

### 3G Auctions: Winners and Losers

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3G is seen as a service that will usher in new kinds of services such streaming video on the mobile at much higher speeds than 2G. So the possibility of generating high revenues and hopefully high profits has egged on companies to put in winning bids. The recently concluded 3G auctions will contribute Rs 67,719 crores (nearly 60% of the sector revenues) with Rs 50,968 crores from the private sector and Rs 16,751 crores from BSNL and MTNL. The government is a clear winner.

Some key factors that determine the bid prices are: perceived scarcity of spectrum, its potential availability, cost of service provision, the commercial viability of the particular band, speed at which services can be rolled out and the revenue potential. For 3G, there were 3-4 bands (varied in different service areas) of 5MHz in the 1.9 GHz band. It was also known that Broadband Wireless Access (BWA) auctions would take place soon after the 3G auctions. The possibility of using both BWA and 3G to provide a seamless experience to the user is compelling.

However, the claimed high bids paid by operators do raise concerns about the eventual health of the sector. Notably, soon after the auctions, the RBI had said it would be “monitoring the liquidity situation as the telecom companies bid aggressively for the 3G spectrum”. At a time when the central bank is tightening the liquidity in the system to tackle inflation, the telecom players could face challenges in accessing finance. Besides the license fee, telecom companies would need to invest in rolling out infrastructure. With the global markets situation deteriorating, it would be more difficult for operators to access financing.

So the issue is did all operators pay high? How does this payment compare across different states and with international players? We analyze the price paid by the bidders at the state level in terms of cost (in Rs)/MHz/population (Rs/MP), the normally accepted metric and compare it with international trends.

Of the Rs 50,968 crores, Rs 19,692 crores which is nearly 40% is from Delhi and Mumbai. The winning bids in Delhi, Mumbai and Kolkata were Rs 351/MP, Rs 297/MP and Rs 70/MP respectively while the lowest bid was Rs 3/MP for Assam and Bihar service areas (Table 1). The relatively higher bids for Delhi and Mumbai indicate the primacy of the revenue generation potential of these densely populated cities (population density of Delhi 9294/sq km and nearly 22,000/sq km for Mumbai). The per capita of these two cities is much higher, indicating a higher potential to pay.

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In the US, in the 2008 auction in the 700 MHz band prices varied from nearly \$ 0.50 to \$ 1.00/MP in different bands. In the Swedish auction (2007-08) of the 2.6 GHz band, the cost/MP was Euro 0.13. The Hong Kong auction of the same band was priced at Euro 0.24/MP. The higher price in Hong Kong in relation to Sweden was accounted for by the high population density in Hong Kong. Comparing this with the data in the above para, it is clear that not only for Delhi and Mumbai, but for a number of states, prices compare or are higher with respect to the costs for US, Sweden and Hong Kong.

However, comparing the cost/MP of a developed country with that in India is not appropriate as there are large rural areas in India, where service provision costs are higher and ability to pay is lower. Therefore, operators are likely to bid lower in such areas. In order to make a more relevant comparison, it is useful to look at cost/MHz/**urban** population (cost/MUP)

Since the three metropolises of Delhi, Mumbai and Kolkata are categorized as urban areas, there are no associated 'rural' areas, the cost//MUP is the same as given above. But, since these metropolises have a significant level of slum dwellers with low levels of income, the prices paid need to be discounted. Among the remaining service areas, Karnataka has the highest cost of Rs 163/MUP while MP (Rs 20.50/MUP) has a lower price than Assam, North East, J&K (approx Rs 22/MUP). These prices are on the whole higher than those paid in recent auctions internationally.

If we compute the cost/MP as a percentage of GSDP/population, which is an indicator of the cost in relation to income, and lower numbers indicate a better outcome, we find that Assam has the lowest value at 0.011. The highest values are for Delhi and Mumbai at 0.464 and 0.325 respectively. The ratio of Delhi is nearly 1.4 times that of Mumbai. This indicates that the relative price paid for Delhi is high, especially if we look at the lower population density of Delhi leading to a higher service provision costs in relation to that of Mumbai. Similar ratios for US, Sweden and Hong Kong are 0.0022, 0.0009 and 0.0005 respectively.

However the above ratio can not be taken into account in isolation, as costs of service provision are influenced by state specific characteristics. Thus, although these ratios are small for Assam, Himachal and North East, the lower population densities and hilly terrains will increase the cost of service provision. Large rural populations in these states also lead to lower Average Revenue per User.

Thus, in comparison to international standards, Indian bidders have bid high. The paucity of spectrum for 2G, and the uncertainty with respect to 2G and 3G allocations, have contributed to this. The Indian telecom sector can not hope to be as competitive if the prices to be paid for spectrum - a critical input, do not compare with international standards. Lower bid prices would have led to easier financing for bidders and early roll outs. An accelerated penetration would have helped the government to roll out its developmental agenda of tele-health and tele-education etc faster. So, with these prices has the government really been a winner?

Table 1: Cost of spectrum for different service areas

Service Area	Cost for 3G Auction <i>Rs crores</i>	GSDP/ Population <i>Rs/capita</i>	Cost/MP <i>Rs/MHz/population</i>	Cost/MUP <i>Rs/MHz/Urban Pop</i>	(Cost/MP) a percentage of (GSDP/pop)
Andhra Pradesh	1373	44253	33	121	0.074
Assam	41	25554	3	23	0.011
Bihar	203	15492	3	30	0.021
Delhi	3317	75621	351	351	0.464
Gujarat	1076	52142	37	99	0.070
Haryana	223	58990	18	62	0.030
Himachal Pradesh	37	55128	11	124	0.020
Jammu & Kashmir	30	27710	5	22	0.019
Karnataka	1580	46157	54	163	0.117
Kerala	312	47161	18	73	0.039
Kolkata	544	64231	70	70	0.109
Madhya Pradesh	258	14987	5	21	0.036
Maharashtra	1258	39136	34	80	0.087
Mumbai	3247	91324	297	297	0.325
North East	42	22284	7	24	0.029
Orissa	97	30260	5	34	0.016
Punjab	322	55460	22	68	0.041
Rajasthan	321	30496	10	42	0.032
Tamil Nadu	1465	49660	43	100	0.086
UP(E) + UP(W)	439*	21632	6	59	0.018
West Bengal	124	64667	12	42	0.018

The data for bid prices has been taken from [www.dot.gov.in](http://www.dot.gov.in). The GSDP is for 2007-08 and population data is for 2008 (The data is from various web sites).

Although UP(E) and UP(W) are two separate service areas, we have clubbed them together for the purpose of analysis.

\* This is the average of UP(E) and UP(W).