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Michael Mandel
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EXECUTIVE SUMMARY

Since 2016, the Ministry of Internal Affairs and Communications (MIC) and the Japan Fair Trade Commission (JFTC) have tried to promote more competition in the mobile market in order to encourage economic growth and promote fairness. In particular, the government agencies have restricted handset subsidies in an effort to lower rates.

The results of these policies have fallen short of expectations. Mobile service prices in Japan have dropped by 10 percent over the past two years, far less than the 25 percent decline in the United States in the same period.

One piece of good news for competition is the impending entry of Rakuten Mobile as the fourth mobile network operator. However, we show in this paper that the restriction on handset subsidies makes it significantly harder for Rakuten to attract customers from the incumbents, since the challenger will be forced to charge customers for the "privilege" of switching to a new network.

We suggest that the best policy for encouraging the success of Rakuten – and driving down rates and increasing innovation – is to relax the restrictions on handset subsidies, and/or reconsider term-committed service plans. That will allow Rakuten to offer upfront incentives to switch to the new network, thus boosting competition.

INTRODUCTION

The Japanese mobile system has reached a crucial moment, where the country runs the risk of falling behind in the crucial race to 5G.

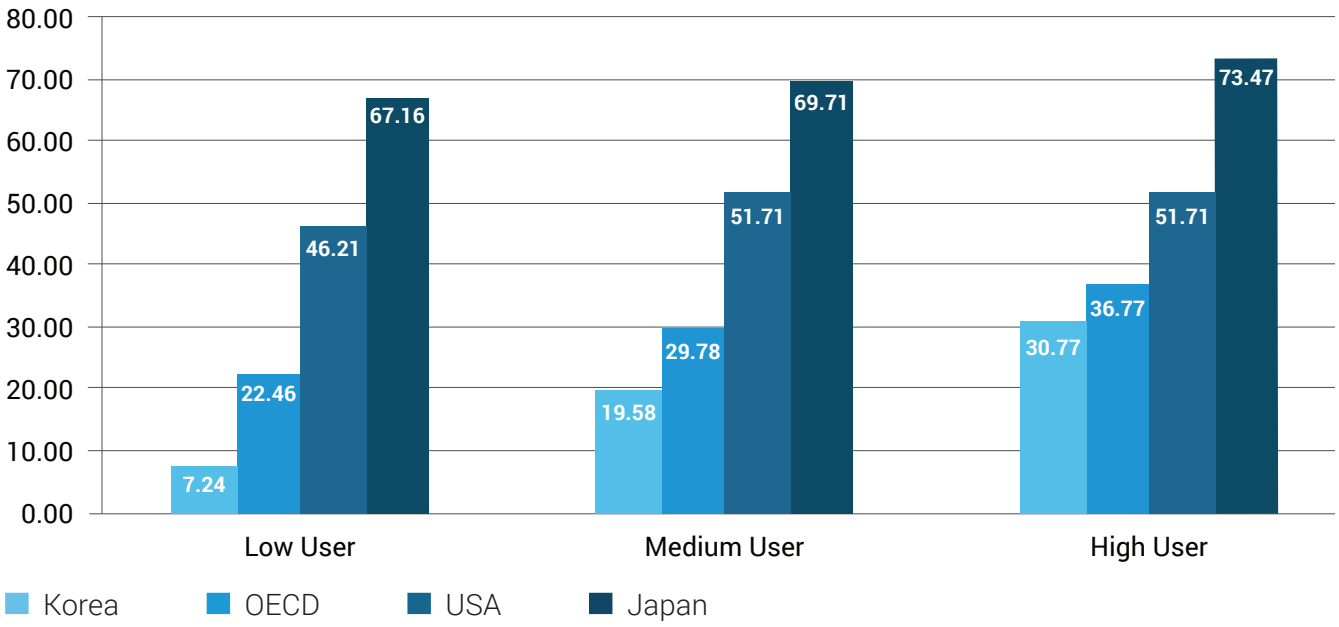
A January 2018 report from McKinsey observed that

> **…Japan now faces an inflection point that will define its future competitiveness in mobile communications…. time is of the essence. An early deployment will result in first-mover advantages. A failure to act now could let other countries reap the benefits, and hold Japan back.**[1]

We can identify two main issues with the Japanese mobile system: price and innovation. First, and most obvious, mobile rates in Japan continue to be expensive relative to comparable countries. Each year, the OECD identifies comparable voice + data bundles across countries, and then prices them.

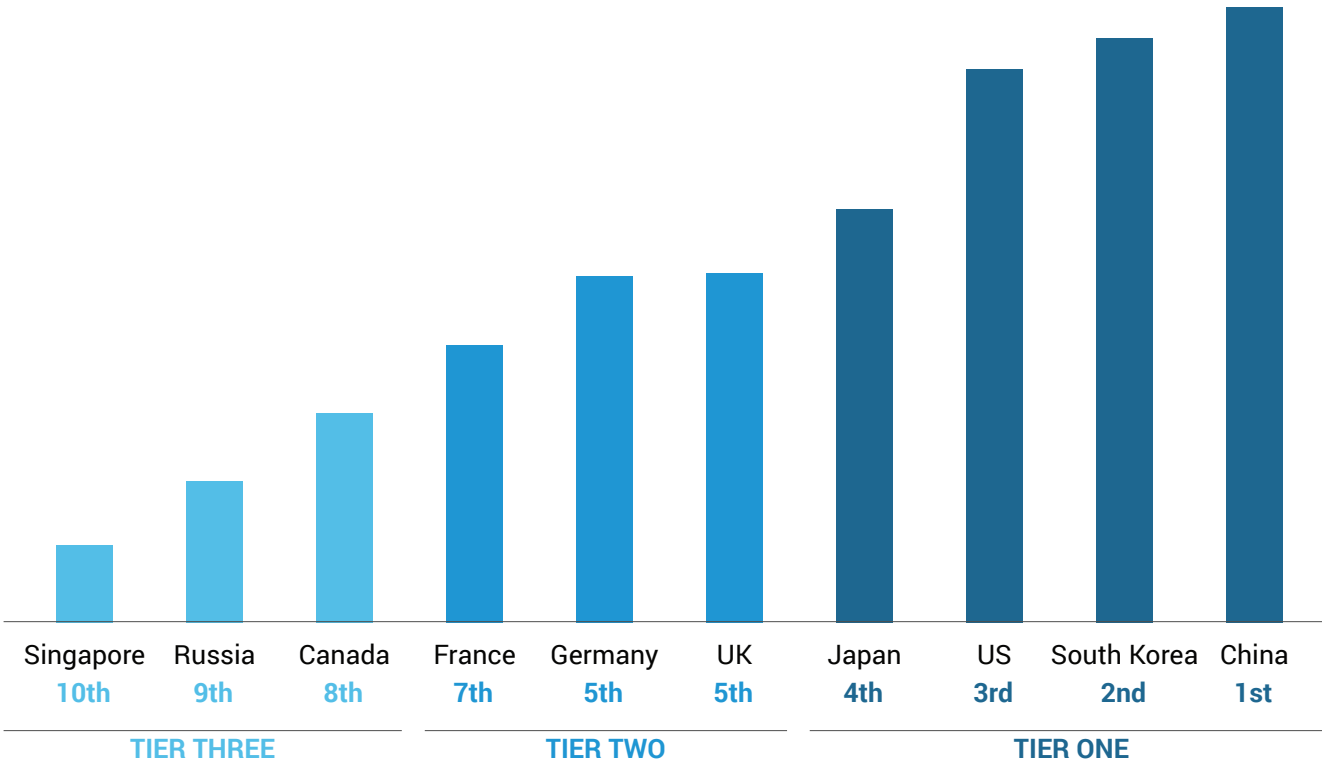
Figure 1 shows the relationship between Japan's mobile prices and that of the United States, the OECD and Korea, as of May 2017. Japan is far more expensive for users, especially at the low end of the market. A logical implication is that Japan's mobile network providers (MNOs) are exercising market power.

FIGURE 1: Japan's High Mobile Rates (price of reference mobile voice + data bundle, May 2017, PPP$)



Data: OECD

FIGURE 2: Which Countries Are Winning the Race for 5G (5G Readiness Index)



Data: CTIA, "The Global Race to 5G," April 2018

The second issue is innovation, or rate of progress toward 5G. Figure 2 ranks countries according to a "5G Readiness Index," developed by the U.S. organization CTIA.[2] China, South Korea, and the United States are leading, with a sharp drop-off for Japan, the United Kingdom and Germany.

Mobile price and innovation are important because they bear directly on future economic growth. As information technology spreads to physical industries such as manufacturing and transportation, it will be necessary to have increasing amounts of low-latency mobile bandwidth in order to link drive productivity growth.[3] Future economic growth is not possible without an advanced mobile system.

GOVERNMENT RESPONSE

The relevant government agencies – particularly the Ministry of Internal Affairs and Communications (MIC) and the Japan Fair Trade Commission (JFTC) – have correctly identified the need to promote more competition in the mobile market in order to encourage economic growth and promote fairness. To accomplish these purposes, the government has:

- Restricted handset subsidies;
- Tried to encourage mobile virtual network operators (MVNO);
- Tried to encourage used handset market

For example, in late 2015 regulators started considering the question of whether there was a link between handset subsidies and high mobile rates. Their theory was that the major mobile carriers were offering new handsets for virtually no cost, and getting their money back with higher rates. As a result, in March 2016 MIC issued guidelines requesting that the MNOs cut back on handset subsidies.[4] Then, in October 2016, MIC warned the large mobile operators that they had not taken the measures specified in the guidelines, and the operators responded.[5]

> In June 2018, JFTC issued a policy report that points out the potential problems from 2-year renewal service plan or 4-year renewal service plans. By locking in consumers, these plans restrict competition and make it harder to switch carriers.

Most recently, the JFTC expressed its continued concern that handset subsidies could lessen competition, when the agency issued the results of its two year antimonopoly investigation of Apple's agreements with Japanese MNOs. The JFTC closed the investigation without finding a violation, after Apple agreed to amend its agreements. According to JFTC's announcement, while Apple allowed carriers not to provide subsidies in case of non-term committed contracts, Apple requested carriers to provide subsidies for the benefit of customers if carriers lock in customers with term-committed service plans. This time, Apple agreed to allow the MNOs to offer iPhone plans with term commitment without a subsidy, as long as consumers were given a fair choice between plans with and without subsidies.[6]

OUTCOMES

Unfortunately, as of June 2018, the government's continued effort to restrict handset subsidies had only marginal success in achieving the desired outcome of lowering rates. The June 2018 policy from the JFTC notes that the communication fees themselves have not substantially decreased.[7] Mobile service prices in Japan have dropped by 10 percent over the past two years, far less than the 25 percent decline in the United States in the same period. Japanese mobile operators still are making strong profits.[8] KDDI, for example, is projecting operating profits to exceed 1 trillion yen for the first time in the coming fiscal year.

> Mobile service prices in Japan have dropped by 10 percent over the past two years, far less than the 25 percent decline in the United States in the same period.

Moreover, despite the restrictions on handset subsidies, MNOs are still offering multi-year contracts that make it difficult for consumers to switch operators. The June 2018 JFTC report identifies several MNO contract practices that serve to lock in consumers.[9]

In our 2016 paper, "Japan's Mobile Policy: Path to the Future or Obstacle to Economic Growth?", we predicted these poor outcomes. In that paper we wrote:

> **The history of regulation suggests that, when a government agency undertakes to set a price floor in an industry, the agency is signaling to the participants in the industry that it is okay for them to collaborate rather than compete. In the case of the mobile marketplace, the reduction or elimination of discounts for handsets signals to the**

> **major carriers that they are expected to limit their competition with each other and with the MVNOs.[10]**

In effect, the restriction on handset subsidies had exactly the opposite effect as predicted.

FACILITIES-BASED COMPETITION

In that earlier paper, we also reviewed the literature on service-based versus facilities-based competition in the mobile market. Facilities-based competition describes the situation when new entrants build their own mobile network. Service-based competition requires the MNOs to give MVNOs wholesale access to the MNO network. This is obviously easier and faster than building a new network, but makes it hard for the MVNOs to truly compete. We wrote in 2016:

> **One problem is that MVNOs are completely dependent on the major carriers for access to their networks. To protect the MVNOs, government intervention in the telecom sector must continue or even increase.**

However, one important factor now has changed since regulators issued their guidelines in 2016. Rakuten, the ecommerce giant, received spectrum and permission from the Japanese government in April 2018 to build out its own mobile network, with the first service expected to begin in October 2019. Rakuten has made agreements with Kansai Electric Power Co, Chubu Electric Power Co and TEPCO Group that enable Rakuten to utilize the utility firms' transmission towers, utility poles, telecoms towers and other facilities and equipment for its planned 4G network.[11] Spending is expected to total 600 billion yen, with the money partly coming from the parent company, and partly from bank loans and investors.[12]

The coming entry of Rakuten is good news for prices and innovation in Japan by increasing the number of MNOs from three to four, even though Rakuten will be much smaller than the other three major providers (Table 1).

TABLE 1: Major Mobile Network Operators

	SUBSCRIBERS, MARCH 2018 (MILLIONS)
NTT Docomo	76.4
KDDI	52.3
Softbank	39.9
Rakuten Mobile	15 (proposed)

Source: Telecommunications Carriers Association, press reports

Research from the OECD suggests that increased facilities-based competition can make a big difference.

> **This report finds that in countries where there are a larger number of MNOs, there is a higher likelihood of more competitive and innovative services being introduced and maintained. Particularly, a larger number of MNOs is often the source for innovative offers that challenge existing market wisdom and practices and a driver for the entire market to become more competitive.**[13]

The jump from three MNOs to four MNOs seems to be particularly important, according to the OECD report.

> **…there are indications that in markets where there is a mobile challenger, consumers have larger data bundles, larger plans of mobile minutes and will find more SIM-only plans on offer. Finally, the inclusion of new services or capabilities, some of which undercut traditional pricing models or were prohibited by some operators, have often been introduced first by challengers or in markets with at least four MNOs (e.g. mobile VoIP; tethering; seamless handover between mobile and fixed facilities using Extensible Authentication Protocol and so forth).**

The OECD report also found that investment in new network infrastructure is boosted in markets introducing new players or maintaining at least four operators. Moreover, countries with four or more mobile operators tend to see a simplification of offers, so that mobile contracts become easier for consumers to understand.

MARKET STRUCTURE AND REGULATORY POLICY

From this perspective, Rakuten's entry into the market should help hold down prices and accelerate innovation. However, some analysts have been skeptical about whether Rakuten will be able to match the much larger capital investments of the three major mobile network operators.[14]

In some sense, this skepticism is a self-fulfilling prophecy. Rakuten's success depends in large part on its ability to raise money from investors – and its ability to raise money from investors depends on their expectation of success.

Perhaps more important, our economic analysis suggests that the government's restriction on handset subsidies, combined with the contract period restrictions on users by incumbents, will make Rakuten's entry into the mobile market much more difficult. We have four reasons for this assertion.

- First, the government-enforced restriction on handset subsidies will make it difficult for Rakuten to offer incentives to customers to switch carriers. We explore this more in the next section.
- Second, the continued reliance of MNOs on contracts with automatic updating and penalties charges discourages customers from switching to a new carrier. That will prevent Rakuten or any new entrant from quickly getting a critical mass of customers. Note that approximately 56 percent of the Japanese population has a smartphone.[15] That's not especially high compared to countries such as South Korea and Singapore, which have smartphone penetration rates over 75 percent. Still, it's

likely that any challenger will need to attract most of its customers from incumbents in order to be successful.

- Third, these two problems will reduce the acquisition rate of customers by Rakuten, and make it more difficult to get the investment funds to expand the network. Getting more customers quickly is a crucial signal to investors.
- Fourth, Rakuten is in a crucial period right now where it must obtain sufficient funding commitments to allow the new MNO to go forward. Any government actions to support the new network could be very important in increasing the chances of funding.

A SIMPLE MODEL OF ENTRY BY A SMALL CHALLENGER

The latest JFTC report still emphasizes the need to restrict handset subsidies to increase competition. For example, the JFTC worries that consumers are being unduly influenced by the subsidies, writing that:

> **it might be the case that there are some consumers who are not able to make their decisions in accordance with the actual preference, as they are induced by the large lump-sum discount amount that is shown when they enter into a contract.[16]**

However, the JFTC analysis does not take into account the entry of a new MNO. As we noted above, the restriction on handset subsidies is a serious impediment to Rakuten's ability to compete with the incumbents. To further illustrate that point, in this section we describe a simple model of entry by a small challenger. We start with a mobile market dominated by incumbent MNOs. They offer two-year contracts, which are difficult to get out of, and automatically renew. We can model this as a cost (¥S) of switching from one carrier to another.

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Now suppose a challenger enters the market. In order to attract a significant number of switchers – customers who switch to the new network – the challenger has to offer a plan which consumers assess at least ¥S cheaper than the comparable plan from an incumbent, over the length of a contract.

Unfortunately, challengers with a new network face additional barriers to attracting switchers. First, potential switchers will be uncertain about whether the new network will survive. Second, potential switchers will be uncertain about the quality of the new network, especially if more users join it.

To put it another way, consumers joining a new network would prefer to be compensated for their switching costs, ¥S, as soon as possible, rather than waiting. Then they avoid the risk that the new network fails.

From the perspective of the challenger, the easiest way to attract switchers is to offer handsets at low prices to existing customers of the incumbents, in addition to low rates. This lowers the cost of switching. By comparison, forcing switchers to buy a new phone at full price is a deterrent to switching.

INNOVATION

Our analysis suggests that MIC and JFTC consider two changes in their existing competition policy. First, they should allow for increased handset subsidies as a competitive tool. Second, they should encourage mobile

operators to move away from restrictive contracts.

In addition to encouraging Rakuten's entry into the market, our analysis suggests these pro-competitive policies could accelerate the rate of innovation in the Japanese economy. In particular, handset subsidies could encourage customers to adopt advanced handsets by giving them more security and less uncertainty in their purchases.

Right at the moment, carriers are about to start a massive spending cycle on 5G. By one estimate, the three major carriers are expected to spend 5 trillion yen ($45.5 billion) building out 5G networks across Japan.[17]

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In order to make their investments pay off, mobile operators need consumers to buy 5G handsets as the networks roll out, and they need companies to offer new "over-the-top" services that utilize the capabilities of the 5G network. It would be a financial disaster if the mobile operators spent heavily on building the new networks, and no one used them.

Unfortunately, the current policy of restricting handset subsidies is inherently pushing consumers toward cheaper, less-innovative handsets. Some "early adopters" rush toward the cutting edge of technology; but, as we noted in an earlier paper, most consumers are naturally risk-averse and would prefer to not spend a large amount for a new technology that may not have immediate benefits.[18]

Similarly, businesses are not likely to risk large sums to set up new enterprises that make use of the new 5G capabilities unless there is a sufficient mass of consumers with 5G handsets.

Historically, handset subsidies from carriers in the United States, Japan, and Europe have helped accelerate innovation and adoption of new technologies.[19] A 2013 OECD report noted that handset subsidies give users an incentive to upgrade their smartphones faster than they would otherwise. Subsidies effectively shift technological risk to the carrier, which is key at moments of technological disruption.[20]

CONCLUSION

Since 2016, MIC and JFTC have been trying one approach to reducing the cost of mobile services. The government focused on reducing or eliminating handset subsidies, hoping the change would simplify cross-carrier price comparisons and generate savings that would translate into lower rates.

The result fell considerably short of expectations. Moreover, the landscape has changed since 2016, with Rakuten Mobile about to enter the mobile market as a fourth MNO. This increased competition should lower rates and offer consumers better values – if Rakuten can lure enough customers away from the incumbents.

With a challenger set to enter the mobile market, we suggest that MIC and JFTC have an important opportunity to set the Japanese mobile market on the path to greater competition, higher consumer welfare, and faster innovation. It may be time to boost competition by removing restrictions on handset subsidies and eliminating excessively restrictive contracts.

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Progressive Policy Institute
1200 New Hampshire Ave NW,
Suite 575
Washington, DC 20036

Tel 202.525.3926
Fax 202.525.3941

info@ppionline.org
progressivepolicy.org