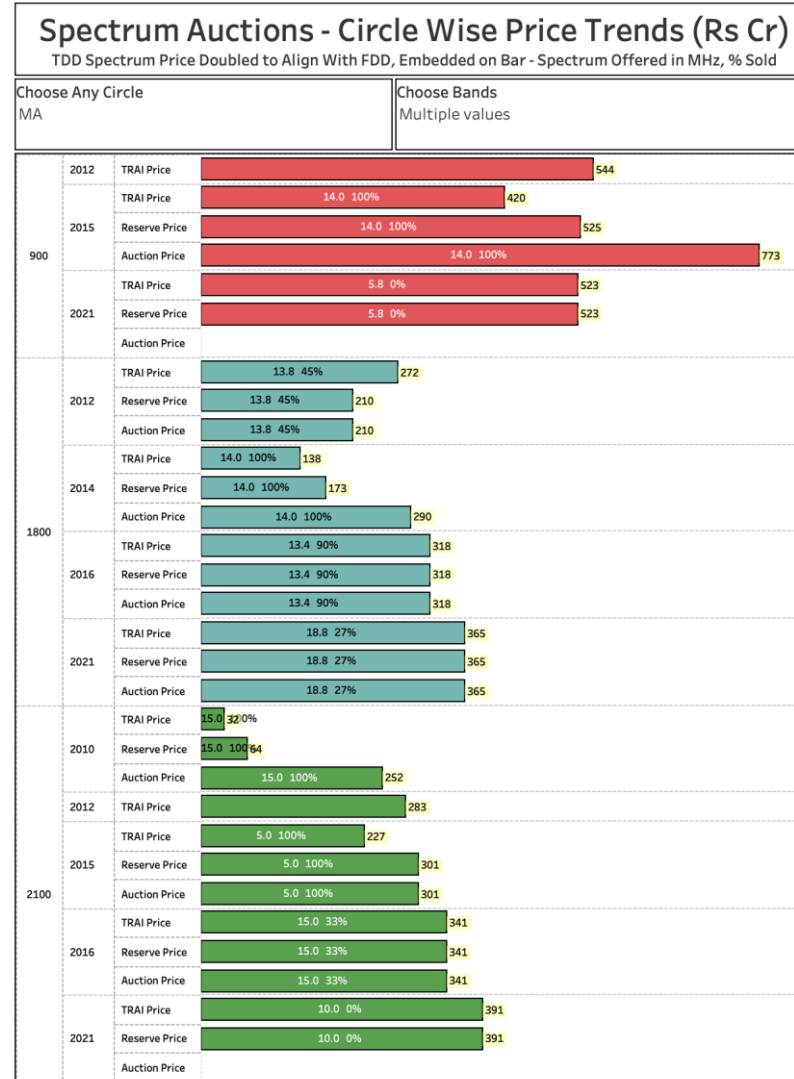
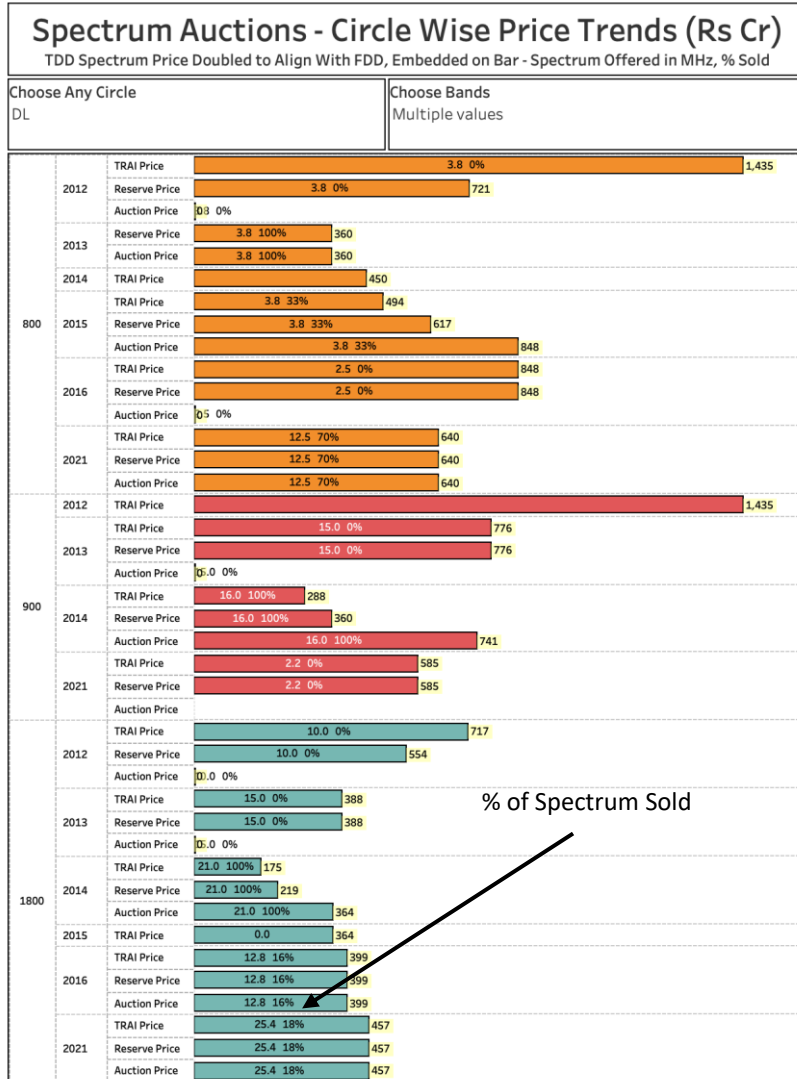
TRAI's Pricing Models – Issues

Sold vs Unsold (MHz)



**Resulted in
Huge Amount of
Unsold
Spectrum**

TRAI's Pricing Models – Issues



Last Price was considered as Market price even when a small fraction of spectrum got sold

Reserve Price Estimation Model

- Calculate valuation using ground up pricing models for various LSAs
 - e.g. Producer Surplus, Production Function, Revenue Surplus, Indexing, Multiple Regression, etc.
 - Use last auction discovered price as one of the pricing inputs
- Calculate the Average valuation using Median to filter outliers for each LSA
- Calculate pan-India valuation by adding valuation of individual LSAs
- Estimate LSA weight of each LSA using AGR/GDP
 - e.g. If pan-India AGR is 100 and AGR of Delhi is 10, then Weighted Average of Delhi = 0.1
- Calculate the valuation of individual LSAs
 - By multiplying with weights of pan-India valuation
- Calculate the Reserve Price by using a scaling factor (e.g. 0.8)

Thank You