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The End of Growth in Japan: Three Simple Models for Undergraduate Economists
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Introduction

The purpose of this paper is to look at how Asia can be brought into the economics curriculum. Certainly it should rank high on the radar screen for any number of reasons. The Asian financial crisis of summer 1997 is a good example of the trauma wrought by financial instability. China’s economy has come from nowhere, the most successful of the “transition” economies. Indeed, it has been the world’s fastest growing economy for twenty years, with a quadrupling of real per capita incomes that has transformed the lives of a fifth of the world’s population in less than a generation. Even India has outgrown the U.S. and the E.U. the past several years, by a factor of 2 or more. But my background is Japan, and I choose to argue from what I know best.

There is a compelling case for including Japan’s economy as a paradigm in any economics course. One impetus is pragmatic, that Japan is “important.” It is the second-largest developed economy, after the U.S., and (outside of NAFTA) America’s largest trading partner. A second is that Japan poses interesting questions. For example, in the last half-century, it is the only major economy to undergo a full decade of stagnation; only the much smaller Switzerland has experienced something similar. Finally, Japan is the first developed economy to confront deflation since the Great Depression, and with it the collapse of the effectiveness of monetary policy. It thus offers an important contemporary example of a “liquidity trap,” a phenomenon that had over time become a footnote in introductory “Principles” textbooks. Obviously this is a selective set, and all three are fundamentally macroeconomic in nature. When it comes to macroeconomics, I believe that if you are to do a good job of linking theory to the real world, you must employ Japan as an example.

Now economists distinguish themselves by employing models, and indeed the classes we teach are typically organized on that basis. Bluntly, we don’t structure our courses because something is “important” or “interesting” on its own, but instead seek to instill an analytic approach to understanding the world. However, in a liberal arts environment, we should be constantly trying to cast our vision beyond the presentation of technical material. In teaching economics, the challenge is to fight the bias to present only models. To teach in a liberal arts context, or to teach economics well, requires a willingness to omit material, to cover only part of the text, so as to concentrate on applications and links to problems important, or interesting, or illuminating. The following three examples are presented in this light. At their core lies theory, because that is the surest way to communicate with colleagues in economics. What I hope I accomplish, though, is presenting three real-world examples that feature Japan. Indeed, I will go further, and claim that looking at Japan highlights the centrality of models that a U.S.-centric approach may overlook. Japan has something to teach economists, as well as serving as a tool for teaching our students.

Growth Models: Changes of Stocks in Japan’s Economy

‘You can’t squeeze water from stone.’ This is the essence of the “classical” model of growth that would be taught in many introductory classes. If we can understand what is happening to the growth of the labor force and to investment, then we can place an upper bound on growth. In the late 1950s Robert Solow and others plugged in numbers, using data on the stock of labor and the stock of capital (the value of buildings, cars, machinery, roads and other productive assets). To their initial surprise, their efforts explained only about half of U.S. growth; the balance, unexplained sources of growth, were later dubbed technical change. Applied to Japan, this sort of straightforward exercise helps delineate what mattered for, and what limited, growth.

Capital growth is a major component; high investment gave workers more, and better, equipment with which to work. This is not restricted to machinery. In Japan, new houses and office buildings are more comfortable than old—better lit, better cooled. All of this contributes to output
and welfare. Likewise, formal education and skills acquired on the job make workers more productive; however poorly, such inputs can be measured, as can the absolute size of the labor force and changes in hours worked. Finally, research on Japan highlights one-time factors that increased output, the most important of which was the transition from farm to factory.

Why is this model important? Within the context of macroeconomics, it is the core of the “classical” tradition, which is central to modern treatments of the field. But it is also useful for understanding Japan. While high rates of investment boosted the size of the capital stock in Japan over the past fifty years helping per capita output to rise sharply, this process faced diminishing returns. As a result, it is to be expected that growth would slow, and (less directly) that investment would fall. This was noticeable by 1970, and widely discussed by contemporary economists, at least inside Japan. Starkly phrased, additions to the capital stock are in and of themselves are not, nor will they ever again be, a source of growth. Of course the absolute size of the labor force is also now shrinking, and absent large-scale immigration, this will continue. Likewise, a large proportion of Japanese go on to obtain higher education directly out of high school. This ratio cannot rise much higher, and with the baby boomers entering their mature years, neither will the level of work experience of the labor force expand. Other one-time changes, such as the movement of workers from farm to factory, ran their course long ago. In contrast, the current shift from factory to services such as health care will, in my opinion, add comparatively little to growth. In short, absent technical change, we ought to expect Japan’s economy to decline in absolute size. Japan illustrates one of the lessons that Solow and subsequent economists drew from their empirical work: that the growth of the capital stock and of skills must slow over time, and that absent productivity increases, in the long run per capita growth stagnates. This is not necessarily bad. Japan’s labor force is in decline, and its population will soon start shrinking. As a result, the economy can decline in absolute terms with little impact on average welfare. Stagnation is not a bad outcome, and is certainly not a crisis situation in and of itself.

This simple model thus provides an antidote to the natural tendency to focus on the dramatic events of Japan’s economic bubble and its collapse. It is not the whole story, but no model ever is. Furthermore, it offers general lessons, applicable to Asia’s other large economy, China. The accumulation of capital there has been even more rapid than in Japan; the shift from field to factory is still in its initial stages, but is clearly an important component of growth. Similarly, average education and experience levels remain low but are increasing. As a result, rapid growth will, I believe, continue for another decade, or so. But as in Japan, demographic slowdown is already guaranteed; the drop in the birthrate that began in 1980 means that China’s population will be shrinking by mid-century. The same model can both elucidate China’s growth today, and predict its future cessation.

The “Bubble”: Flows in Japan’s Economy Shifts in Savings and Investment

A second simple framework highlights factors behind Japan’s “bubble” economy. It consists of two components. One is an analysis of savings and investment flows, an example of the well-known “paradox of thrift,” that an economy can save too much for its own good. The second is the application of institutional change—that change is hard—applied to Japanese finance. What is surprising to me is not that a financial crisis occurred, but that it took so long to occur. Furthermore, the factors that underlie Japan’s banking sector problems and bouts of slow growth are not due to factors unique to Japan. The same fate awaits the Chinese economy.

One side of the ledger is savings. For simplicity, let us ignore corporate savings, and instead focus on personal savings. We can then look at the uses of those savings, namely investment. (For non-economists, it is important to stress that “investment” is the construction of new buildings and the purchase of productive assets—an addition to TIAA-CREF is not investment but savings, which can only accumulate and thus contribute more if we cut our current consumption.) Note that decisions to save and invest are made by different individuals, and there is no mechanism to guarantee that an increase in saving will be matched by a compensating increase in investment. Since funds cannot simply vanish, any surplus must end up somewhere. The following clarifies what that means.

As you must know, Japanese households save a lot. But that has not always been the case; before the late 1950s the Japanese were not notably thrifty, and high savings rates did not arise until the 1960s. But once the economy began growing, households had many incentives to save. Urbanization and the rise of consumer culture led to saving for the purchase of new goods and housing. Education required funding, too. But above all, savings for retirement was central. Rapid growth is synonymous with a sharp rise in both incomes and the standard of living. As time progressed, this meant that the savings made early in one’s career—which may have seemed generous at the time—in retrospect simply didn’t amount to much. That bank accounts, the primary means of saving, earned little interest did not help matters. Indeed, the savings rate peaked following the first oil crisis (1973), when high inflation eroded the value of bank accounts. Households, however, keep on saving for retirement, twenty or thirty years into the future, not at current growth. Put simply, from the 1970s, Japan has been awash with savings. Where to put it has been, and will continue to be a problem, indeed the underlying macroeconomic challenge. Japan has many structural difficulties—Richard Katz is perhaps the most eloquent proponent of this as the source of Japan’s problems.

Japan was left awash with too much money chasing too few investment opportunities. The numbers are quite stark in magnitude. In 1970 corporate investment was 27.5% of GDP; in 1975, it was 17.9% and falling. While this was partially offset by a decline in corporate profitability, the
swing was nevertheless huge. Where did the savings go? Initially, they went to the government, which ran huge deficits in the latter 1970s; when these were reigned in under Prime Minister Nakasone, growth slowed markedly. This time it was exports to the rescue; the early 1980s were the only time period since the Korean War when the economy was export led. But for an economy of Japan's size, it is hard for exports to be more than a temporary salve, since to serve as an engine, they must increase faster than the rest of the economy. By the late 1986 they could no longer fuel growth. The bubble came to the rescue; a combination of renewed investment and lower kept the economy going. That, too, was not sustainable. Investment was high with a view to the profits to be made in real estate, and secondarily in the stock market. Underlying this was a general euphoria, that Japanese firms would drive the global auto industry and Japanese banks would dominate world finance. With hindsight, this exuberance was irrational.

Those proved illusory. Consumers saw some of their wealth disappear. More importantly, retirement for many loomed at the same time that income growth ceased. An aging society, widely trumpeted in the media from the 1980s, made it prudent to provide for the future. Savings did not continue to fall. As a result, Japan could no longer avoid the paradox of thrift: while it is individually rational to save, if no one consumes, the economy must shrink. Despite the return of huge government budget deficits in the 1990s, and investment overseas, the Japanese economy has proved incapable of soaking up these savings. Stagnation resulted, indeed growth failed with excess capacity and chronic unemployment. I predict that China and other high-growth economies will sooner or later face this same dilemma.

All of these changes were reflected in massive shifts in the flow of funds, a shift so large as to overwhelm any financial system. If firms were no longer investing, then new channels had to be developed to allocate Japan's still-bountiful savings. But other changes amplified this, since not only were large firms borrowing less, but they were able to borrow from sources other than banks. Large banks lost their traditional customers, and were forced to find new ones. That process did not go smoothly. Until the late 1970s, government budgets had run surpluses, or at most small deficits. As a result, there was no market in Japan for government bonds, and regulators made it difficult for private companies to issue bonds. As a result, from 1963, when Yamaiichi Securities, Japan's largest brokerage, failed and had to be bailed out, firms had no direct financing options; their only source of outside funds was the banking system. When the government first began running sizeable deficits after the first oil crisis, the bonds it issued were placed with banks. But by 1979 the volume the government needed to sell grew to the point that banks refused to purchase the full amount, and had to allow the development of a bond market. At the same time, Japanese multinational corporations developed foreign funding sources, such as the U.S. commercial paper market; they also began issuing “samurai” bonds in London. The deregulation of international finance in 1980 abetted this ongoing transformation. So not only were they borrowing less, they were able to turn to non-banking sources.

Leverage allows banks to use a small amount of capital to move a large amount of loans. But it can also be dangerous: bad loans can overwhelm the strength of the system, and push a financial system into crisis. The typical approach to looking at financial problems is to concentrate on individual shocks and the circumstances that contributed to them; that leads to a plethora of sometimes-idiosyncratic analyses. In contrast, I want to stand this formulation on its head: why don't financial meltdowns arise more frequently? Two factors stand out when the question is phrased in this manner.

First, over the decades, bankers have learned how to avoid problems encapsulated in organizational structures and operating rules-of-thumb. In the case of the large “city” banks which, national in scope, dominated the Japanese financial system, these included a focus on lending against physical collateral, primarily real estate, and loans to large firms. Many such borrowers were regulated, or were parts of tight oligopolies or otherwise stable industries, and were historically low in risk. Furthermore, during high growth, even firms that were poorly managed do well enough to survive. Real estate prices rose steadily; collateral thus provided a reliable cushion. Banks thus tended to focus on straight loans to support the expansion of borrowers' ongoing operations; by 1980, they had had a stable set of customers for twenty or more years. These rules-of-thumb were sufficient for forty years; there were no bank failures until the latter 1990s.

Regulation complemented banks' internal rules-of-thumb. Following the example of the U.S., Japanese regulators tried to watch both the asset and the liability side of the system. They limited the setting up of new branches and otherwise stunted competition among banks, as an indirect tool to buttress the stability of the financial system. If banks could not grow quickly, they faced diminished incentives to undertake risky (but potentially more profitable) lending. Banks were also required to maintain capital reserves, and were regularly inspected by authorities from the Ministry of Finance to check honesty and management. Finally, regulators insured depositors against losses and prohibited banks from offering higher interest rates than their peers. Customers thus had no incentive to switch banks. With competition muted, banks did not even have to watch costs carefully. Indeed, they faced incentives that encouraged inefficiency: labor-intensive services and entertainment—and the purchase of shares in their clients—were the few strategies they could employ to capture share from their rivals.

This cozy world proved a little bit too comfortable: a rapid shift in the flow of funds undermined both internal and external checks. Large firms disappeared as lenders, and by 1980 fiscal restraint under Nakasone reduced budget deficits; banks thus could no longer supplement their loan portfolio with the purchase of government bonds. What were large banks to do? If they couldn't lend to large firms, they
could try lending to small, or internationally for project finance. In reality, such new business was something for which neither banks nor regulators were prepared.

It is not that banks did not try. To develop expertise, they dispatched staff to the Small and Medium Enterprise Agency. But lending in such markets requires very different skills; compared to large firms, bankruptcy rates are higher among small firms. Stability cannot be presumed; furthermore, small firms were served by credit agencies and other local financial institutions. The better firms already had access to loans, and so the “city” banks picked up less desirable customers, or had to offer loans at prices that, given their cost structure, were not profitable. In practice they seem to have done both. International lending also requires new analytic skills, one that as it turned out neither Japanese nor American banks had. In sum, everything Japanese banks tried tended to sour.

This was accentuated by the use of land as collateral. Once money began to flow easily, and land prices began climbing, the expansion in lending to small firms looked both safe and simple. Credit analysis wasn’t necessary, only a careful monitoring of collateral. Where the money flowed didn’t matter. The monetary policy of the mid-1980s made matters worse. While exports were strong, fiscal retrenchment nevertheless meant slow growth, and interest rates were kept low. That continued with the Plaza Accord of September 1985, a coordinated effort by the major “G-5” economies to depreciate the U.S. dollar. But the yen strengthened 50% over the next year, more than anyone anticipated, prompting interest rates to drop to (then) record-low levels into 1987. That policy was continued after the U.S. stock market crash in October 1987. Easy money was fuel on the fire of bank lending. The more real estate prices rose, the more confident banks were in their lending, and the looser their controls became. At the same time, by their traditional guidelines—bankruptcy rates, collateral, bank capital adequacy—regulators saw no reason to worry.

In sum, organizations were unchanged, and in retrospect they were ill-suited to the new environment. When problems surfaced after 1992, there were no pressures to undertake the sort of restructuring and retrenchment that now appears to have been sensible. Instead, both banks and regulators procrastinated in foreclosing on bad loans and trimming their own branch networks and lending staff. In any case, the story of the excesses of Japan’s “bubble” economy and its aftermath, including the bungling of the subsequent cleanup of the banking system and ill-timed on-again off-again macroeconomic stimulus, has been told many times, and is still unfolding. In sum, thrift has imposed a high price on their economy. In this it will not be unique. Rapid growth in other Asian economies has already produced shifts in their flow-of-funds that undermined tried-and-true rules of controlling leverage, leading to so far fleeting but nevertheless costly financial crises. As these economies see their population age, and investment fall, they too will face the paradox that plagues Japan today. China will be the most vulnerable.

The Aging Society: Liabilities (and Assets) in Japan’s Future

Japan is now on the threshold of one of the most fascinating transitions in human history: natural population decline due to an increasingly elderly population. This is not a prediction; it has in a sense already happened. That is because the size of the adult population twenty years hence is already known, since we know the number of children in the population.

This transition ought to be of interest to all social scientists. There is a small body of literature in anthropology and sociology on cities and regions where the young have moved out. Perhaps that gives some sense of what Japan’s society will soon look like, but in general there is comparatively little work on this topic. Economists are no different. While there is a growing literature on “generational accounting” and on projections of social security costs, it is difficult to motivate researchers to devote their professional lives to predicting the shape of their grandchildren’s world. In contrast, our students have a vested interest in the topic.

As the number of elderly increases, Japan’s savings-investment imbalance will ease. However, this transition is likely to be slow, and it will probably not be until the end of the decade that Japan will see relief from its current surplus of savings. Of course, that will also be matched by a decline in investment and slower growth in the capital stock. Both stock and flow analyses suggest that Japan’s economy will show minimal growth for the remainder of our lifetimes.

Here, however, I want to look at the future economy by listing up the liabilities the government has incurred, and its offsetting assets. Japan, like most developed countries, set up a social security system in the early 1960s that includes cash payments to retirees, and it also provides health insurance. This obviously imposes costs as a population ages, though the Japanese health care system is far more cost effective than that of the U.S. However, the cost of provision for the elderly is still higher than for those still in the workforce; costs will rise sharply as the share of the elderly increases, a large future liability that Japan has incurred. Various reforms, such as incorporating nursing homes and care at home, can only pare the rate of increase.

Another contrast with the U.S. is that the current generation is saving. However, output in an economy cannot readily be stored. While investment can increase total future output, health care services are consumed when they are produced. Hence the burden of caring for tomorrow’s elderly ultimately rests upon tomorrow’s workers. An aging society means that this burden will increase, and so the share of the national pie that workers will be able to consume will come under pressure, indeed will fall considerably. The ratio of elderly to those in the working age population is one quick indicator. Currently it is about 27%, by 2025 it will rise to 47%. A declining number of youth will partially compensate, except that reduced costs for education will be offset by (much) higher costs for health care. Indeed, per person costs for the elderly have risen by 33% over the past decade, as modern medicine extended life expectancy. On net, the costs
to those of working age must still rise, and indeed the age structure guarantees that they must rise significantly from a macroeconomic perspective.

Second, the fact that the saving rate is high is of scant benefit. At first glance, some of the costs will be born by the elderly, as they spend. However, this requires that someone else be saving, in order to buy their assets. Indirectly, therefore, those of working age population still bear a burden, since they must reduce their consumption to generate the savings to purchase the assets of the elderly. That choice, of course, is voluntary. In contrast, if current levels of social security and health care support are maintained, then social security taxes must rise to 30% of income, generating an effective income tax rate in excess of 50%. Alternatively, the consumption tax must go from its current level of 5% to 25%, or benefits cut. In either case, this represents a swing of 10% of GDP—a large but not impossible amount.

A shift in taxes of this magnitude cannot help but be politically contentious. What is already certain is that that process will be inequitable: those retiring today will benefit relative to their children. Today's retirees are drawing national pensions and receiving national health insurance. But under the status quo ante level of benefits and taxation, they incurred few obligations in their younger days to support their own parents. Younger Japanese face a different situation: they will have to pay high taxes to provide for the elderly, but will in the most optimistic scenario not receive higher benefits. Realistically, they must expect to receive substantially less than their parents, and already the government is moving both to extend the retirement age and to reduce payouts. How will they react to an environment in which they work to pay taxes, but have to look forward to a less comfortable old age for themselves? Again, this is to my knowledge a novel situation, and we will have much to learn from observing what happens in Japan.

The bottom line seems relatively robust: the Japanese public sector is fundamentally bankrupt. In order to balance assets and liabilities, some combination of increases in taxes and reductions in benefits will be necessary. The normal summation of generational accounting exercises focuses on the generational disparities. The extreme case are the currently retired elderly, who are receiving eight times what they paid in while they were working. Such a disparity clearly is not sustainable under an aging population. Calculations suggest that the current generation is leaving the next generation short by about 10% of GDP.

Again, that is not an insurmountable burden, but it understates the true magnitude of government liabilities. That is because we also should add in the costs of bailing out the financial sector into this framework. The banking system is insolvent, with very low levels of capital and bad loan losses of at least ¥25 trillion, or 5% of GDP. Guarantees to depositors mean that the government will ultimately be responsible for much of this. Problems do not end there. The Japanese post office is the world's largest financial institution, with ¥250 trillion ($2.5 billion) in deposits. These funds have been handed over to the government, which has used it through FILP (the Fiscal Investment and Loan Program) to underwrite the construction of toll roads, bridges, and railroads, and to support small business loan guarantees and a host of other programs, including subsidies and local government. Many of these individual programs have not only run operating deficits for their entire history, but hold assets of little value: bridges that no one uses are unlikely to ever pay back the bonds issued to cover construction costs. For all practical purposes, the government is liable for this difference. FILP-related losses likely total ¥75 trillion, or fifteen percent of GDP. In addition, life insurers face many problems, and must unilaterally reduce payouts on policies if they are to remain solvent; since Japanese hold a much greater amount of their wealth in insurance than do Americans, this also needs to be factored in. At the moment, therefore, the liabilities of financial institutions are at least ¥100 trillion, or 20% of GDP, larger than their assets.

While losses of this magnitude certainly can be born, what will be done in practice is unclear. Japan already has (gross) government debt of 150% of GDP, and is currently running a fiscal deficit of 9% of GDP. In the short run that is not a problem, because interest rates are now extraordinarily low. As a result, the government's interest payments on its ballooning debt actually are smaller than they were a decade ago. Nevertheless, the government will need to begin cutting its deficit before the end of the decade. Adding in 20% of bad debt, and another few years of cumulative deficits, and governmental debt will reach 200% of GDP. Such debt can be rolled over, but interest must at least be paid. If interest rates rise to 3% (from the current 0.75%) then this will increase interest payments by 5% of GDP. Adding all of these up, that is, a 9% of GDP increase in taxes (or decrease in benefits) to eliminate the deficit, a 5% increase to cover the servicing of government debt, and 10% (or more) to cover the costs of the retiring generation—gives an increased burden on today's Japanese youth of 24% of GDP. Japan would move from the low end to the high end of tax rates in the developed world.

Tax increases, of course, will also depress what would otherwise be at best slow economic growth.

**Conclusions**

I have employed 3 simple approaches to look at Japan's economy. One is a simple "growth" accounting, that looks at changes in the stock of the factors of production. Since the labor force is currently declining and will continue to do so for at least another three decades, this suggests slow or no growth into the foreseeable future. Second, the flow of savings in the economy shifted markedly during the postwar era, underlying both the bubble and the current banking crisis. But the "paradox of thrift" that this shift entails also provides a separate impetus towards slow growth, and this too is likely to continue through the end of the decade. Finally, both the government and financial institutions have incurred a vast array of liabilities to the current generation, from promises to provide retirement benefits and health care to promises to make good on deposits and insurance policies.
Currently assets—future tax revenues, and loans to healthy companies and government projects—are much lower than liabilities. The Japanese economy must make good on these amounts in one or another manner, or renege on promises to (future if not current) retirees and savers. Since the starting point is one of high budget deficits and high government debt, that is likely to be a very fractious process.

All of these issues are linked, directly or indirectly, to Japan’s demographic transition. Some of these problems are unavoidable, such as the rise of the dependency ratio of retirees to current workers. But others are in part a consequence of poor policy; financial bubbles are not inevitable, and the burden of thrift need not be so high. Analyzing this is important. The U.S., too, has an aging population, though Europe in general will age more quickly. But the drop in China’s birthrate means that it will soon face the same dilemmas. Hence Japan’s case not only provides useful fodder for standards sorts of economic analysis, but also food for thought for those looking at the rest of Asia.

References


Notes
1W. Arthur Lewis, a Nobel laureate and Princeton professor, first stressed this transition, and later extended the insight to a 2-sector model of development. The initial empirical application of this model was undertaken by Gustav Ranis, a Yale economist, using data from Japan.

2Principles’ texts are disturbing in their uniformity, with many following chapter-for-chapter the seminal 1947 text of Paul Samuelson.

3This is reflected in the aphorism “less bang for the buck,” which here perhaps should be “less yang for the yen.”

4Ironically, one consequence of the “bubble” is that industry after industry—most obvious in the case of commercial real estate and rural resorts—were “fooled” into adding capacity. As a result, the economy has if anything too much capital, and it is not sensible to think that investment will ever return to its pre-1990 levels.

5Technical change increased farm productivity greatly in the 1950s and 1960s; as a consequence it freed up labor that could shift to other sectors at little cost in output. From over 50% of employment in the early post-WWII years, the sector “agriculture, forestry and fisheries” now employees under 5% of the labor force. Technical change in manufacturing is now freeing up resources in that sector.

6Sheldon Garon at Princeton has done interesting work on savings campaigns, which go back at least to the early Showa era (late 1920s).

7See Katz (2003), Katz (1998) and his many op-ed pieces; he was also a contributor and is now the editor of The Oriental Economist.

8This goes against folk wisdom, but in the 1960s and 1970s, increases in exports were offset by increases in imports; the net impact on growth was thus minimal. Furthermore, exports were and remain a small share of the economy. In these two aspects Japan is quite different from the rest of Asia, or for that matter Europe, and instead resembles the U.S.

9I expect that immigration will rise sharply during the coming decade. I believe this might have happened earlier, had the bursting of the “bubble” not led to a premature collapse of growth. Migrants are by nature ambitious, and that does not now lead them to Japan.

10Health care is, as a first approximation, both comprehensive and compulsory. From a U.S. perspective, Japanese health care costs are quite low. However, in contrast to health care, Japanese retirement benefits are more generous than ours.

11One “traditional” way to do this was for children to provide for the elderly; in return, they would inherit the family farm or home—realistic in that 60% of households own their residence. However, this system is breaking down, because the burden of caring for parents can outstrip a family’s current resources, since the children the elderly may themselves be nearing retirement. In any case, the underlying shift—children must reduce their own consumption to provide for the elderly—is the same. A recent attempt by Horioka et al. (2002) analyzes this phenomenon; they find little evidence of a conscious behest strategy in Japan.

12Since there are a wide variety of baselines used, it is not possible to directly compare such estimates. The 10% number is my extrapolation, from the shares of income (or consumption) in the economy. It is consistent with the tabulations in OECD (1997), and roughly comparable to that Dekle (2002).

13I did not detail it earlier, but the return on assets in Japan is a mere 2%, well below either historic levels or the levels of other developed countries.