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Lessons from India on the Role of Institutions in Spectrum Trading

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1. Introduction

Mobile phones have had one of the fastest adoption rates for any technology globally. Mobile services and mobile broadband have contributed to the economic growth and are increasingly seen as vehicles for development, especially in developing countries. As is the trend globally, spectrum has become a critical resource for further growth in the sector, especially with greater demand for data.

The environment and hence the context of spectrum management varies significantly across developed and developing countries. Spectrum management in most developed countries is driven by the need to make the telecom sectors competitive and exploit technological advances for innovative cutting-edge services. The citizens and enterprises have a high propensity to pay. This is in an environment where there is near universal coverage of high-end services, both on wired and wireless infrastructure.

On the other hand, in developing countries, wired infrastructure for broadband and backhaul services is very limited. In the wireless domain, supply side constraint of low spectrum availability prevails, as often institutional mechanisms for refarming, trading and sharing are inadequate. On the demand side, operators are obliged to serve large populations who are unable to migrate to newer technologies due to high cost of devices and services and lack of digital literacy in the population. The customers also have a lower propensity to pay, thus making it commercially demanding for operators to introduce new technologies. Most developing country leaderships also recognize that growth in broadband and economy is a two-sided relationship.

In this scenario, governments in developing countries face challenges in design of appropriate institutions and instruments to enable the citizens to leverage new wireless and broadband technologies. With the advent of 5G, the challenges for developing countries have been exacerbated on several counts. These deal with the incumbent operators needs to maintain multiple technologies such as 2G, 3G and 4G, as nearly more than 50% users may not have resources to upgrade to smart phones. This reduces the amount of investments available to operators for upgrading the network to new technologies.

5G requires availability of both new spectrum bands, both licensed and unlicensed. The role of regulatory agencies in making adequate amounts of such availability in a time bound manner in sufficient quantities at commercially viable prices for operators is critical. This requires strong institutional capacity, design and interlinkages amongst existing institutions, and adequate technical capabilities.

Telecom regulatory institutions in many developing countries have evolved from erstwhile government departments and have the then existing command and control orientation towards spectrum management. But as technologies advance, regulatory institutions may require to adopt new instruments for regulation and services. Examples of such instruments are spectrum refarming, sharing, trading, etc. Several regulatory agencies, especially in developing countries may not have the capacity to introduce these, as besides technical capabilities, these may require coordination across agencies, such as vendors and other government agencies. These aspects may pose challenges due to the poor existing state of institutions (Jain and Dara, 2017; Minervini, 2014).

India introduced spectrum trading in 2015 in response to the market and technological developments. By analyzing the issues in the second largest mobile market i.e. India, through a case study, we hope to develop a framework for spectrum trading in developing countries. These have been well documented for developed countries (Anker, 2017; Bohlin, et al, 2007; Crocioni, 2009; Freyens, 2011; Kwon et al, 2017; Minervini, 2014), however, there are few empirical studies from developing countries.

We aim to review the evolution of a spectrum trading regime in India and compare it with existing regimes in USA and UK and other developed countries. This will help to delineate the policy for going forward. It will also help to identify the role of institutional environment in influencing the evolution of spectrum trading framework. This could also be a tool for future planning.

Keywords

Spectrum management, market orientation, command and control, transition, spectrum trading, competition agencies

1. Introduction

The rapid proliferation of wireless technologies has led to review of existing spectrum management frameworks in many countries. This has often been in parallel with other transitions such as privatization of state-owned incumbent, setting up of regulatory agencies, involvement of the private sector and other macro-economic and technological changes. The explosive growth of mobiles and Internet has added to the intense regulatory flux in the sector. Most developing countries are more dependent on wireless for access to telecom services, due to the poor state of landline infrastructure. For example, in India, the mobile and landline penetration per capita is nearly 80%. The percentage of people having mobile only access to the Internet is around 80%. This pattern is broadly similar across developing countries.

The near total dominance of wireless technologies in providing Internet access in developing countries has put tremendous pressure on regulatory agencies for rapid adoption of more market oriented regulatory instruments. Such adoption in developed countries led to the availability of fast, innovative services there. This has led to pressures from citizens and operators in developing countries to open up the regulatory framework in their own countries.

Changes in the administrative regimes in the telecom sector have been difficult in developed countries. This is more so for developing countries where regulatory capacity is poorly developed. This lacuna is compounded by the existing weak institutional structures (Estache and Wren-Lewis, 2009; Jain and Dara, 2017). The macro changes in most countries were driven by political, technological and ideological environment around the mid-80s, through very visible changes in the sector structure enabled by corporatization and privatization of state owned incumbents and entry of private operators. From a sectoral perspective, changes in the spectrum management regime are narrower in their scope. However, the social, commercial and national competitive aspect of the same are far more significant. For example, the GDP contribution of broadband in India is estimated to be Rs seven lakh cr.² Consequently, the implications of crafting an appropriate regulatory regime for the sector and for spectrum is critical, more so for developing countries. For example, the introduction of LTE and the consequent economic impact of faster speeds and higher bandwidth for Internet has led to even greater imperatives for regulators in developing countries to adopt market mechanisms for managing spectrum including auctions, service neutrality, trading etc.

Despite the strong imperatives, regulators in developing countries have faced constraints in adopting market-oriented instruments, possibly due to the lacunae mentioned above. Spectrum trading which is considered a major step towards transition to a market orientation still presents significant challenges as it requires setting up new frameworks that create contentious policy and regulatory issues. However, there are few case studies that have documented such a situation, especially in a developing country context. India provides a valuable environment in which to carry out such a study, due to the complexity of the sectoral environment. This is

² <https://www.firstpost.com/tech/news-analysis/internets-contribution-to-indias-gdp-may-grow-to-nearly-16-percent-by-2020-study-3836291.html>, accessed on January 21, 2019.

characterized by a spectrum management regime in the process of transitioning from a legacy system to a more market-oriented framework that includes instruments such as auctions, service neutral licenses, and spectrum trading.

2. Objectives

We aim to review the evolution of a spectrum trading regime in India and compare it with existing regimes in USA and UK and other developed countries. This will help to delineate the policy for going forward. It will also help to identify the role of institutional environment in influencing the evolution of spectrum trading framework. This could also be a tool for future planning.

3. Literature Review

Due to technological developments in the wireless sector, there exists opportunities for services that were earlier limited to specific bands to be provided over different bands with characteristic propagation parameters.

Allocation of spectrum through auctions and subsequent acquisition through trading or leasing are considered market oriented approaches. A more flexible market oriented approach also entails more flexible property rights and lowering control of the government, by increasing the amount of unlicensed spectrum and providing for both technology and service neutrality (Crocioni, 2009; Jain, 2010; Jain and Dara, 2017; Xavier and Ypsilanti, 2006).

Auctions ensure allocations to those who value it the most while secondary markets allow spectrum to be reallocated in response to emerging market and technological environment. Since license periods are typically 20 years, a secondary market brings in efficiency as it allows firms to acquire spectrum to match technological changes that occur in shorter cycles.

Spectrum trading has been identified as an efficient way to utilize spectrum. Countries such as USA and UK and EU have deregulated their markets for spectrum trading. In UK, beginning in 2004, different types of trading modes and degrees of flexibility have been considered as basic elements of a trading regime. USA has created different types of leasing frameworks. In the EU, the scope within which such trading must happen comprises protection of public interest, adoption of a transparent process within the available regulatory framework. It is required that the latter should include addressing issues of market failure such as hoarding and blocking (Anker, 2017; Freyens, 2011; Jain and Dara, 2017; Minerveni, 2014; Yoon, 2012).³ While spectrum trading, along with other liberalization and other steps could lower entry barriers, it could also lead to competition concerns by allowing concentration of spectrum.

³ https://main.trai.gov.in/sites/default/files/Recommendation_Spectrum_28012014.pdf, accessed on January 15, 2019.

The gamut of activities that comprise spectrum trading include full or partial transfers, leasing, sharing and pooling. Spectrum trading as a practice was fairly well established in EU by 2011⁴. However, leasing of spectrum was not as common.

Crocioni (2009) provides for the elements in the regulatory framework that are required to be established for secondary markets to take off. It identifies the impediments to trade based on an analysis of the then existing trading regimes. With the current state of technology, spectrum trading is characterized by few transactions (thin markets). Providing for removing impediments in such a market would lead to high incremental benefits.

Spectrum allocation may be associated with use it or lose it approach so as to ensure technical efficiency. Trading allows for allocative efficiency (Freyens, 2011). Given the uncertainty and transaction costs, it is argued that use it or lose it approach is not as economically efficient as spectrum trading as it does not take into account the dynamic efficiency aspects.

Jain and Dara (2017) identify four characteristics of a trading regime as “a) Quantity of spectrum allowed to be traded, b) Actors permitted to trade, c) Transfer of linked roll-out obligations d) Transaction costs of a trade” and used it to classify and assess regimes across the scale of administrative and market orientation.

Going beyond spectrum trading, EU regulators are now developing an approach for license shared access (LSA) (Marsden and Ihle, 2018). This paper suggests going beyond a bilateral approach to one that incentivises incumbents to auction their spectrum for shared use. Anker (2017) identifies the role of the government in implementation of property rights and unlicensed access.

However, we find there are hardly any detailed studies of spectrum trading and more so for a developing country. This is largely possibly due to the recency in its introduction and also a dearth of studies focusing on developing countries. A detailed case study provides a rich context and brings out the interplay between institutional actors, technology and regulation.

4. Methodology

We have adopted a single case study approach in this paper (Eisenhardt, 1989; Yin, 2009). We used secondary sources of data to include literature, TRAI and DOT consultation papers, and documents available from their websites. We document India’s transition from a Command and control approach to more flexible approach involving spectrum trading. Our focus is on Spectrum Trading. We focus on the evolution of policy and the involved actors.

⁴ https://www.squirepattonboggs.com/~media/files/insights/publications/2011/10/spectrum-trading-in-the-eu-and-the-us--shifting-_/files/tel12_squire-sanders_ver4/fileattachment/tel12_squire-sanders_ver4.pdf, accessed on January 10, 2019.

5. Spectrum Trading in India

In order to show the development of spectrum trading in India, we first highlight the policy and regulatory environment with respect to spectrum in India. Then we give the developments in two cases of spectrum trading with a focus on the instruments, outcomes and organizational contexts.

5.1 Transitional Steps in Adopting Market Mechanisms

The Department of Telecom is the highest administrative and policy making entity. The sector regulator, Telecom Regulatory Authority of India (TRAI) is the sectoral regulator. Operators may appeal against TRAI/DoT decisions in the Telecom Dispute Settlement and Appellate Tribunal (TDSAT). The Competition Commission of India set up under the Competition Act, 2002 provides regulation for competition issues across sectors. The decisions of TDSAT may be appealed against in the Supreme Court of India.

Beginning with the DoT as the policy maker, regulator and service provider, Indian telecom sector has been liberalizing since 1995. Below are the highlights:

1. Private participation in both mobile and fixed lines was introduced through auctions for private operators. Licenses were technology specific for mobile and were based on band and whether GSM, or CDMA could be provided. Licenses specified the service area, period of license, roll out obligations.
2. In 1997, TRAI was set up. But TRAI did not have scope to manage the spectrum. This task was with the WPC, DoT. WPC of DoT lays down the National Frequency Allocation Plan which specifies the current and future spectrum usage bands. TRAI could make recommendations regarding wireless services, such as timing, number of players, bands to be allocated, services to be provided, instrument for allocation. SACFA, an interministerial body provides clearances for spectrum.
3. In 2000, DoT was corporatized to BSNL, the telecom operating arm. BSNL had the mandate to provide telecom services throughout the country, other than Mumbai and Delhi. In the latter two places, MTNL was the partially owned government operator.
4. Mobile 2G services were initially allowed in the 900 MHz band with allocation of only 4.4 MHz, which was the start-up spectrum or minimum amount of spectrum required for starting GSM services. In 2003/4, 1800 MHz band was opened for GSM services with 6.2 MHz as start-up spectrum.
5. The public sector entities were given spectrum in the 900 MHz band for 2G services. The metro service areas were allocated on a beauty parade model, while the state

licenses were given on an auction basis. Fixed line licenses were also given on the same basis

6. DoT introduced 2G CDMA services in the 800 MHz band around 2003/4
7. The Unified Access Service License was introduced to bring in parity amongst different services such as fixed and mobile and technologies such as GSM and CDMA.
8. Besides the one-time license fee, operators were required to pay Spectrum Usage Charges (SUC) as a percentage of the revenue share that was based on the amount of spectrum in a particular band.
9. Since the amount of spectrum initially given was too little to cater to the growing needs of the operators as mobile proliferation increased, DoT came up with a Subscriber Linked Criteria (SLC) as a parameter for giving additional spectrum.
10. With the growth in mobile subscribers, there was demand for new operators to enter the market. The incumbents wanted additional spectrum. This differing demand led the government to tighten SLC norms even while it introduced new players through a FCFS with start-up spectrum.
11. The 2100 MHz and 2300 MHz band was auctioned in 2010 for 3G and BWA. Roll out obligations for both were different, with a greater focus on rural for the 2300 MHz. The reserve price for both these bands was substantially different, with the 2100 MHz much higher than the 2300 MHz. No rationale was provided for this. Owing to the potential for growth and uncertainty in spectrum availability, there was a lot of competition and bids for some of the service areas was very high.
12. In 2012, in response to the cases that had been filed in the Supreme Court against the arbitrariness involved in the earlier allocations through FCFS, the SC cancelled all the licenses allocated between 2006-2007/8. It also mandated auctions as the mandated method for allocation. This created a lot of uncertainty in the sector.
13. The CAG imputed the loss of revenue to government for spectrum given through FCFS by linking the prices paid in 2100 MHz band to the spectrum allocated through FCFS and came up with a high number that raised media ripples. There was no linking of the 2010 prices to the constrained availability of spectrum and uncertainty due to the court cases surrounding the FCFS during 2004-2008.
14. Auctions for the released spectrum through the cancelled licenses continued through 2013 to 2015. TRAI's mechanism for linking the band wise price obtained in the previous auctions contributed to high prices and hence constrained demand. Consequently, a lot of spectrum that was put up for auctions went unsold.

In 2016, DoT put up several bands, including new bands such as the 700 MHz and 2500 MHz for auctions. Unexpectedly, the 700 MHz spectrum auctions saw no bidding, despite the value of this spectrum for coverage and for 4G. Given the high prices that arose for the 2300 MHz band, operators bid for the 2500 MHz band, despite the poorly developed ecosystem for it at that time. This also indicated the operator's recognition of the emerging demand for increased data usage and bandwidth. The characteristic of this band to support high data rates and bandwidth created a demand for it.

15. The allocations of spectrum during 2004-2008 led sector saw the emergence of a large number of operators per service area. The cancellations of licenses in 2012 created regulatory uncertainty. In addition, a tapering demand for voice services led to several operators having difficulties in keeping their businesses viable. This led to a series of consolidation moves.
16. TRAI process for determining reserve prices for new bands was to look at auctions in other countries and link it to the 2100 MHz price there. The emergent ratio was used as the basis for determining reserve price in India, by linking it to the price of auction of the 2100 MHz band in India.
17. In 2015, DoT came up with spectrum trading guidelines. In the past, it had also attempted to harmonize spectrum.
18. A UL regime was introduced so that any service could be provided using a single license and spectrum was delinked from licenses.
19. Spectrum was 'liberalized' and such spectrum was technology neutral. All spectrum acquired through auctions was considered liberalized. Only such spectrum could be traded in the secondary market. Spectrum that was allocated administratively could be converted to liberalized by paying the difference between the administrative and auctioned prices prorated for the remaining part of the license period.
20. DoT came up with trading guidelines in October 2015. These provided for:
 - a. Only outright sale. Leasing was not allowed.
 - b. Only liberalized spectrum could be traded.
 - c. Block sizes for trading were specified and were linked to the band. The block size for trading in the 2300 MHz band was 20 MHz in TDD mode whereas the block size for 900 and 1800 MHz bands was 2x200 KHz.⁵

⁵ http://dot.gov.in/sites/default/files/2015_10_13%20Trading-WPC_0.pdf?download=1, accessed on January 20, 2019.

- d. For transactions involving only part sale, both the buyer and seller would have to meet the entire roll-out obligations associated with that spectrum. If, however, the buyer had met a part of its obligation through its earlier spectrum holding, then such roll-out would be considered towards the buyer's roll-out obligation with respect to the traded spectrum.
- e. Only access spectrum could be traded, as that was the only spectrum available through auctions.
- f. Trading could happen only pan LSA.
- g. The original validity period of the license would apply to the traded spectrum.
- h. The seller is required to clear all dues prior to concluding any agreement for spectrum. Any dues recoverable after the effective date of the trade would be the liability of the buyer. If any amount was found recoverable subsequent to the effective date of the license, then it would be at the government discretion to decide to recover it either from the seller or buyer or jointly.
- i. The buyer should be in compliance with the spectrum caps declared from time to time with respect to the total spectrum available subsequent to the trade.
- j. Spectrum could be traded only after a period of two years of its acquisition.
- k. The seller needed to clear all the SUC payable until the effective date of the trade.

The amount received from trading would be counted against the AGR of the buyer for the purpose of calculating both the license fee and the SUC.

By 2016, there was a huge debt burden for the private operators, as they had paid high prices in auction. At the national level, there were concerns about the health of the sector as most of the borrowing was from the public sector banks. In 2016, Reliance Jio, an operator that had acquired the spectrum in the 2300 MHz band announced the roll out of its 4G services. It provided free “introductory” data packs and unlimited voice calling on its VoLTE network. While there were limits on the time period for which such offers could be made available, continued the same through some regulatory jugglery. RJio, a part of the Reliance conglomerate, had deep pockets, and therefore could afford the loss in revenue at the cost of winning market share. Its service provided large bandwidths and good speeds, fuelling the demand for data and content services. Simultaneously, RJio provided a cheap, entry level handset that provided a colour screen for viewing content. It also provided an option of bundling the handset with data services, making it attractive for a large number of subscribers who could not otherwise have afforded data services to opt for this service. RJio captured a large subscriber base within a short period of time. The shifting away of some subscribers from incumbents and new subscribers finding the RJio services attractive created further financial pressure on incumbents.

The government then set up an Inter-ministerial group to identify mechanisms for easing the burden of the operators. The IMG suggested modifying the payment norms for licenses acquired in the 2016 auction, modifying what constitutes as contribution to the

revenues of the seller from spectrum trade as not the gross value of the sale but the profit from the sale. (This value was used to calculate the license fee and SUC).

With the disruptive entry of Jio, there were a series of consolidation, especially through spectrum trading. The availability of spectrum trading allowed operators to only acquire spectrum, rather than all other assets of the seller.

5.2 Cases of Spectrum Trading

Driven by the distress in the sector, Reliance Communication (RCom) a national level service provider had signed a deal with RJio for sale of 122.4 MHz of spectrum in the 800/900/1800/2100 MHz bands, telecom towers, fibre and media convergence nodes. RCom was doing this to avoid insolvency proceedings. This was a part of the mandate of the lenders. For RJio, this spectrum would give it the capability to enhance its 4G footprint, help it expand its FTTH business and strengthen its media business.

In August 2018 the DoT had sought clearance of dues towards it on SUC of about Rs 3000 cr. RCom challenged this in the TDSAT. In October 2018, the TDSAT rejected DoT's pleas for bank guarantees and directed DoT to "expeditiously" allow RCom to sell its spectrum without these. It also directed RCom to not sell a land parcel estimated to be worth around Rs 1400 cr, as that could be used as a guarantee against the government's demand for the outstanding payments. The DoT sought a plea for modification of the order as it could not accept land instead of a bank guarantee.

The DoT challenged the TDSAT's order in the SC. On a different case, the SC directed RCom to pay its outstanding dues to Ericsson by December 15, 2018. In November 2018, the SC allowed RCom to sell its spectrum to RJio and directed DoT to approve the former's proposal. It also asked RJio to provide a corporate guarantee of Rs 1400 cr and parcel of land from one of its subsidiaries to cover the outstanding SUC. Reliance Realty, a subsidiary of RCom, offered the corporate guarantee and an undertaking that it would not alienate the land parcel of Rs 1400 cr value. Reliance Realty provided the guarantee and DoT agreed to approve the sale.

However, DoT was not willing to provide an assurance to RJio that it will not be held liable for RCom's past spectrum dues as the spectrum guidelines required the buyer to be liable for such dues. Moreover, DoT felt that there could be issues with the corporate guarantee or sale of land. As of the date of writing the deal had not materialized.

In another spectrum trade between RJio and RCom, that involved trade of 3.75 MHz and was approved by DoT on May 17, 2018. This spectrum was transferred to RJio on July 6, 2017. The CCI took suo motto cognizance of the deal and approved the deal. It also issued a Show Cause Notice to RJio why it should not be penalized for not filing a notice of acquisition with CCI. The CCI claimed that spectrum acquisition was covered under

the Combination Regulation for which filing such a notice was mandatory. RJio argued that:

- a. Spectrum trading did not amount to an acquisition as RJio did not acquire any customers or business as a consequence of acquiring the spectrum. RJio argued that since operators acquire spectrum through auctions, then operators should be asked to file such notices after the auctions too. But since they do not do so, they should not be asked to file notices of acquisition.
- b. The sectoral agencies (TRAI, DoT) regulate trading of spectrum, including its price, conditions, caps, etc, and have safeguards for protection of competition. Any M&A activity also requires their approval.
- c. While the role of CCI in regulating M&A activity along with DoT and TRAI was well established, it had little or no role in establishing market power consequent to trading as that came within the purview of DoT and TRAI.
- d. In the US context, the US SC had established a set of criteria that could be used to determine whether there was a conflict between the competition and sector regulation. These included:
 - i. Whether sectoral regulation exists to regulate the concerned activity
 - ii. Evidence whether the existing regulatory bodies exercise their authority
 - iii. Resulting risk of producing conflicting requirements, if both agencies exercise their judgment
 - iv. Whether the issue falls squarely within the jurisdictional power of the sectoral agencies

According to RJio, all the criteria pointed to no role of CCI.

- e. Thus, Spectrum trading guidelines were exempt from notification. Further, spectrum through trading was acquired as a part of ordinary course of business, and hence not subject to notification.
- f. There were other trading transactions such as that of Airtel acquiring spectrum from Aircel, Telenor, and Videocon and as far as RJio was aware, these transactions also had not been notified. This reflected the understanding of the operators that such transactions were not required to be notified.
- g. That RJio, like other operators, had acquired spectrum through auctions at various points in time, for which the CCI was not notified.
- h. That RJio, like other operators, requires to acquire spectrum as a part of its ordinary business and the acquired spectrum does not constitute “substantial business interest” of RJio.
- i. As a part of the traded spectrum, RJio did not acquire any other asset from RCom, including its customers. RCom continued to serve its customers through its remaining spectrum. Therefore, this transaction did not amount to acquiring control of RCom.
- j. Since spectrum trading guidelines specify minimum unit of trade to be 0.2 MHz, then all such transactions would need to be notified.

- k. There were mitigating factors such as the recency of the introduction of such guidelines w.r.t. the concerned transaction and hence there was uncertainty regarding requirement of notification.
- l. There was no mala fide intention.
- m. No revenue could be ascribed to the traded spectrum, as it was a surplus/unutilized asset of RCom.
- n. Given the uncertainty in law and no mala fides, no attempt at concealing the transaction, there was no requirement of deterrent action.

Based on the above inputs, the CCI dealt with the following three questions:

- i. “Whether the fact that the Spectrum Transaction is pursuant to Spectrum Trading Guidelines ousts the jurisdiction of the Commissions?”
- ii. Whether the Spectrum Transaction amounts to “acquisition of assets” within the meaning of the term under Section 5 of the Act? and
- iii. If the Spectrum Transaction amounts to “acquisition”, whether the transaction is covered under Item 3 of Schedule I of the Combination Regulations?”⁶

With regard to the first issue, the CCI opined that in M&A activities, while the sector regulators (DoT and TRAI) establish spectrum caps for the merged entity, it cannot be ruled out that competition concerns would not apply in this case. The Competition Act requires any acquisition of assets, shares, control that meets the jurisdictional threshold to be notified. Therefore, the “Act does not envisage any exemption”. Further, the spectrum caps are just one of the factors in determining market power. The CCI was required to take a holistic view of the acquisition and therefore needed to be notified.

With regard to the second issue the CCI, it felt that best practices in reviewing mergers considered the “economic or competitive significance” of the acquired assets. As per its submission, RJio admits that spectrum does have “economic or competitive significance”. Even without the right of ownership (which rests with the DoT), there is a “right to economic benefit” that is granted as a part of the license. Thus, the right to use spectrum constitutes an asset.

As regards the issue of notification of spectrum acquired through auction, the CCI’s view was that acquisition of spectrum through auctions constituted organic growth while acquisition through trade represented inorganic growth, CCI had mandate only over the latter. Therefore, notification was required only for spectrum acquired through the trading process.

⁶ https://www.cci.gov.in/sites/default/files/Notice_order_document/Order%20under%20Section%2043A_2.pdf, accessed on January 21, 2019.

With regard to the third issue, CCI examined whether spectrum acquired through trading could be exempt from notification within the purview of the Combination Rules by assessing the following:

“The essential conditions of Item 3 of Schedule I are: (i) acquisition of assets not directly related to the business activity of the acquirer; or (ii) acquisition of assets made solely as an investment or in ordinary course of business.⁷

Since spectrum is directly related to the business of RJio, and is not meant as an investment, and transfer of such assets constitutes a capital asset and is reflected as such in the accounting practices adopted by RJio, it cannot be exempted from notification. Further, since there are stipulations on how the spectrum is traded (spectrum caps, liabilities etc), it cannot be treated as an ordinary part of business. For exemption of notification, the basis would be whether such a transaction constituted an ordinary part of business. The CCI decided that RJio’s contention that CCI would be flooded with several transactions (since this constituted an ordinary part of business and the guidelines allowed for transactions with small bandwidth), if all transactions were required to be notified, was not acceptable as spectrum had competitive significance.

Thus, by not filing the notification, RJio was in contravention of Section 6(2) of the Competition Act. However, considering that the particular transaction was the first spectrum trading transaction, the CCI accepted that there was significant uncertainty regarding notification and imposed a nominal penalty. It used a similar framework for Bharti Airtel.

6. Analysis

In comparison to a tightly regulated regime that existed at the beginning of the reform period, India has transitioned to a more market-oriented approach for regulating spectrum as highlighted above. The extent to which regulators provide flexibility or the scope of spectrum trading determines the outcomes for the operators. While the sectoral policies and regulation influence the shape of instruments and outcomes, in India, as in many other countries, a large number of institutions and entities outside the sector may drive the transition in significant ways. Introducing market reforms often involves dealing with legacy issues. While developed countries also have to deal with legacy issues, the situation in developing countries is more stressed because of starting later and fast changing nature of technology that make it imperative to have quick response time. Further, since regulatory agencies, both sectoral and competition, are rather recent, the scope and jurisdiction are contentious, as each agency tries to establish its boundaries. The limited regulatory capacity creates further constraints.

⁷ *ibid.*

Scope of Spectrum Trading

Spectrum trading was limited to licensed operators having “liberalized” spectrum. Spectrum trading in most countries has been examined in the context of telecom services only. Broadcast spectrum trading would bring in greater market orientation. Given that several of the erstwhile broadcast spectrum is increasingly being brought under the ambit of commercial mobile services, it will be a part of the spectrum trading regime.

Further spectrum trading modes include flexibility to seller in partitioning its available spectrum by frequency, space and time. In the Indian context, such flexibility was limited to partitioning by frequency. But this was limited to specific block sizes for different bands. The seller was required to sell its spectrum in its entire service area. Further, only outright sale was permitted. Leasing was not allowed. In contrast, the regimes in USA and UK provide for greater flexibility (Ofcom, 2016). Each of the countries has adopted a phased approach, such as bringing in more number of bands where spectrum can be traded (Ofcom, 2016). However, since developed countries introduced trading earlier, they are able to accelerate reforms when the need is to introduce new bands for services at an ever increasing speed.

Role of External Sector Players

For spectrum allocations, India had adopted auctions on several occasions, while also using administrative allocation. However, the 2012 SC judgment mandated auctions for all future allocations as a just, fair and transparent mechanism (Supreme Court of India, 2012). This changeover was brought out by the SC, an agency external to the sector. SC was involved in mandating DoT to facilitate RCom to sell its spectrum under modified conditions (corporate guarantee and a guarantee that a specific piece of land would not be alienated without informing the Licensor), other than the one specified by DoT (a bank guarantee). CCI, an agency external to the sector brought its own perspective to competition arising out of spectrum trading. It held that competition issues go farther than just specifying and ensuring spectrum caps and market shares.

Legacy Issues

TRAI had considered spectrum trading as a part of its Recommendations on Spectrum Management and Licensing Framework, dated May 11, 2010. But since spectrum above the start-up spectrum had been administratively allocated, it was felt that allowing for trading could lead to windfall gains. Therefore, the DoT and TRAI put together a process of “liberalizing” the spectrum. Spectrum allocated in 2010 auctions (3G and BWA) had been auctioned. The need of spectrum trading framework was also driven by the requirements of consolidation of the existing fragmented and small amounts of spectrum that Indian operators had. It took nearly five years for DoT to formalize the trading guidelines.

Dealing in an upfront manner regarding the issue of administrative allocated spectrum with respect to its eligibility for spectrum trading, allowed it to overcome issues of windfall gain that plagued the Everything Everywhere spectrum sale in the 1800 MHz band.

In the initial stages of spectrum trading, the FCC had different provisions for roll-out requirements for the different services where trading was introduced. While in some cases, the original owner was responsible for it, in other services, the buyers and sellers could negotiate these among themselves. After a streamlining process, the new guidelines required each entity to be responsible for its portion of roll-out obligations. The lesson to learn is that making trading processes service and technology neutral is critical.

Evolving Scope of Regulatory Agencies

In establishing the framework for spectrum trading, the DoT's framework did not involve the CCI. This led to private operators having to respond to the CCI for their failure to notify it about the spectrum trade, even though they had done it with DoT's approval. On the other hand, review of the potential impact of trading on competition has been built into the FCC process. For transactions, that involve certain thresholds, the parties must seek approval from anti-trust regulator and are reviewed by DoT. The reviews happen concurrently and each of the entities may come out with conditions for approving the trade. These may include, for example, divestiture of certain holdings.⁸

In developing countries, since the regulatory agencies are of more recent origins, there is limited understanding of the linkages across different institutions. In UK, Ofcom has concurrent powers with the Office of Fair Trading. Ofcom has powers to impose ex-ante regulation to prevent anti-competitive behaviour. It felt that in order to keep spectrum trading simple and encourage it, there was no need to bring in the Oft at the stage of approving the trade. If, however, the market became anti-competitive as a consequence of trading, then Oft and the Enterprise Act had sufficient powers to correct such distortions (Ofcom, 2004).

Even if such design aspects are addressed, capacity within regulatory agencies is an important determinant of the success of outcomes. Since spectrum allocation processes need to examine the technical, financial, economic and legal aspects, agencies need to be equipped with such skill sets. However, in many developing countries, sector specific regulatory agencies are staffed with people without a background in the finance, law and economics. This leads to a narrow perspective.

Developing countries need to recognize that a review of the existing institutional structures and adoption and design of appropriate instruments is necessary to provide effective wireless services to citizens for which spectrum is the key resource. Independence of the spectrum

⁸ https://www.squirepattonboggs.com/~media/files/insights/publications/2011/10/spectrum-trading-in-the-eu-and-the-us--shifting-_/files/tel12_squire-sanders_ver4/fileattachment/tel12_squire-sanders_ver4.pdf, accessed on January 10, 2019.

agency from operators is essential for a fair allocation of spectrum. Further, in order to have optimal outcomes with respect to spectrum allocations, it is important to understand auctions not only as a technical issue but also to see the larger context in which institutions that design auctions operate and how it affects auction design.

The weak institutional environment coupled with regulatory capability gap introduces complexity in spectrum trading. While the objective of bringing in spectrum trading is to have greater market orientation, the process of doing so, may reduce the market orientation.

Assessing Market-Orientation

Based on the case study above, there is a need to develop additional attributes to the characteristic identified by (Jain and Dara, 2017). These include a) complexity of processes for undertaking transaction including number of agencies involved b) conditions under which such trade may happen.

7. Conclusions

Introducing spectrum trading has become imperative for developing countries as operators in their countries have fragmented spectrum, technology or service specific stipulations and license obligations. New technologies require contiguous spectrum bands. This requires review of legacy issues. Further, as new bands for new technologies get introduced in developed countries, developing countries are under pressure to do the same. This adds to the pressure of dealing with legacy issues of those bands. Given the weak institutional structures and regulatory capabilities, developing countries have a hard time coping with the situation.

India has adopted spectrum trading only in 2015, under pressure from operators to have a better regulatory environment. While this has introduced greater market orientation, lack of clarity between the scope of DoT/TRAI and CCI, inadequate mechanisms to deal with legacy issues and challenges to decisions by the concerned parties in different appellate tribunals or the Supreme Court reduce the efficacy of spectrum trading. Learning from the experiences of other countries may be useful.

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