Spectrum managements to promote competition

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1.Background---Competitive situations of US cellular network industry

In US, the spectrum cap rule[1], which limited the maximum spectrum the one mobile network operator could get, was abandoned in 2003. According to the FCC's report, The reason why the rule was abandoned was that there were sufficient new entrants introduced, and it had become difficult to judge whether the market was competitive or not only by the total amount of spectrum one entity held(FCC(2000)).

However, after the abandon of the spectrum cap rule, the degree of concentration in US mobile market has become increased. There were AT&T and Cingular's merger in 2004 and Sprint and Nextel's merger in 2005 after the abandon of the rule. In 2006, the four largest mobile operators shared 90% of the market(Cramton(2008)).

To make matters worse, the 700MHz auction's result may increase the concentration. The FCC triumphed the result of 700MHz auction because it will promote competitions[2]. However, some critics opposed to the FCC's positive evaluation. For example, although lower-frequency spectrum is more advantageous than higher-frequency spectrum for wireless network businesses, AT&T and Verizon achieved 85% of spectrum in 700MHz, and

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[1] 47 C.F.R. § 20.6(a) at that time says "No licensee in the broadband PCS, cellular, or SMR services (including all parties under common control) regulated as CMRS . . . shall have an attributable interest in a total of more than 45 MHz of licensed broadband PCS, cellular and SMR spectrum regulated as CMRS with significant overlap in any geographic area, except that in Rural Service Areas (RSAs), . . .no licensee shall have an attributable interest in a total of more than 55 MHz of licensed broadband PCS, cellular, and SMR spectrum regulated as CMRS with significant overlap in any RSA"

[2] For example, "72 of the 101 winning bidders were new entrants who won a total of 675 licenses. In addition, small and rural providers won spectrum that almost covers the entire United States. ", "69 percent of the licenses were won by bidders other than the nationwide wireless incumbents, and a bidder other than a nationwide incumbent provider won a license in every market." and "we find that the results of both auctions support the notion that the Commission's spectrum allocation and assignment policies do not create an effective barrier to entry into the U.S. mobile telecommunications market." (FCC(2009)), pp37

other operators such as Sprint, T-mobile and PCS remained in only AWS or PCS spectrum which are higher frequency(Cramton(2008)).

2. Possible policy recommendations

There are several possible measures to promote more competitions. However, there is no panacea---each measure could have some advantages but some disadvantages. Also, we should carefully consider the market and technological situation where a measure will be applied.

(1)Control through anti-trust regulations

We have general anti-trust regulations. However, one of the problems of anti-trust remedies is that it is usually time-consuming. They usually take a lot of time for a regulator to investigate how competitive situations are and whether it is anti-competitive or not. Also, even if a regulator makes a ruling, targeted operators could file the ruling to the court. In a market that quickly changes like wireless communications, only relying on anti-trust regulation is insufficient.

(2)Bring back spectrum cap rules

This scheme would work in the early period of the development of wireless spectrum businesses. However, considering today's wireless technology and businesses, the spectrum cap rule is not so useful. Namely, it's too difficult for a regulator to determine how much spectrum is appropriate for the spectrum cap rule in advance[3].

(3) Reserve some spectrum lots for new entrants

Some countries such as Canada and Japan adopt this measure. The scheme may work well under the situation where secondary transactions of spectrum are not allowed. The problem is that US has already allowed spectrum trades between entities. If spectrum gained by new entrants for lower prices is sold to incumbents after the auction, it would bring a lot of confusions and would invite speculating bids by new entrants that just want to sell the spectrum to incumbents for higher prices. If a regulator wants to

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[3] There are some possible options such as "soft" spectrum rules (i.e. a regulator can approve some exceptions if an operator requests). However, difficulties described above still remain(Cave(2010)).

introduce the scheme, it must require a new entrant succeeding in bidding to hold the spectrum for a certain period[4].

(4)Impose open access obligation on incumbents/dominants

US adopted the policy for C-band in 700MHz auction. This is a promising measure to promote competitions and it may be desirable that the FCC will increase more open-access spectrum lots in the next auction. The other method to adopt the policy is that a regulator imposes existing incumbents open access, but the policy may bring some troubles to the incumbents because the incumbents have bid spectrum under the condition where they had no open access obligations. The FCC could introduce the mandatory open access policy to the existing spectrum license holders after their license periods expire.

(5)Expand shared spectrum/unlicensed spectrum

US have already adopted the shared spectrum policy for D-band in 700MHz auction. Unfortunately, D-band auction failed because the highest bidding price didn't achieve the minimum price the FCC set. This fact shows that operators feel considerable risks of business relying on shared spectrum. It is also true of unlicensed spectrum.

However, the development of technology is expected to overcome the problems. If an operator could build a good business model based on sound technological foundation of using shared/unlicensed spectrum, it can do wealthy businesses over less expensive spectrum. The shifts from services relying on licensed spectrum to ones relying on shared/unlicensed spectrum are desirable, so that a regulator should promote the trend.

3. Conclusions

Based on analysis above, as relatively desirable policies to promote competitions, I recommend expansions of shared/unlicensed spectrum, open access obligation on incumbents/dominants, and/or reservations of some spectrum lots for new entrants. However, these policies are not necessarily appropriate for all situations. A regulator should carefully analyze

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[4] . This requirement may make some inefficiency, i.e. a new entrant that failed the business may hold the spectrum just to avoid punishment. The regulator also needs to set "if not use, it should return spectrum" policy.

situations to determine which methods are appropriate to take[5].

References:

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[5] Finally, the best way to promote competitions is to provide more available spectrum. For the purpose, a regulator should take a measure to drive an entity that keeps some unused/inefficiently-used spectrum to return its spectrum to the government.