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## **A Japan with Fewer Japanese: Enter the Machines**

*By Tan Ming Hui and Christopher H. Lim*

### **Synopsis**

*Japan has long been beset by persisting demographic challenges – an ageing population, a shrinking workforce, and a reluctance to embrace immigration. However, as computers and robots are poised to take over many job sectors, Japan can bank on its technological innovation and emerge unscathed.*

### **Commentary**

IMAGINE A Japan without Japanese. According to a doomsday clock developed by Tohoku University, there will only be one Japanese left in 1759 years. With a persistently low birth-rate well below replacement level, on top of a longstanding reluctance to accept immigration, the population is rapidly ageing and its workforce is shrinking.

Japan's working age population (aged 15 to 64), which peaked in 1995 at 87.26 million, has dropped to 76.56 million in 2016. The figure may drop further to 41.47 million in 2065 based on low-fertility projection. Furthermore, Japan has historically been very resistant to immigration. The number of registered foreign residents accounted for 2.3 million in 2016, merely two percent of the population. Since March 2017, the government has put in new measures to attract and retain highly skilled foreign workers, making it quicker for them to attain permanent residency. While a positive step forward, the measures will only achieve long-term effect if Japan's problem of integration can be overcome.

### **Aversion to 'Aliens'**

Integration of foreign residents has been a huge challenge for years. The colonisation

of Taiwan in 1895 and Korea in 1910, as well as labour shortages during World War II, brought many Korean and Chinese to Japan. *Zainichi*, which means 'residing in Japan', refers to the approximately 600,000 ethnic Koreans and 40,000 ethnic Chinese, and their descendants, who remained in Japan after the war.

Despite being regarded as Japanese nationals as colonial subjects, they were reclassified as 'foreigners' or 'aliens' under the 1947 Alien Registration Law, until the 1960s when they received a 'special permanent resident' status. Nevertheless, the *Zainichi* population continues to face discrimination in employment, education, housing and marriage even though most of them, especially the later generations born in Japan, speak only Japanese and are culturally indistinguishable from ethnic Japanese. Some have converted to Japanese citizens and many feel pressured to adopt Japanese names to hide their ancestry.

To meet the demand for labour during the bubble economy of the 1980s, the Japanese government relaxed its immigration policy in 1990 to allow *Nikkeijin* to work and reside in Japan. *Nikkeijin* refers to people of Japanese descent born and raised abroad, mainly in Latin America. They assumed that *Nikkeijin*, being ethnically Japanese, would easily assimilate into Japanese society.

On the contrary, language and cultural barriers meant that many had a hard time fitting in. After the 2008 economic crisis when unemployment soared, the government started a programme that pays *Nikkeijin* to return to their country of origin with the agreement of never returning.

It remains difficult for immigrants to integrate and for Japan to embrace multiculturalism. To be accepted permanently into Japanese society, one would need to fulfil all three criteria of being ethnically, culturally and linguistically Japanese. Japanese people have long subscribed to the belief of Japanese cultural and ethnic homogeneity; a myth that is often supported by the ruling elites and reflected in policymaking.

A genre of text called *nihonjinron*, which focuses on Japanese exceptionalism, remains popular in Japanese discourse despite being largely discredited by foreign scholars. Seemingly, given the conservativeness and exclusiveness of the Japanese society—is there hope for the Japanese economy?

## **Technology Takes Over the Workforce**

Along with the rest of the world, Japan faces an ongoing technological revolution. The rapid advancement of automation and Artificial Intelligence (AI) may eventually replace workers in both manual and knowledge-based sectors. AI has evolved into an information system coupled with a range of technologies that is capable of perceiving the environment and collecting data; analysing and understanding the information collected, and making informed decisions and providing guidance based on analysis.

Moreover, machine-learning technology has allowed research in AI to develop the capacity for experience-based self-learning instead of depending on hard coded rule-based algorithms. With the quickening pace of technological development, a large

portion of all jobs can be taken over by computers and robots as long as the work can be codified.

While most countries view these trends warily, bracing themselves for significant job loss, computers and robots are instead seen as a welcomed solution to Japan's labour shortage. In 2015, Japanese Prime Minister Shinzo Abe called for a "robotics revolution", arguing that Japan's demographic challenge was an incentive to boost innovations in robotics and AI.

Japan's love for cutting-edge technology is not new. For many years, Japan has maintained a reputation for being a technological giant; leading the world in innovation, research, and entrepreneurship in digital and advanced technology. Even way back in 1982, the Japanese government pushed forward a Fifth Generation Computer Systems project, which aimed to develop supercomputers with "artificial intelligence" and reasoning capabilities.

Although the project ultimately did not reach its ambitious goals or meet with commercial success, it was truly ahead of its time. The existential threat facing Japan will provide the fuel needed for the country to rekindle its past technological drive.

### **Japan Can Buy Time?**

Given the society's apprehension towards foreigners, robots and smart computers would fit in more harmoniously in the workforce. In fact, robots are often portrayed as friendly forces and helpmates in Japanese popular culture. Examples include the beloved manga characters Astro Boy and Doraemon. Rather than job-stealers, robots are generally accepted as assistants working alongside humans to increase productivity, and essential to Japan's progress and advancement of the economy. In particular, humanoid robots are seen as having the potential to develop human-like qualities.

In addition, the expanding Human Cloud can help Japan meet its business and productivity demands of "non-codifiable" activities, such as in providing relatable customer service or other jobs requiring creativity or empathy. Human Cloud refers to an ecosystem of independent professionals who performs specific tasks or projects remotely and on-demand. They do not have to reside in Japan and could be anywhere in the world as long as they have access to the Internet.

The combined development of AI (including robotics) and Human Cloud are arguably huge game changers for businesses and job markets in both manufacturing and services sectors globally. Potentially, Japan can survive even with fewer Japanese if it can revitalise its traditional stronghold of advanced technology, and make effective use of AI and Human Cloud augmentation for its economic benefits.

This will also help to buy time for the Japanese society to address the integration issues, to re-examine their beliefs about national identity, or even revive their birth rate. Without the burden of the massive unemployment created by the technology "tsunami" as observed in other countries, some may even see Japan's shrinking population as a blessing in disguise.

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