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# Japan's Mobile Policy: Path to the Future or Obstacle to Economic Growth?

Dr. Michael Mandel  
Chief Economic Strategist  
Progressive Policy Institute

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## About the author

Dr. Michael Mandel is chief economic strategist at the Progressive Policy Institute and a Senior Fellow at the Mack Institute for Innovation Management at the Wharton School at the University of Pennsylvania.

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# Summary

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Japan has the potential to play a key role in the next global economic boom, which will be based around the application of new mobile networks to physical industries such as manufacturing and transportation to boost consumer welfare, and increase productivity, real wages and job growth.

Indeed, Prime Minister Shinzo Abe's emphasis on structural reform as the "third arrow" of Abenomics can help lead the way to such a transformation.

However, the government's increased willingness to intervene in the mobile sector—such as issuing guidelines on how carriers should price handsets—runs the risk of going against the spirit of Abenomics and structural reform. In this paper we lay out the reasons why increased Japanese government intervention in the mobile sector will likely hurt consumers in the long-run, rather than help them, and slow down the innovation and investment needed to be a global technology leader.

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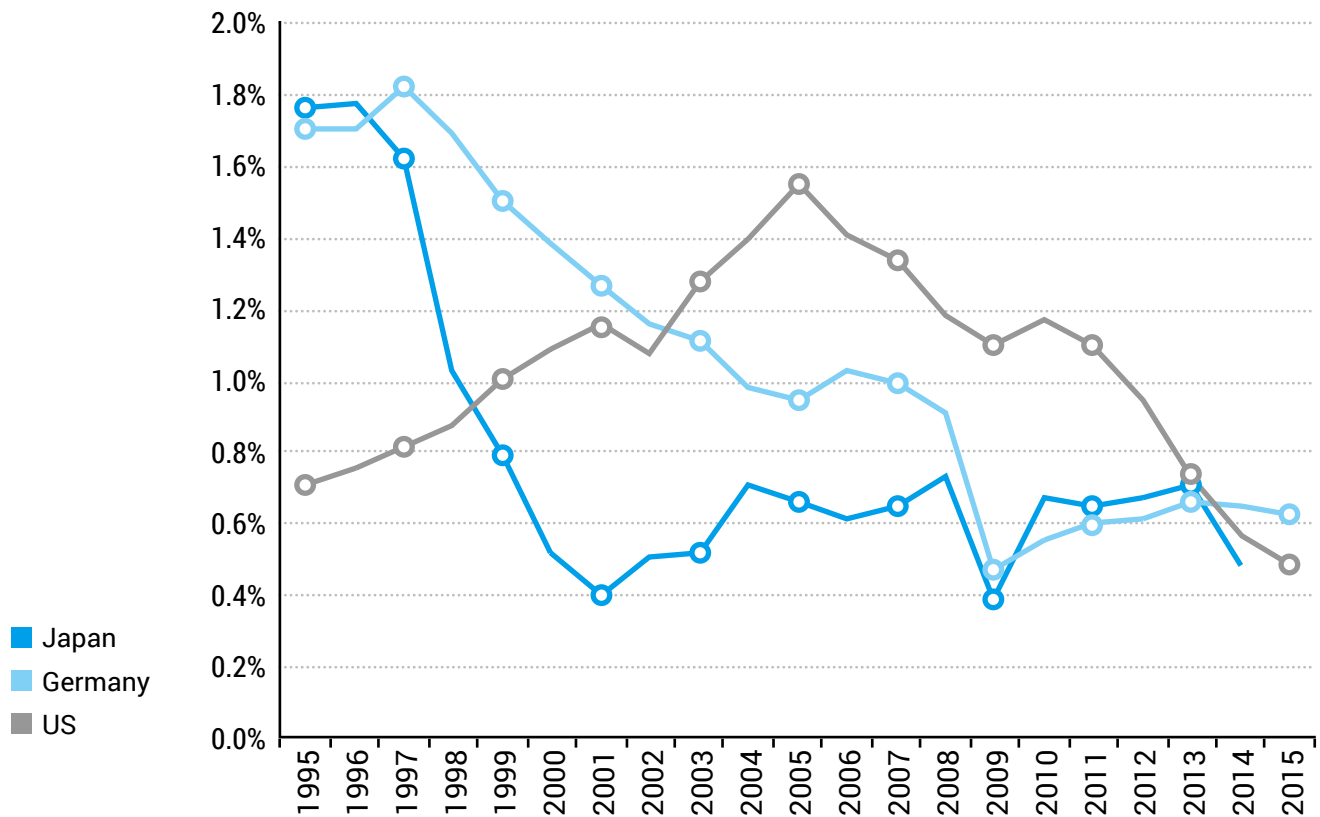
## INTRODUCTION

In many ways this is a very interesting moment in Japan's economy history. The Japanese economy has been stuck in a rut for two decades, with slow growth and deflation.

Upon taking office in December 2012, Prime Minister Shinzo Abe announced plans for what was called "Abenomics." Abenomics had three main "arrows": Fiscal stimulus, monetary stimulus, and structural reform to increase competition and reduce regulation of key industries such as energy and healthcare.

Economists disagree about whether Abenomics has been a success or failure.<sup>1</sup> But what is clear is that Japan is no longer underperforming other major industrialized economies, such as the United States and Germany. For one, the long-term productivity gap between Japan and other top economies has disappeared. As Figure 1 shows, the 10-year growth rate in multifactor productivity in Japan is now 0.5%, equal to the United States and just below Germany's 0.6%.<sup>2</sup> Japan is no longer an outlier.

FIGURE 1: Japan's Productivity Growth Gap Disappears (10-year multifactor productivity growth rate)

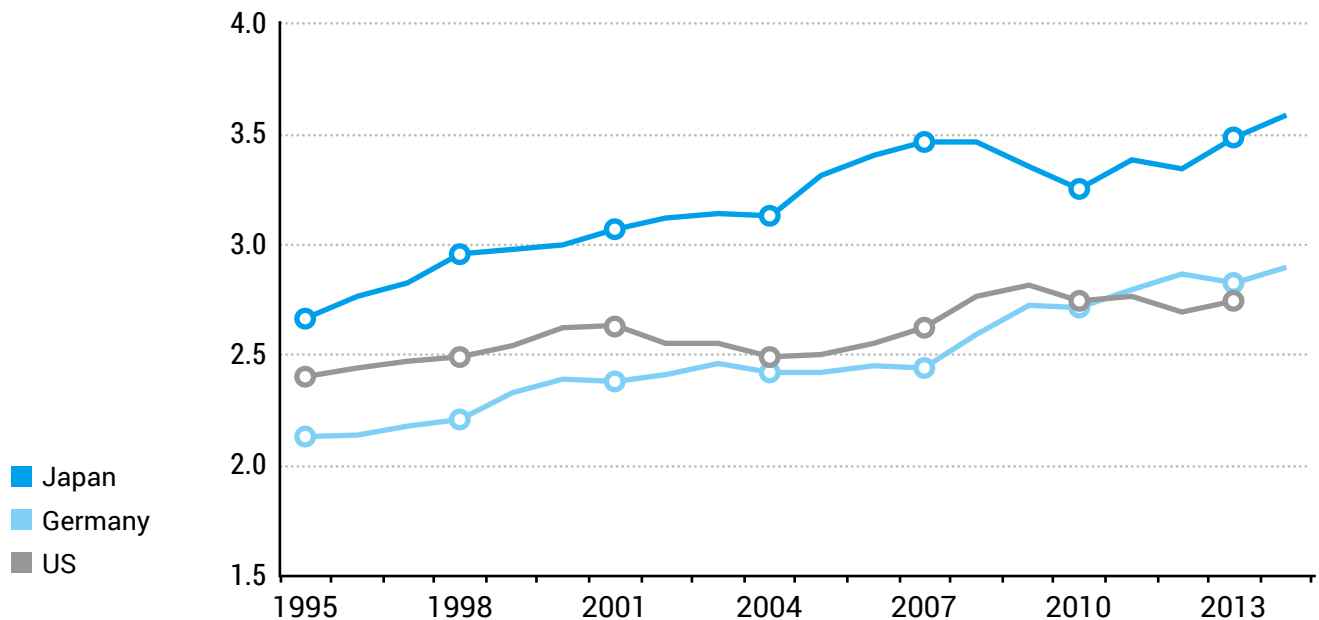


Data: OECD

Moreover, despite the stagnant economy, Japan has continued to increase its private and public spending on research and development spending as a share of GDP, a crucial input for future growth and innovation.

In 2014 Japan's private and public spending on R&D was roughly 3.6 percent of GDP, up from 3.0 percent in 2000 (Figure 2). This increase in resources was slightly bigger than Germany's over the same stretch, and much larger than the corresponding increase in the United States.<sup>3</sup>

FIGURE 2: Japan's Strong R&amp;D Performance (R&amp;D as percent of GDP)



Data: OECD

Finally, when we look at advanced mobile networks, Japan's performance against its major industrial rivals is quite strong. Japan ranks very highly on penetration of LTE with 90% penetration, behind only South Korea. The United States is at 81%, penetration and Germany and France are at 56% and 51% respectively.<sup>4</sup>

### THE NEXT STAGE OF THE MOBILE REVOLUTION

What policies will best position Japan for the next stage of economic growth--what some has called the "fourth industrial revolution"? It is important to remember that one of the most powerful economic forces of the past ten years was the introduction of the first true smartphone by Apple in 2007. While central bankers and national leaders struggled with a deep financial crisis and stagnation, the fervent demand for iPhones, and the wave of smartphones that followed was a rare force for growth. Today,

there are 4 billion smartphone subscriptions, an unprecedented rate of adoption for a new technology.<sup>5</sup> Use of mobile data is rising at 55% per year, a stunning number that shows its revolutionary impact.<sup>6</sup> Moreover, the mobile revolution has driven hundreds of billions of dollars worth of investment in mobile networks, and created millions of jobs globally.

Going forward, advances in mobile networks and mobile devices are going to be an essential part of technology-driven growth. Mobile will become a key enabler of economic transformation and productivity growth. Indeed, our recent paper "Long-term U.S. Productivity Growth and Mobile Broadband: The Road Ahead" (2016) considers the implication of next generation wireless networks and devices for productivity growth. We conclude that investments in advanced wireless networks and conclude that the result could be an acceleration of productivity growth

in the physical industries that adds roughly \$2.7 trillion (in 2015 dollars) to U.S. GDP by 2030. This translates into an 11 percent increase in economic output, which is equivalent to boosting the average annual growth rate by 0.7 percentage points.<sup>7</sup>

Advanced mobile devices and networks are particularly important for boosting productivity and job growth in physical industries such as manufacturing, as we noted in a recent article in *Technology Review*.<sup>8</sup> Thus the question of how fast Japan can adopt next generation mobile devices and networks is a crucial issue for future consumer welfare and economic growth.

### THE IMPORTANCE OF ABENOMICS FOR INNOVATION AND ECONOMIC GROWTH

We consider now the importance of Abenomics for innovation and growth in the mobile sector. Much attention has been given to the first two arrows of Abenomics, monetary and fiscal policy. But to take full advantage of the mobile revolution requires the third arrow of Abenomics, which is usually characterized as structural reform. However, the third arrow of Abenomics can also be interpreted as the willingness of government to step back somewhat from exerting control over innovation in order to open up the road to the fourth industrial revolution.

There are two aspects here that are important. It is tempting for government agencies to issue rules and interventions that appear to make consumers better off in the short-term. But when businesses devote their attention to complying with rules, they have less freedom and attention to innovate.

It's much like throwing pebbles in a stream. Toss one pebble into a stream, and nothing changes. Throw a second pebble into the stream, and the water continues to flow. But throw 100 pebbles into the stream, and you have blocked it.<sup>9</sup> The effects of regulation are cumulative. From that perspective, Abenomics is an essential part of allowing Japanese businesses to become more innovative.

The second aspect is the unpredictability of commercially successful innovation. What was remarkable was that the economic impact of the smartphone was unanticipated as late as 2006, a year before the iPhone was introduced. A review of the major financial and business press shows no one at all predicting the size of the smartphone revolution.<sup>10</sup> Indeed, the smartphone originated in the United States because of its "light touch" regulation allowed Apple quickly bring the first iPhone to market.

### GOVERNMENT INTERVENTION IN THE MOBILE NETWORK AND DEVICE MARKETS

In Japan, mobile was not part of Prime Minister Abe's structural reform package because it was already highly competitive. Indeed, mobile telecom companies competed furiously to grab customers from each other by offering subsidies to subscribers switching plans. Inflation in the communications industry averaged zero from 2011 to 2015.

Moreover, competition from "mobile virtual network operators" (MVNO) is intensifying.<sup>11</sup>

**MVNOs pay wholesale prices for access to the mobile networks of the larger operators—NTT Docomo, KDDI and SoftBank, and then resell the service to consumers.**

Depending on the wholesale price, the MVNOs can offer their service for much lower than the major carriers.

MVNOs offer what is known as *services-based competition*, because they do not build their own infrastructure. By contrast, companies that build their own mobile networks offer *facility-based competition*. As we will see later in the paper, there is a very deep and extensive academic literature on the different impact of service-based and facilities-based competition on innovation and penetration.

Subscribers to MVNOs are up 65% from a year ago, and new entrants such as messaging app Line—which recently had a huge IPO—are offering cheap mobile service, including free access to Facebook and Twitter.<sup>12</sup>

**In parallel, large operators are cutting the price of their data plans. For example, as of September 2016, SoftBank offered a new plan called the “Giga Monster,” providing 20 GB a month for ¥6,000, down from ¥16,000, respectively.<sup>13</sup>**

The Ministry of Internal Affairs and Communications (MIC) and the Japan Fair Trade Commission (JFTC) are taking steps to further encourage the growth of the MVNOs. For example, in March 2016 MIC issued guidelines requesting that the major mobile phone carriers stop their policy of offering new handsets for virtually no cost in exchange for fixed length contracts.<sup>14</sup> 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.<sup>15</sup>

MIC's pressure on the mobile carriers to reduce or eliminate discounts has two main rationales. The first goal of the government action was to lower the cost of mobile plans to consumers. The assumption was that forcing the telecom carriers to reduce or eliminate the discount for new handsets would lead to more competition and drive data plan costs lower.

The second goal of the government action was to make it easier for MVNOs to compete with larger carriers. The belief was that the discounts gave an unfair disadvantage to the MVNOs, since they did not have the financial resources to match them.





## ASSESSMENT

We can understand the MIC actions to reduce or eliminate handset discounts as a restriction of consumer choice.

To greatly simplify, before the MIC guidelines consumers had two choices: To buy a heavily discounted handset from a major carrier and pay higher data rates, or buy a less discounted or lower-priced handset from an MVNO (including used handsets) and pay lower data rates. Obviously the choice depends on data usage, phone preferences, and so forth.

Once again simplifying, after the MIC guidelines were enforced, consumers had fewer choices because deeply discounted phones were no longer available. All other things being equal,

restrictions on consumer choice reduce consumer welfare unless there is a market failure associated with imperfect or incomplete information, or with externalities.<sup>16</sup>

**True, the terms of contract renewal may not be completely transparent to consumers. However, these information issues should not have a large impact on the consumer's handset choice.**

The implication is that, any consumer who wanted to pay lower prices for a data plan while paying a higher price for a high-end handset or using a low-end or second-hand handset always had the option of purchasing service from an

MVNO, even before the MIC guidelines. In other words, the government's actions to limit handset discounts had the direct effect of limiting consumer choice.

Eliminating the discounts particularly affects liquidity-constrained consumers, including the poor, the young, and the elderly. In effect, the discounts are loans from the carriers to consumers, enabling them to get a smartphone while laying out less money. These discounts help those who might otherwise have trouble participating in the mobile revolution, or may buy a low quality phone.

There is a bigger issue as well. 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.

The problem is that limiting competition and encouraging lockstep behavior creates a mindset that is harmful to innovation.

**Innovation is accelerated when companies are more willing to do something different than their rivals, and hindered when regulators enforce similar behavior.**

The negative effect of regulation on innovation potentially arises in the used handset market as well. An August competition report from the Japan Fair Trade Commission (JFTC) analyzed several different issues in the smartphone market that supposedly would cause problems

for MVNOs.<sup>17</sup> The JFTC report specifically noted that the major mobile carriers were following policies that would lead to a scarcity of secondhand smartphones, which would impede smaller MVNOs from access.<sup>18</sup> The implication was that forcing the carriers to provide more secondhand smartphones to MVNOs would improve consumer welfare by lowering the price of purchase of high-end smartphones.

But a government attempt to regulate secondhand smartphone sales would have unforeseen consequences for future generations of innovative mobile devices. The decision to introduce a new generation of devices renders the previous generation obsolete. If carriers were to be forced to provide secondhand devices to MVNOs at low prices, they are in effect undercutting the market for their new devices. That, in turn, is likely to slow down the rate at which innovative new devices, including the next generation of handsets, are adopted.

**These rules—designed to control micro-manage how carriers buy handsets and other mobile devices—would also apply to future innovations in mobile devices that are necessary to fuel economic growth. More rules means slower innovation.**

#### **THE APPROPRIATE ROLE OF MVNOS**

In the broader picture, Japanese government policy is directed to encouraging MVNOs, or service-based competition, as a road to increasing consumer welfare. PPI agrees strongly that MIC and JFTC have an important role to play insuring the antitrust rules are not broken, and that large carriers are not taking unfair advantage of their market position.

However, we note that the debate about facilities-based versus service-based competition has been studied for many years. Facilities-based competition requires competitors to build their own network, which is obviously expensive. In the case of mobile networks, facilities-based competition requires that the operator get enough spectrum, and build enough base stations to offer adequate coverage to someone who wants to join the network. So that's a big expenditure of capital up front.

In theory service-based competition offers the best of both worlds. By unbundling and offering wholesale access to the network, service-based competition can help bring down prices and increase penetration of 4G and soon 5G.

Unfortunately, there are three problems with this theoretical argument. 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. Choi (2011) compared the South Korean experience with service-based competition with the Japanese experience, and concluded "consistent commitment of the government enforcement appears to be critical in implementing service-based competition."<sup>19</sup>

We see now how the regulators are getting more involved in micro-managing actions by mobile carriers. When facing detailed rules about the pricing and disposal of devices, carriers start looking over their shoulders and waiting for the approval of regulators, rather than being boldly innovative. This is not good for long-term productivity and growth.

Second, the need to protect MVNOs may have unanticipated consequences in the



handset market. By controlling discounts and the secondhand market, the regulators may encourage carriers to introduce new innovative devices more slowly, implying downward pressure on electronics manufacturing in Japan.

Third, the emphasis on service-based competition may have uncertain effects on investment in 5G networks, which is a priority by the 2020 Olympics. Academic studies, especially the more recent ones, have consistently found that service-based competition does not have a positive effect on broadband penetration or investment in new networks, either by the incumbents or entrants.

For example, in a 2009 article, Cambini and Jiang (2009) review the literature up to that date and conclude that in general, service-based competition reduces the level of investment by both incumbents and entrants.<sup>20</sup> Briglauer, Gugler, and Haxhimusa (2015) review the more recent literature on investment and regulation, and come to the same conclusions.<sup>21</sup>

Now, it's important to note that the negative conclusions of this literature may not apply to Japan, because of the key role of the government in guiding telecom investment.

However, it is worth considering if excess growth of MVNOs may discourage investment in 5G networks and thus harm consumer welfare in the long run.



## CONCLUSION

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The spirit of Abenomics, especially the third arrow, is to emphasize structural reform of the economy to boost innovation and growth.<sup>22</sup> Many observers, including the International Monetary Fund, have called for more to be done along this way.<sup>23</sup>

However, the main thrust of telecom policy appears to be more intervention by government agencies, rather than less. Indeed, history shows that tight government regulation is not conducive to innovation. As one Japanese publication wrote:

**“ ...too much government intervention has adverse effects [on innovation].<sup>24</sup> ”**

Japan--and Europe and the United States as well--must remember that technological change is driven by engineers, scientists and software developers, not by Washington, Brussels and Tokyo. The spirit of Abenomics says that government can best help innovation by getting out of the way.

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

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**Tel** 202.525.3926  
**Fax** 202.525.3941

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**info@ppionline.org**  
**progressivepolicy.org**