

The Intergenerational War in Japan: Macroeconomic Burdens of the Demographic Change

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Takatoshi Ito

Professor, School of International and Public Affairs, Columbia University;

Director, Program on Public Pension and Sovereign Funds, CJEB

On Tuesday, October 3, 2017, the Center on Japanese Economy and Business (CJEB) at Columbia Business School (CBS) hosted a lecture with Columbia School of International and Public Affairs (SIPA) professor Takatoshi Ito entitled “The Intergenerational War in Japan: Macroeconomic Burdens of the Demographic Change.” Professor Ito was introduced by Hugh Patrick, Director of CJEB, who stipulated that the address was on-the-record.



Professor Ito opened his discussion by outlining the two parts of his lecture: first, a stock-taking of macroeconomic conditions, and second, the main theme of this “intergenerational war.” Macroeconomic conditions can be described as “strong real but weak nominal”: on the real side, GDP and employment numbers are very strong. However, nominal wages are stagnant and somehow the inflation rate is still far below the 2% target. The “intergenerational war” is related to the social security system: currently, retired older generations benefit greatly but at the expense of younger generations. Professor Ito expressed that he had expected that younger Japanese would rebel against the system and complain to the older generation, but it seems that they have not noticed how disadvantaged they are at this point in time. The baby boomers are the winning side in this war: they are reaping all of the benefits before the Japanese economy runs out of resources.

Professor Ito then reviewed macro conditions. As mentioned previously, Professor Ito regards the macro economy as having a strong real side, yet a weak nominal one. After Prime Minister Shinzo Abe introduced his policy of Abenomics in December 2012 and appointed Haruhiko Kuroda as Governor of the Bank of Japan (BOJ), Kuroda began quantitative and qualitative easing. The first six months were very exciting and the market and economy responded favorably. The trend began to turn negative in the second quarter of 2014, which can be attributed to the increase in the consumption tax rate in April of that year. Economists forecasted that this big negative would be offset by big positive movements in the economy before and after but unfortunately, recovery has been weak. Prime Minister Abe blames the tax hike for stagnation in 2014 and 2015 and has stated that he believes its implementation was a mistake. Now, potential growth rates are about 1%, which are low but could signal growth. They remain low due to a shrinking population.

There is almost no slack in the economy at present: the Japanese economy is essentially at full employment and full capacity utilization. The unemployment rate reached 5.5% during the global financial crisis, but since this peak, it has come down to 3%, which is slightly below full employment. In short, the labor market is getting tight. The opening application ratio



Hugh T. Patrick



– how many job openings exist per job application – is very high: there are many openings and employers are having a tough time finding new workers.

Employers have to either search extensively or raise wages to attract new workers. This level of opening application ratio is near that of the bubble years of 25 years ago, when the Japanese economy was at its peak. Now, labor market conditions are approaching a labor shortage, which is becoming a

constraint on the supply side of the economy. The natural solution to this problem is to invite foreign workers and build robots - Japan is doing both.

With regard to inflation, as stated before, the nominal side of the economy is weak: inflation fizzled during Abenomics – the consumption tax increase and resulting demand decline is blamed. The inflation rate was further compromised due to the decline in oil prices. This summer, the headline and core inflation rates rose marginally and this upward trajectory has lasted into the fall. For example, there was a lot of buzz in the media during the week of October 1 as many goods saw price increases, which theoretically should be reflected in a gain in the inflation rate. However, inflation is still below 1% and thus still far from achieving the 2% target, which is now forecasted to be achieved in 2019. This target date, set by the BOJ, has been postponed four separate times since Mr. Kuroda became governor. Professor Ito stated that he believes there is a good chance the target will be achieved by that time as good labor market conditions should translate into higher wages and influence the inflation rate upward. However, Professor Ito asserted that his confidence is low given how intransigent inflation has been over the past two years.



Professor Ito then pivoted his remarks to the second part of his talk: current demography in Japan and its intergenerational consequences. Japan's population is shrinking, especially the working age population. The elderly to young dependency ratio is worsening quickly. The "baby boomers" in Japan were born during the years 1946-49. After 1950, there was a sharp decline in the number of babies born. There was a second baby boom in the mid-1970s as baby boomers became parents. However, 25 years after, there was no third baby boom. The working age population (ages 22-64) has been declining for some time, but now the speed of the decline is picking up because the baby boomers have retired over the past few years. This has caused a decline in the working age population, which represents a decline in the economy on the whole.

In 1950, there were 10 young or middle-aged people for every elderly person. This declined to around 6 in 1987, down to 4 in 1997 and now is close to 2 in 2017. This ratio is predicted to decline further to 1.2 by 2060. The total population from 2015 to 2065 will decline by 30%, and the working age population will decrease by 40%. The working age population declined by 1 million per year from 2010-2015 because of the baby boomers retiring. This explains why the potential growth rate is down to 1%. On the supply side, this declining population means that there are fewer workers and thus less output unless per capital labor productivity increases. With fewer young, innovative people, innovation will be slower.



Hugh T. Patrick, Takatoshi Ito, and CJEB Director of Research David E. Weinstein

On the demand side, fewer people result in lower consumption. If companies see this decrease in consumption, then naturally they will predict future sales to be less – though one clear exception where companies are predicting higher performance is in the medical sector given the increasing needs of the elderly population. This perception of a decline in economic performance will influence foreign and domestic investment to stray away from Japan, unless they see a high potential for exports.

Lower investment translates to lower GDP as aggregate demand decreases. Another implication of this shifting demography is that the “pay as you go” pension system will break.

The young people pay social security tax – in Japan, this is called a contribution – which is immediately paid to the elderly as benefits in the form of an intergenerational income transfer.

The contribution is paid by workers between ages 20 and 64. The ratio of what a worker pays into the system compared to the value of the benefits you receive is evolving as the population demographics change. This ratio was more favorable to the generation born between the years 1940-1960. This issue is only compounded by the shrinking of the working age population.



To further illustrate this, Professor Ito presented three different economies. One is a static economy where every generation earns the same and thus the lifetime income remains the same generation after generation. The second economy is a growing economy. This growth comes from population growth or per capita income growth but this exercise will focus on population growth. The third is a shrinking economy, meant to illustrate Japan’s declining population.

In the static economy, life has three stages: young, middle, retired. Each stage has 20 years. Wage income is 150, 150, and 0 respectively for each stage with no population or income growth. Without social security, lifetime income is 300. Here, consumption smoothing is assumed so lifetime income is divided by the three stages – 100, 100, 100. Looking at one point in time, for example the year 2010, there are three generations; pay as you go is instituted starting in 1970s, so in this decade the workers had an income of 150 but were taxed social security at a rate of 10%, thus 15 (10% of income 150) of their income is transferred to the elderly. When this generation becomes middle-aged, they are still taxed 10% and there is an income transfer to the newly retired generation. When the original generation using pay as you go retires, they are paid a pension from their grandchildren and children, twice of 10% tax. The generation gets back exactly what they paid as tax while they were young and middle-aged. In this static economy, pay as you go does not do anything - what one pays is what one gets back from the system because population and income do not change. Pay as you go is irrelevant in a static economy.



In a growing economy, the population is increasing and thus introducing pay as you go makes all generations happier. Looking at the same three stages of life, stages 1 and 2 generations are taxed 10%, thus they pay 15 (10% of income 150) each when they are young and middle-aged. Once they are elderly, they receive a higher pension than what they contributed because the population is growing. If the population doubles every 20 years, each retired generation receives contributions from a population six times the size of their own (the middle-aged population is double and the young is quadruple), thus in a lifetime they pay in 30, but receive 90 (15 times 6); this calculation applies to all generations in the future if growth rates stay constant. When the economy is growing, introducing a pay as you go pension system makes sense as everyone thereafter becomes better off, but it is essentially a Ponzi scheme. This example plays to an infinite future where the economy grows with no limit. Pay as you go has this feature, so that is why it was introduced in many countries. As long as growth expectation is realized, it works.

This result is reversed when the population is in decline. Those of retirement age expect a pension valued at their own contribution, but if the working age population is smaller than the retired population, the system fails. If the subsequent generation is only 70% of its predecessor and then the following is only 50%, then those who paid in 30 will only receive 18 (15 times $0.7 + 0.49$). They are worse off, a trend that continues in this reverse Ponzi scheme. This example illustrates what Japan will encounter in 2065.

The problem of Japan's pension system is that it was built when the economy was growing quickly, assuming that a constant tax rate would make following generations happier. Now, Japan is facing a question of how to transform this system and share the burden of this transformation by not just one or two generations, but several. In a move termed "clawback," the elderly must be asked to accept benefit cuts. Further, the social security tax must be increased so that a smaller population can support the elderly at an adequate benefit. Also, the retirement age can be extended as life expectancy is getting longer and longer. In addition, to amplify the income from social security tax, other revenues can be injected, like consumption tax or VAT. Another option is to build a reserve fund while the

growth rate is still higher and thus build up funds instead of paying it all to elderly, under the assumption that enough is built up to live off from when the population rate becomes adverse. In Japan, all of these solutions have been adopted, though likely not to an extent that will rectify the issue. The social security tax (contribution) rate has reached the self-imposed maximum, 18.3%. The reserve fund, called GPIF (Government Pension Investment Fund), is now managing a portfolio valued at 1.4 trillion U.S. dollars, which can be used wisely in the future.