

# Vision 2050

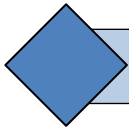
## Maintain Position As a First-tier Nation

To commemorate this year's 50th anniversary of its foundation, the Japan Center for Economic Research is working on Vision 2050, a project for making policy proposals on what needs to be done to ensure that the Japanese economic society is full of dynamism and hope in 2050.

- World Economic Map in 2050——2
- Establish National Targets to Halt Population Decline——18

Japan Center for Economic Research





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## China Likely to Stagnate as U.S. Retains Dominance<sup>1</sup>

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Our forecast assesses the economic status of sixty-four major countries, including Japan, in the year 2050. It indicates that the United States will be the world's dominate economic power at mid-century. In our forecast, we have referred to a number of indicators affecting long-term economic growth, including those created by international organizations and other institutions. These indicators measure political stability, economic liberalization, females in the workforce, ease of starting a business and job market liberalization. If these institutional factors remain on their present trends, growth in China will slow significantly. By per capita gross national income (GNI), a measure of national wealth, Switzerland and the countries of Northern Europe will remain at the head of the pack. Chances are good that per capita GNI for the United States and the United Kingdom will rise more than 1.5-fold over 2010, growing more steadily compared to Japan.

### Overview

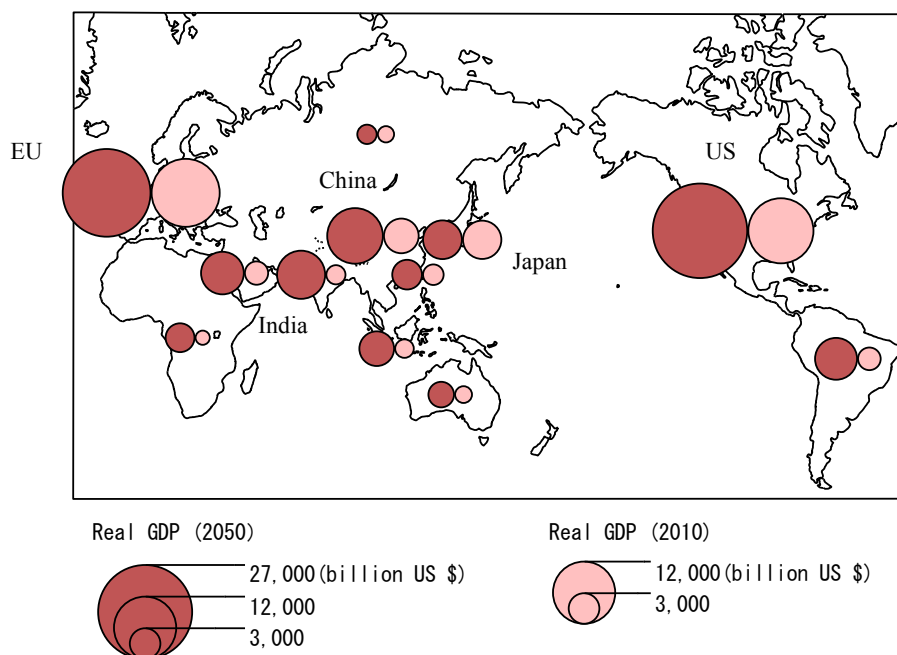
1. The United States will continue to enjoy economic hegemony in 2050. All of the indicators adopted in our estimates will rise in stable fashion, with continued improvements in productivity. As an open economy, the U.S. will see continued inflows of people and capital, achieving growth averaging 1.9%. There are some risks, such as whether the inflow of immigrants can continue. However, even though our forecast does not take into account the impact of the ongoing shale gas and oil revolution, we believe the U.S. economy is very likely to continue expanding robustly.
2. China has maintained rapid growth since the 1990s, but China's failure to implement timely institutional changes will undermine economic development, and unless things change, China will tumble into the "middle income trap." China lags behind the advanced industrialized nations in economic liberalization and political stability in particular. As the country completes its catch-up phase, it will be increasingly difficult to achieve growth which relies on capital investments. Instead, productivity enhancements through reforms of political and economic institutions will be required.

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3. Small countries with small populations will rank highest by per capita GNI, which gauges the standard of living. These include the nations of Northern Europe and Switzerland. Among the major nations of Europe, Britain has improved its ranking thanks to economic liberalization, extensive employment of women, and the ease of starting a business. Among the top five advanced industrialized nations including Japan, U.S., Germany, France and Britain, the United States will rank first by per capita GNI, which will rise 1.6-fold from \$47,000 in 2010 to \$77,000.
4. Relations with the United States will be all the more important for Japan in 2050. For Japan, U.S. is not just a large market with well-heeled customers. It is also a source for diverse business models, capital, human talent and other economic resources essential to achieving higher levels of economic advancement. If Japan aims to survive, it won't be able to do so without strengthening economic bonds, and the first step toward that end will be joining the Trans-Pacific Partnership (TPP).

■ Fig. 1. Changes in the Global Economy 2010-2050



[Note] Real GDP, base year 2005 (converted at market rates). Circle sizes indicate size of relevant economy.

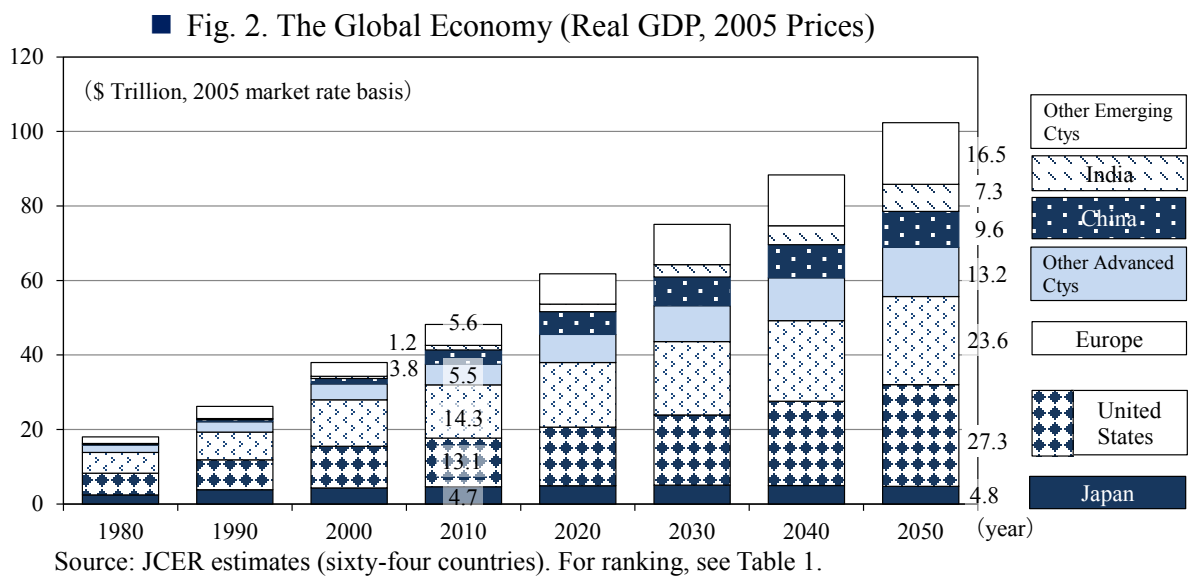
### 1. Chinese Economy: One Third That of U.S in 2050

The United States will dominate the global economy in 2050 (Fig. 1, Fig. 2)<sup>2</sup>. Many analysts at international organizations and think tanks predict that China, with a population of 1.3 billion, will displace the United States as the world’s biggest economy, but if consideration is given to the institutional conditions which sustain economic growth over the very long term, chances are high that China is rather likely to become less relevant.

Why will the United States continue to grow steadily as China languishes? Consider population, a basic factor in growth. In our present forecast, we have referred to United Nations population estimates, which indicate that China’s population, after peaking in the mid-2020s, will turn down and begin declining, though not to the extent of Japan’s. This trend will arise as the consequences of China’s one-child policy are felt. As a result, this population factor will slow China’s growth engine.

Meanwhile, the U.S. will remain on a consistent growth track. With a constant influx of foreign students and immigrants, the U.S. population will reach 400 million by 2050, so the U.S. won’t experience a slowing of growth potential (the potential growth rate) owing to an eroding population. India will experience a massive increase in population. Its population will near 1.7 billion by 2050, making it the world’s most populous nation (see reference figure 1 at the foot of this report).

As China loses one factor in growth with the decline of its population, the country will face an even more rapid decline in productivity, which up to now has been robust. Just under 8% in the first decade of the century, China’s productivity growth will fall to 0.9% from 2011 to 2050. China will also score low on those factors supporting long-term improvements in productivity, such as political and economic freedom, utilization of female talent, ease of business entry, and freedom in job markets.



<sup>2</sup> Forecast values for Japan in this chapter are those for the Standard (Stagnation) Scenario.

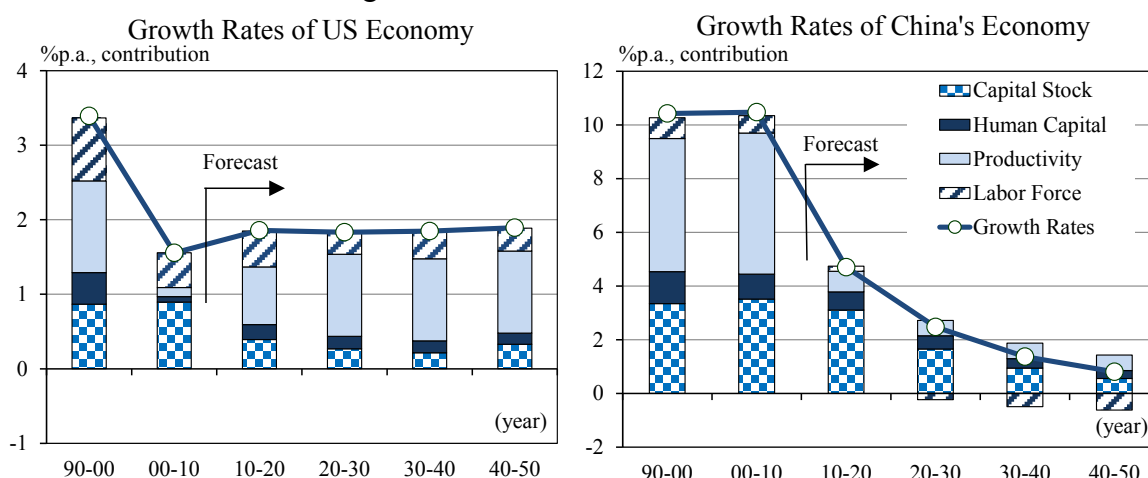
A central question is whether progress can indeed be made under the present political system in areas such as the guarantees on freedom of learning and the freedom of residence, the removal of restrictions on foreign companies and the advancement of women in the workplace. Meanwhile, in addition to rising population, the United States ranks high by these factors with per capita already over \$47,000 as of 2010. We expect the U.S. to top China in improving productivity by 1.5% for the years 2011 through 2050 (see Fig. 3).

We will discuss the reasons for the decline in Chinese productivity below, but in general it is easier during the catch-up phase for capital and labor inputs to yield greater size and improvements in productivity. This was Japan's experience during the period of rapid economic growth of the 1960s. During this phase, the above sort of institutional factors are less relevant, and it is easy to achieve growth through "development dictatorship" methods in which leaders and the government dictate fields to be emphasized.

However, it will become increasingly difficult for China to achieve self-sustaining growth under the present political and economic order dominated by the Communist Party. Rather, the politico-economic system itself is the problem. Japanese companies have spared no efforts in building and investing in China's massive, steadily growing market despite difficult political relations during the first decade of this century, but if those companies consider their corporate strategy over the long term, they might want to think once more about the sustainability of Chinese growth.

This does not mean that the United States has no Achilles heel. Uncertainties remain as to whether the U.S. population can continue rising on immigration and other factors and whether the country will not turn inward. On the other hand, our present forecasts are based on past trends and do not take account of the impact of the shale gas revolution now underway. Thus for the forecast period, our projected rate of growth for the U.S. is 1.8%, which is somewhat lower compared to the forecasts of other institutions (many of which project growth of 2% or more).

■ Fig. 3. Growth Forecasts for U.S. and China



Source: JCER estimates. Actual results are calculated by including demand factors in productivity. Real values based on 2005 prices.

## 2. Switzerland and Northern Europe Wealthiest: Female Advancement Key

By per capita GNI, which measures the standard of living, Switzerland and the countries of Northern Europe (including Norway, Sweden, Denmark) rank highest now and will retain the highest ranking in 2050 as well. With the exception of Denmark, the countries ranking among the top fifteen in 2050 will see per capita GNI rise by 1.5-fold or more versus 2010. Such increases will be seen not just among smaller, low-population countries but by the United States and Great Britain as well.

■ Table 1. Robust Income Gains Among Top GNI Nations  
(Per Capita GNI, 10 thousand US\$ at current price)

Ranking	2010		2050	
1	Norway	8.7	Norway	14.2
2	Switzerland	7.5	Switzerland	11.4
3	Denmark	6.0	Sweden	8.7
4	Sweden	5.1	Denmark	8.1
5	Netherlands	4.9	Canada	8.0
6	United States	4.7	Australia	7.9
7	Finland	4.7	United States	7.7
8	Austria	4.7	Belgium	7.5
9	Belgium	4.7	Finland	7.4
10	Australia	4.6	Ireland	7.4
11	France	4.4	Netherlands	7.3
12	Canada	4.3	France	7.1
13	Germany	4.3	Austria	7.0
14	Ireland	4.2	United Kingdom	6.6
15	Japan	4.2	Singapore	6.5
16	Singapore	3.9	Germany	6.2
17	United Kingdom	3.9	Japan	5.4
18	Italy	3.6	Spain	4.8
19	Hong Kong	3.3	Italy	4.7
20	Spain	3.1	Korea	4.5

Source: JCER estimates. Standard (Stagnation) Scenario assumed for Japan.

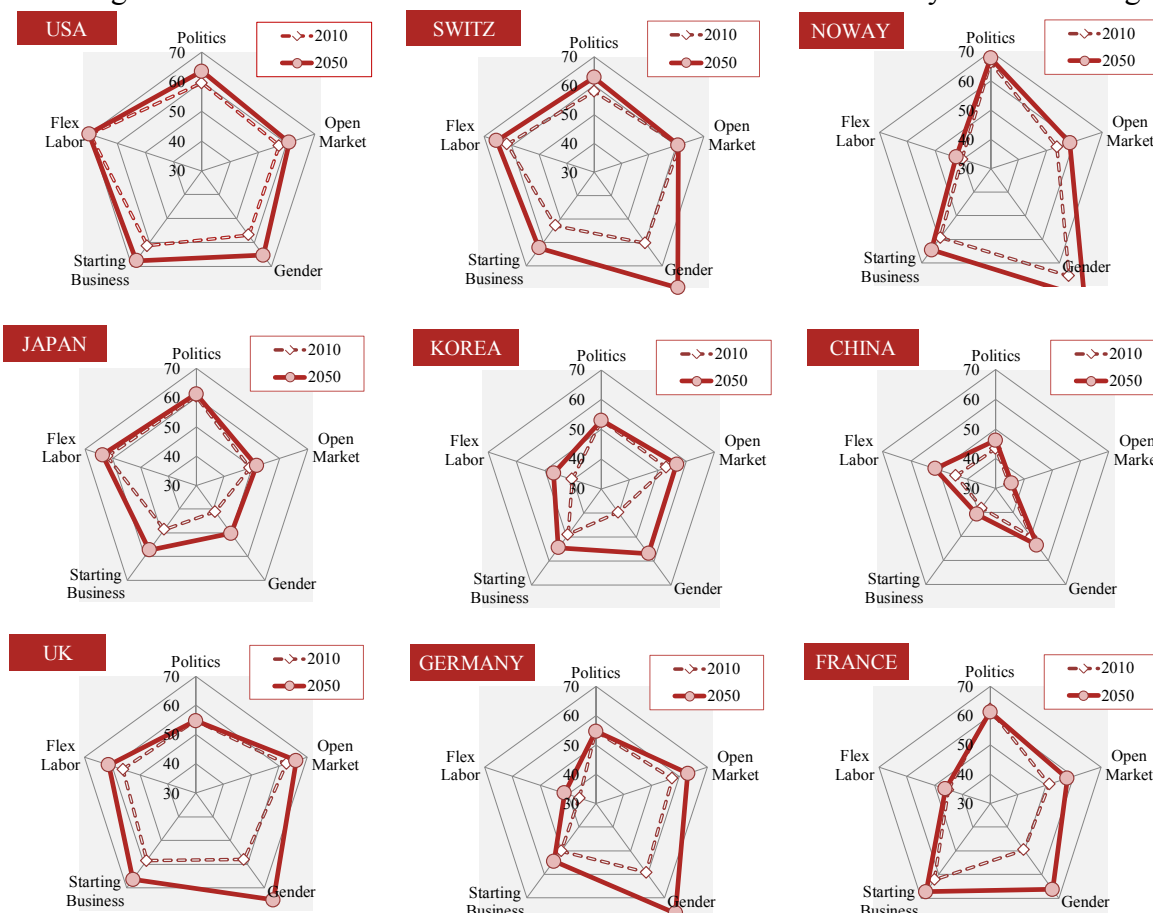
What exactly are the unique features of those countries which rank highest by per capita GNI? Our present forecast assumes that institutional conditions will support sustained improvements in productivity, so we have examined how the five institutional indicators we have adopted are distributed (Fig. 4).

For the U.S. and the U.K., these indicators are strong, evenly balanced and will all gain further strength through 2050. Though scoring low in labor market liquidity, Norway is well along in advancing women in the workplace, as by providing generous support for childcare. Norway is thus a good example of the Northern European growth model. Our forecast for the period from 2010 through 2050 assumes that recent trends will continue through 2050. Germany and France are also characterized by major efforts that are likely to bring significant advances for women in the workforce. The countries of the European continent had already acquired greater openness with the EU integration, and they are using the advancement of female workers as yet another engine for growth.

Another country outdoing Japan in advancing women in the workforce is South Korea, which we expect to more than double its per capita GNI from \$20,000 in 2010 to \$45,000 by 2050 to rank twentieth. This trend may even accelerate now that a woman has been elected president. The outlook for South Korea is brighter than that of Japan because that nation has been more aggressive in efforts to internationalize and open its markets. This effort has followed from the fact that South Korea’s domestic market is small so the only choice is pursuing business overseas. The South Koreans are also ahead of Japan in joining free trade agreements (FTA) and in achieving higher average TOEFL scores for the English language.

Under our Standard Case scenario, which assumes improvements will continue at the current slow pace, Japanese per capita GNI will only rise about 1.3-fold owing to Japan’s sluggish pace in freeing up labor and capital and its comparatively slow progress in advancing women in the workplace. Some observers seem to think a 1.3-fold increase would be good. But at 100 million, the Japanese population in 2050 will be 20% lower and shrinking rapidly, which likely means that the economy will be shrinking as well. There is real concern that it will be impossible to maintain certain aspects of the national framework such as government finances and the social security system.

■ Fig. 4. How Five Institutional Indicators to Determine Productivity Growth Change



Note: The mean for sixty-four countries covered in the forecast as of 2010 is set 50, and one standard deviation as 10. Outward expansion of the pentagon indicates better quality of institutions.



China will boost its per capita GNI from \$4,000 to \$12,000. But it will be difficult for China to join the “\$50,000 Club,” which confers leading nation status, and many Chinese will have a standard of living at which they can’t really feel prosperous. China is at grave risk of falling into the “middle income trap.”

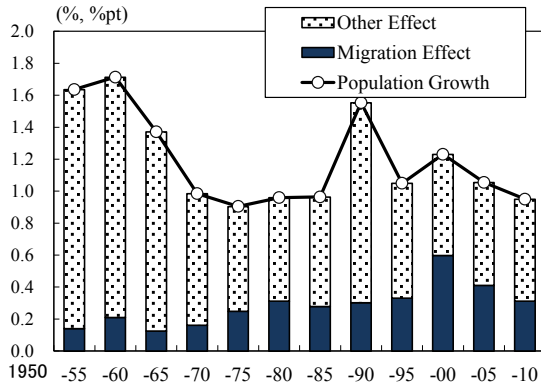
### 3. U.S. Immigration Risks Could Negate Shale Revolution

The stream of immigrants into the U.S. is beginning to taper. With greater use of information technology in business, the U.S. labor market is increasingly divided into highly skilled and low-skilled workers. Foreign students and immigrants have partly satisfied the demand for labor, but a break in the steady inflow of immigrants could exacerbate the job mismatch and perhaps even undermine the pace of growth. Observers believe the shale oil revolution will lift U.S. real GDP by from 0.5 to 1.0 percentage points, but the fear is that addressing the immigration issue could sap the impact.

#### ◆ Growth Rate 0.4 Points Lower with Zero Immigration

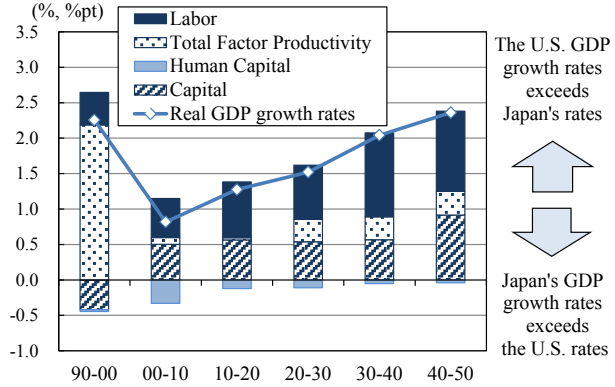
Immigration is one feature of the United States that Japan does not share. Our present forecast projects that the rate of growth in the United States will exceed that of Japan by about 1 to 2 percentage points. One factor in this gap in growth momentum is labor, mainly in the form of immigration into the U.S., and another is the expansion of the capital stock induced by that immigration (Fig. 6).

■ Fig. 5. Rate of Increase in the U.S. Population



Note: Population growth rates are the five-year averages  
 Source: UN, World Population Prospects: The 2010 Revision"

■ Fig. 6. Growth Rate Gap: Japan and U.S.



Note: Growth rates are estimated by the U.S. rates minus Japan's  
 Source: UN, "World Population Prospects: the 2010 Revision"; BLS, JCER Estimates

However, the inflow of immigrants which has supported America’s rising population is slowing. Underlying this development are the tighter legal restrictions on immigration imposed after 2000 as well as the downturn in new immigrants into the United States from 2006. Since the Lehman Shock, the number of emigrants leaving the U.S. has also risen sharply (Fig. 5, 7 and 8).

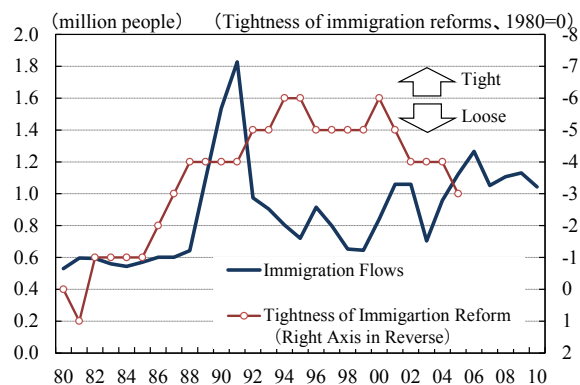
With the exception of wartime, the recent downturn in American working population following the Lehman Shock was the first such downturn in 111 years (Fig. 9). The principal factors include changes in population demographics which caused the working



age population to decline and an increase in emigration out of the United States with the rise in demand for labor in emerging countries. There is another possible factor slowing the flow of immigrants into the United States. Such as Great Britain, Australia and Canada have been more active in accepting foreigners, including foreign students, in order to take advantage of the immigrant labor. If these circumstances go unaddressed, they risk undermining U.S. economic growth over the long term.

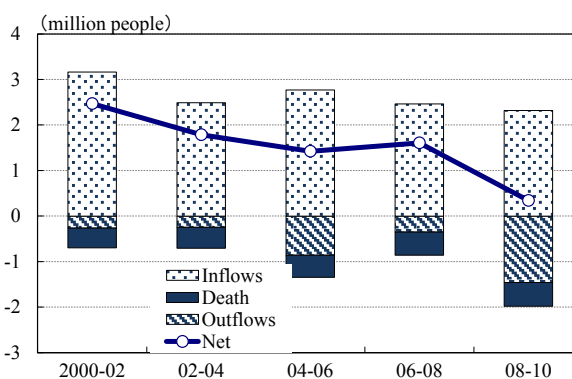
If immigration into the United States were to halt, the result would be a 0.4 percentage point decline in America's economic growth rate between 2010 and 2050 (Fig. 10). One aspect of U.S. strength has been the continued inflow of workers of all kinds from other countries. A slowdown in this inflow would not just be a problem of population. It threatens the loss of a basic feature of the U.S. The actual impact of reduced immigration could very possibly exceed the impact of any decline in the labor force by a great deal.

■ Fig. 7. U.S. Immigration Law and Immigration



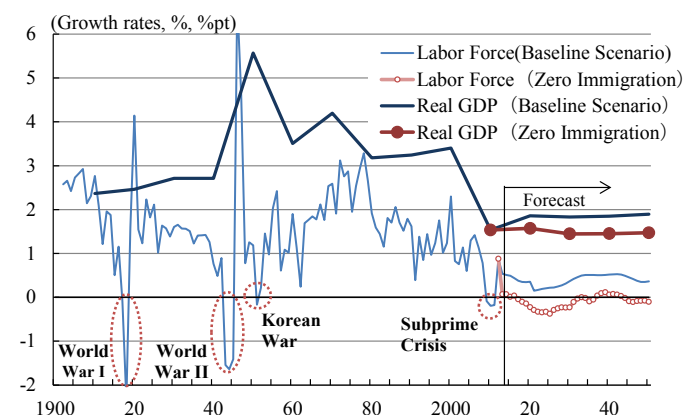
Source: OECD; "International Migration Database" Ortega and Peri(2009) "The Cause and Effects of International Migrations : Evidence from OECD Countries 1980-2005", NBER Working Paper No. 14833

■ Fig. 8. Factors in the Flow of Migrants



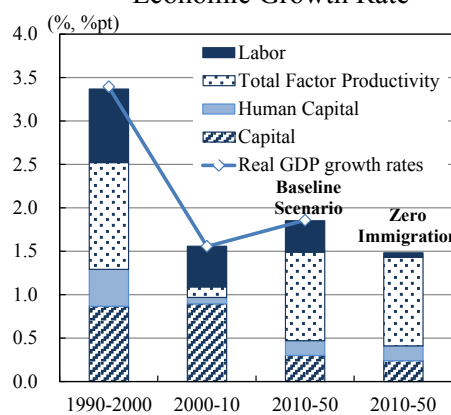
Source: Center for Immigration Studies (2010) "Immigration and Economic Stagnation: An Examination of Trends 2000 to 2010"

■ Fig. 9. U.S. Economic Growth Rate and Labor Force



Source: UN, World Population Prospects the 2010 Revision"; Haver Analytics, The Historical Statistics of the United States: Vol. 3, Economic Structure and Performance, U.S. Census, BLS, JCER estimates

■ Fig. 10. Factors in the U.S. Economic Growth Rate



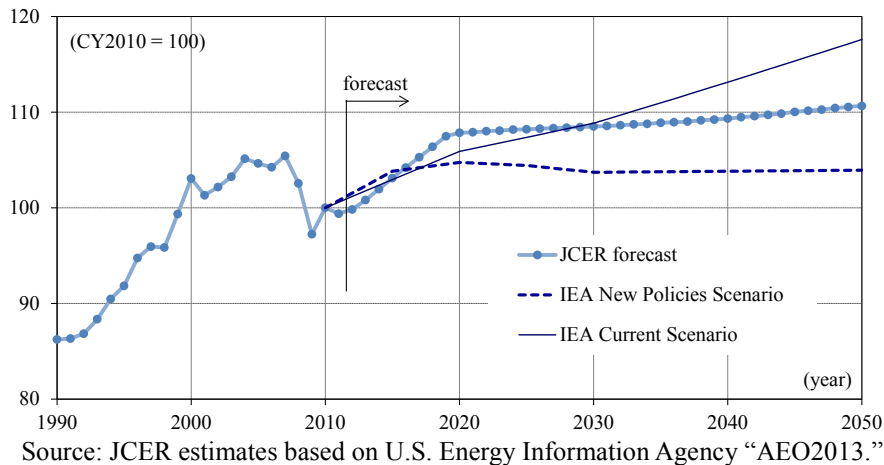
Source: UN, World Population Prospects the 2010 Revision"; BLS, JCER estimates

◆ Shale Revolution to Boost US GDP by 0.5%

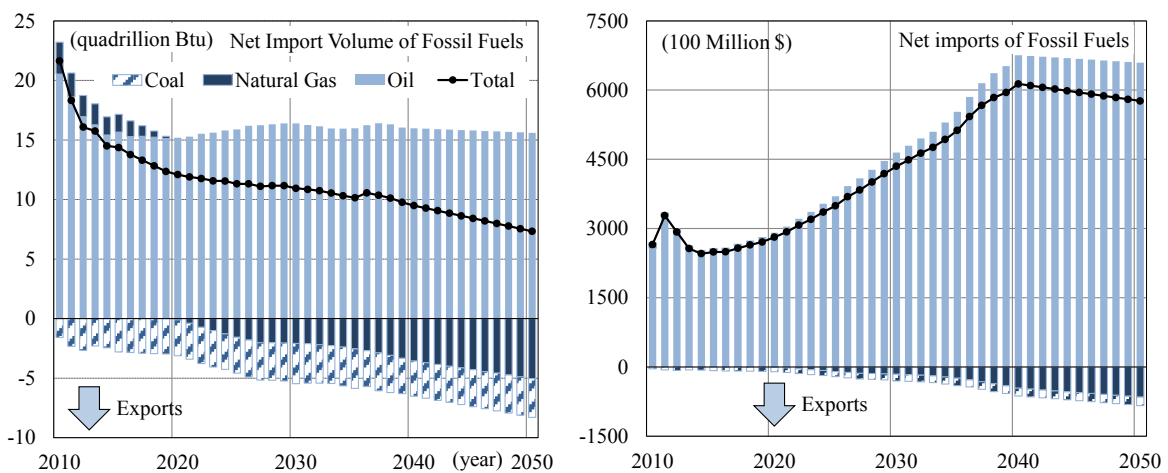
One positive development on the energy front, however, is that the shale revolution could give a boost to America’s growth potential. According to the International Energy Agency (IEA), the United States may very well become the world’s largest oil producer by the year 2020. Although it is not widely known, recent advances in energy efficiency in the United States rival those achieved by Japan in the wake of the oil shocks. The U.S. has rapidly improved its energy intensity (necessary energy consumption per unit of GDP). U.S. energy consumption will not increase for the most part even at the 1.8% average growth rate projected under our forecast (Fig. 11).

Recent developments indicate that energy consumption is not likely to rise as the structure of industry changes, as rising energy prices encourage energy conservation in various industries, and as improvements are made in energy intensity. Production of shale gas and shale oil is also expected to rise.

■ Fig. 11. U.S. Projected Energy Consumption



■ Fig. 12. Projected U.S. Fossil Fuel Imports



Note: Assumptions same as for Fig. 11.

The U.S. Energy Information Agency predicts that net oil imports of fossil fuels will decline even if the U.S. maintains a growth rate of 2.5% (Fig. 12, left panel). EIA projections also assume that if the trend of imports of oil, coal and natural gas between 2031 and 2040 is maintained, net imports will fall further from and after 2040. (The direct economic impact would be to narrow the trade deficit and boost GDP.) However, the EIA projections do not assume that society will change due to falling gas prices resulting from increased shale gas production. (For example, it does not assume that natural gas vehicles will displace gasoline-powered vehicles as the main type of vehicle.)

Likewise, the right panel of Fig. 12 shows the net import value based on the EIA's 2040 projections for oil and natural gas prices, or \$268.50 per barrel and \$12 per million Btu, respectively. Prices are expected to remain unchanged after 2040. Depending on the projected price of crude oil adopted, the net import value could balloon to around 600 billion dollars.

The decline in net imports will be around 0.5% of GDP, with GDP receiving a boost to that same extent.<sup>3</sup> We have also assumed that, of the increase in income arising from the decline in new imports, about half will be rotated into investment and consumption, the impact of which will add another 1% to nominal GDP. (Our estimates do not take into account any impact resulting from increased real household income or improved industrial competitiveness following from any decline in overall fossil fuel prices as may arise from the production of shale gas.)

#### 4. China Faces “Middle Income Trap” Due to Poor Reform Prospects

Having achieved rapid economic growth since the 1990s, China will face a steadily emerging series of factors undermining growth. In addition to the problems of aging and population decline highlighted in our 2007 long-term economic forecast “Population to Change Asia—The Shape of the World in 2050”, China will very likely face major barriers to growth in the form of its own political, economic and social institutions.

##### ◆ Population Onus and Lewisian Turning Point Await

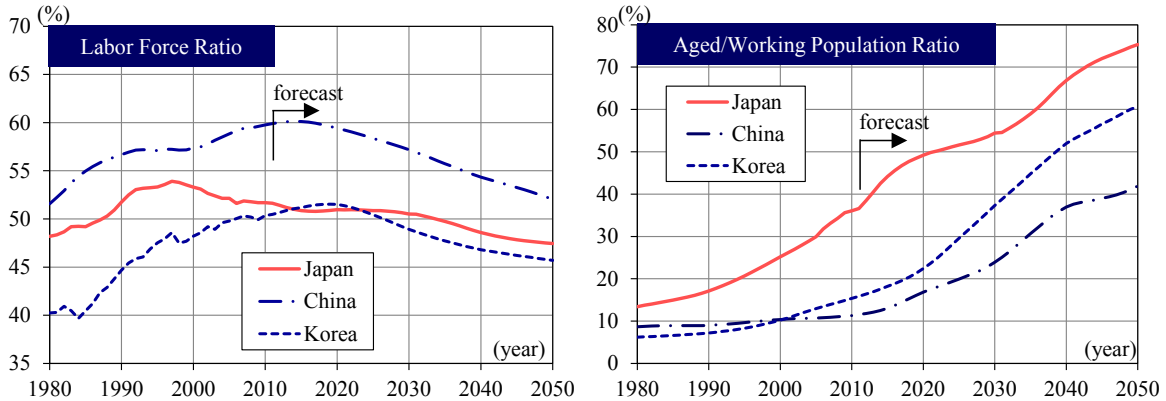
China will increasingly face the downside of the one-child policy instituted to prevent rapid population growth from resulting in poverty, for very soon China's labor force participation rate will start to fall. According to United Nations forecasts, China's population will peak in 2014, and in 2032 the population will begin to decline (Fig. 13). The Chinese government figure for the 2010 fertility rate was 1.18, lower than Japan's.

If, despite shrinking population, China can transform its industrial structure from one based on primary industries (agriculture, forestry and marine industries) to high-productivity industries such as manufacturing and services, growth will continue. During Japan's period of rapid economic growth, surplus manpower from farming

<sup>3</sup> Estimates are made as follows: (non-conventional fossil fuel production volume for each year from and after 2012 minus production volume for 2011) x fossil fuel prices for each year divided by nominal GDP for each year. We have assumed that shale gas and oil produced through 2011 is included in GDP. Nominal GDP data is based on EIA projections.

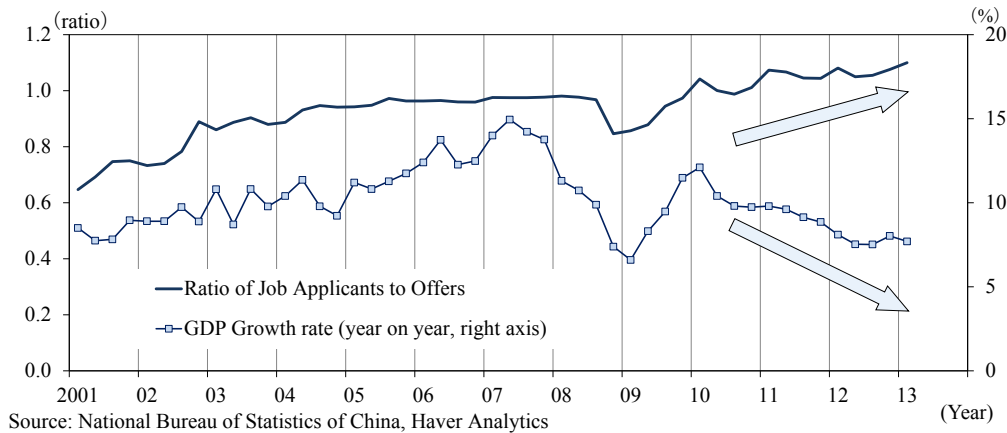
villages in the country flowed into the cities, supported the development of Japanese industrialization and caused national income to double. As the influx of population ran its course, Japan reached the Lewisian turning point in the 1970s, signaling an end to the rapid modernization of the industrial structure. China's primary industries, however, account for over 30% of all employed persons, which is the level prevailing in Japan in the early sixties. It also appears that the influx of people from the countryside will continue.

■ Fig. 13. China Facing Population-Onus



Source: Estimates by The National Institute of Population and Social Security Research for Japan and United Nations ("World Population Prospects, the 2011 revision") for China and Korea. JCER has made a projection on the labor force ratio based on the estimates by ILO.

■ Fig. 14. Worker Shortage Despite Slowing Economy



Source: National Bureau of Statistics of China, Haver Analytics

Kwan Chi Hung, Senior Fellow at Nomura Institute of Capital Markets Research, believes that China has passed the Lewisian turning point<sup>4</sup>. For although the economy has recently been slowing, the job openings to applicants ratio has not declined (Fig. 14). The economic growth rate and the job openings/applicants ratio had been positively correlated, but despite the recent economic slowdown, the latter has remained high. It is possible that the decline in the working age population associated with the erosion of the population (the population onus) coupled also with the passage of the Lewisian turning point will present a dual problem for China.

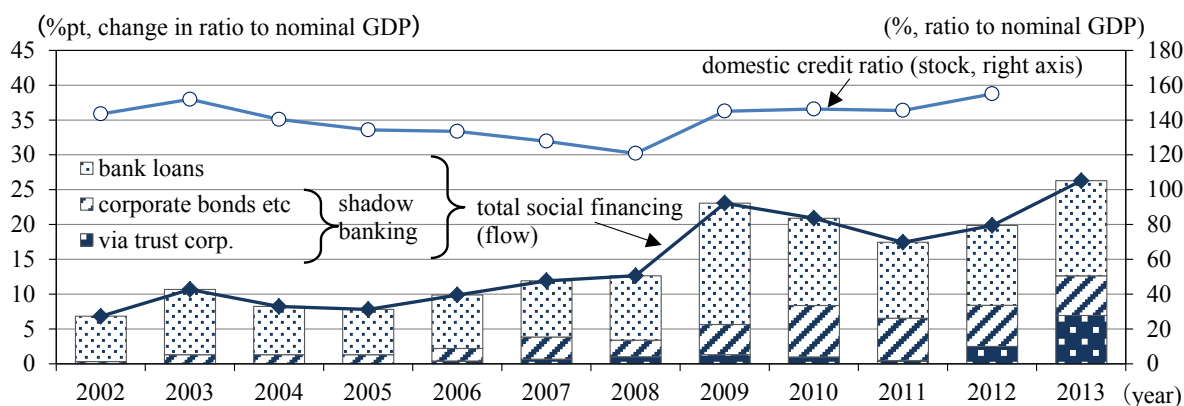
<sup>4</sup> JCER Seminar, November 27, 2013.

### ◆ Heavy Local Government Debt Burden Possible Trigger

Following the Lehman Shock, bank lending expanded with infrastructure investment following a 4 trillion RMB economic package and a boom in real estate. As a result, China's ratio of credit to GDP in 2012 was over 1.5-fold, the highest level since 1978 when recording of the statistics began.

Meanwhile, restrictions on bank lending were tightened, with banks being required to hold 20% of their deposits as reserves. But domestic credit continued to expand with company bond issues after 2010 and again this year in the form of "shadow banking" activities, which include financing via trust companies (Fig. 15). Underlying this trend has been the fact that local governments, unable to look to real estate development as a source of income due to slumping land prices, have had difficulty financing infrastructure investments. This has resulted in a vicious cycle of refinancing and an expansion of "bad credit" extended to borrowers paying interest on loans.

■ Fig. 15. Expanding Domestic Credit and Shadow Banking



Note: 2013 denotes the 1st qtr of 2013. Total social financing indicates the value of increase for the year.

Domestic credit ratio is expressed in the ratio of bank financing outstanding to nominal GDP.

Source: IMF, Haver Analytics

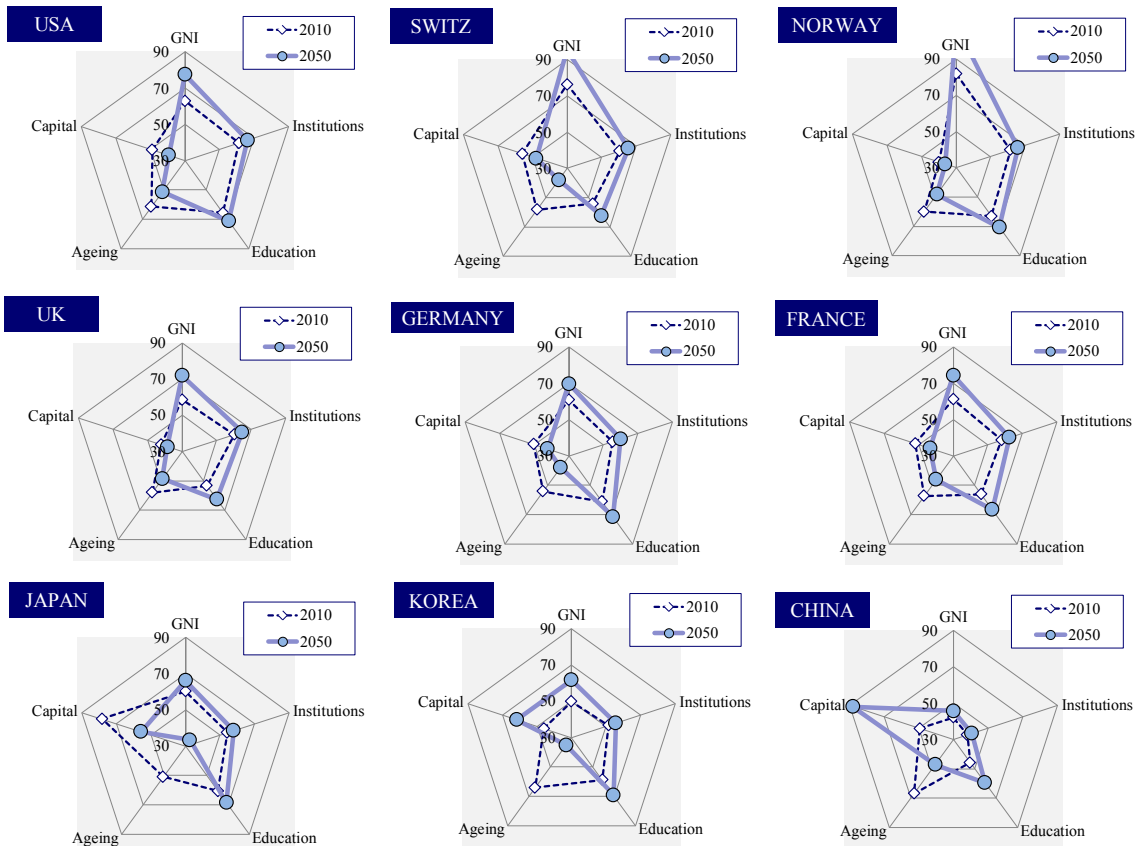
The Chinese authorities are not standing idly by in the face of this situation. In May of this year, the China Banking Regulatory Commission (CBRC) began requiring banks to cut back lending to local governments and tighten their risk management. The CBRC has taken measures to effectively prohibit new lending to some local financing platforms with large borrowings by requiring that the ratio of such loans to their entire loans not exceed that of the previous year. (Local financing platforms are platform companies which procure financing for local governments.)

It also acted in March on shadow banking by ordering a reduction in loans extended to local governments, excepting those made by rural financial institutions. In addition to greater lending through trust companies, media reports describe a vicious cycle of informal lending by institutions such as "underground banks," but such lending does not appear in the statistics. With the change in leadership, the Chinese had wanted to avoid a rapid economic slowdown, but unless the government acts quickly to control the rapid growth of shadow banking, the excessive debts of local governments could trigger a financial crisis.

◆ No Serious Reform Under Communist Party Dictatorship

There are two aspects to the Chinese growth model. First, the country has grown by developing the ability to manufacture low-priced products under conditions of severe competition, as in the field of electronics. Second, it is a state-capitalist system encompassing energy and other public utilities as well as state enterprises operating in some materials industries, for example. Efficient private companies are mixed together with inefficient enterprises tied to the state system, and the state companies often grow at the expense of private companies. Elimination of such inefficiencies will be critical to achieve long-term growth. Mariko Watanabe of the Institute of Developing Economies argues that the solution is privatizing state enterprises, energizing market mechanisms and greatly strengthening the rule of law<sup>5</sup>.

■ Fig. 16. Quality of China’s Institution Restrains Its Growth



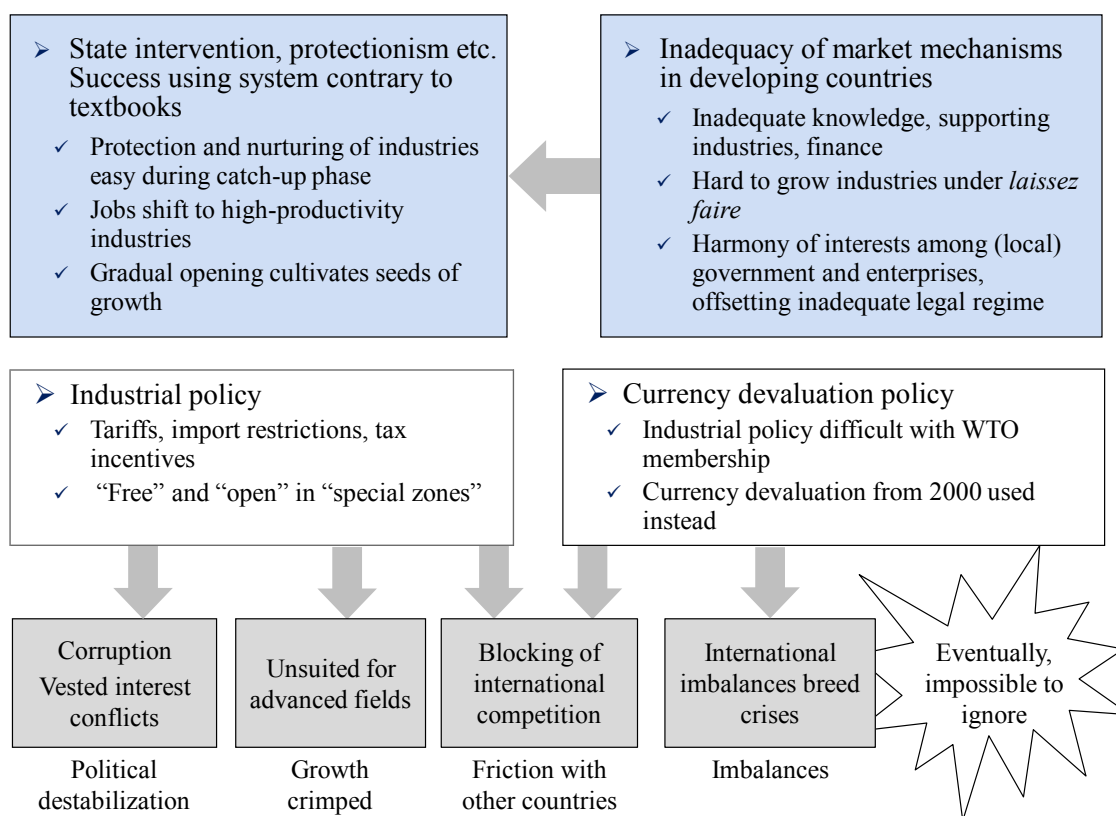
Note: The mean for sixty-four countries covered in the forecast as of 2010 is set 50, and one standard deviation as 10. Outward expansion of the pentagon indicates better condition for economic growth.

<sup>5</sup> See Chapter 2 of “China’s Industrial Power: Its Strength and Problems,” JCER ed., March 2013.

Our forecast indicates that China will not likely be able to implement this solution. If present trends remain unchanged, it will be impossible for China to improve the quality of its political and economic institutions and join the ranks of the advanced developed nations by 2050. An assessment of Chinese politics, for example, shows that China will not reach the value of 50 (the mean of 64 nations as of 2010 and a standard deviation equal to 10) by 2050. The advanced nations have achieved values of around 60, and their political stability is very different indeed. In market openness, China ranks behind Japan despite the shackles on people and money in Japan. In large part these problems originate in nothing other than the political system dominated by the Chinese Communist Party, which indicates that furthering reforms will be far more difficult in China than for such countries as Japan, South Korea and the countries of Europe and North America.

Then why has it been possible for China to achieve unusually rapid growth without the necessary institutional requirements? One solution to this puzzle was offered by Princeton University Professor Dani Rodrik<sup>6</sup>.

■ Fig. 17. Progress Leads to Growing Harms



Source: Adapted from Dani Rodrik, “The Future of Convergence: Do not Expect Miracles” (2011), with modifications and additions.

<sup>6</sup> See Dani Rodrik, “*The Future of Convergence: Do not Expect Miracle*,” a paper prepared for the Jackson Hole Symposium of the Federal Reserve Bank of Kansas City, 2011.



A look at the data shows that convergence does not happen automatically, with emerging countries catching up with developed countries. The convergence that takes place is within the same industries. For example, for the same transportation machinery industry, regional differences in productivity are steadily shrinking. The closer an industry is to the machinery sector, the faster the speed of convergence. The key to growth for emerging countries is shifting employment to such industries. Professor Rodrik calls this “getting on the elevator.” After this stage, growth takes place automatically.

Then why is it that China did well by building institutions contrary to the textbook models while Latin and Central America did not after pursuing liberalization? The reason originates in the inadequacy of institutions to support markets in emerging countries. Nurturing industry requires the spread of various kinds of know-how, the cultivation of subordinate industries, and the procurement of capital for investment. These requirements do not simply drop into place under a system of *laissez faire*. In China, the government took the lead in protecting and cultivating industries to get on the elevator, bringing in support from overseas in the form of direct investment. The underdeveloped legal regime is another hallmark of the situation in China, but the rights of enterprises have been protected because the interests of local governments and local enterprises were in harmony and the work of local governments replaced the law. Thus, the Chinese placed faith not in the “Washington Consensus” of achieving the best results through liberalization and market principles but in a “China Consensus” of assisting economic development through government intervention and gradual liberalization.

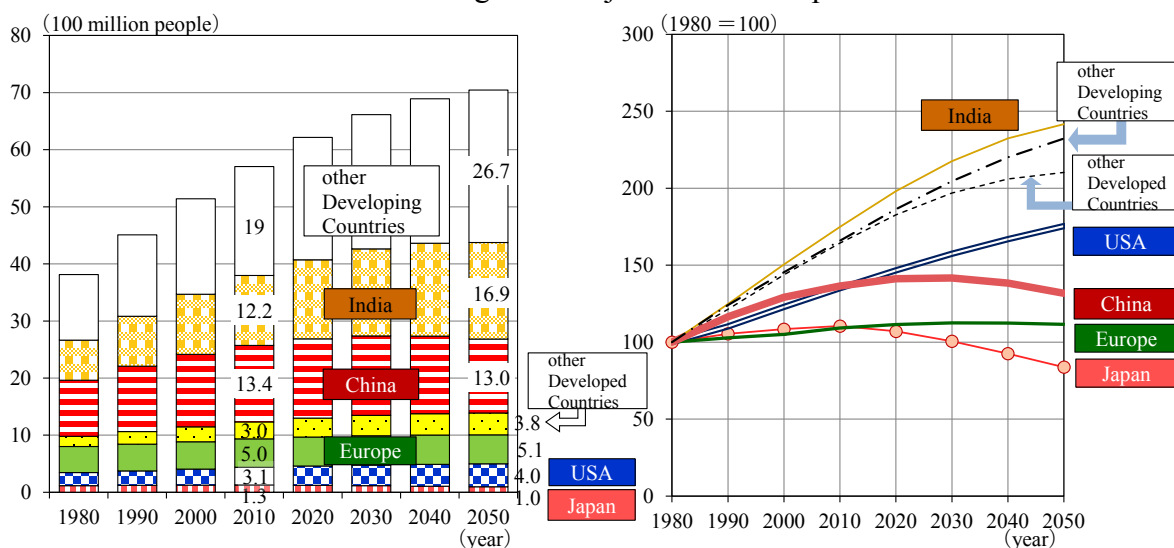
However, the very factors which have supported these advances are now beginning to change into barriers to growth. Government discretion gives rise to vested interests and corruption. It is fine and well when it is clear which elevator one is to get on, but this approach is not suited for finding subsequent generations of elevators. Policies of protecting industries and keeping currencies undervalued breed friction and distrust in relations with other countries and are a factor in exacerbating imbalances in the international balance of payments and finance.

In order to achieve sustained growth that will enable China to escape from the middle income trap, the Communist Party and local governments will have to refrain from involvement in industrial policy. In reality, though, state companies have advanced at the expense of private firms, and even with a change in leadership, vested interests have prevailed. When politics dominates economics, degeneration results. This is the view of Professor Daron Acemoglu of the Massachusetts Institute of Technology and James Robinson of Harvard University, who looked back over many examples of how prosperity declined in Rome, Venice, the Soviet Union and elsewhere<sup>7</sup>. This seems to be the path that China has embarked upon.

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<sup>7</sup> Acemoglu, Daron and James Robinson, *Why Nations Fail: The Origins of Power, Prosperity and Poverty*, Crown Business, 2012.

■ Reference Fig. 1. Projected World Population



[Note] UN estimates for sixty-three countries (medium variant, 2010).  
NIPSSR estimates for Japan (medium variant, 2012).

■ Reference Table 1. Ranking by Size of Economy

(Real GDP, 2005 price, trillion \$)

	1990		2010		2030		2050	
1	United State	8.03	United State	13.09	United State	18.86	United State	27.33
2	Japan	3.86	Japan	4.65	China	7.76	China	9.63
3	France	1.63	China	3.84	Japan	5.08	India	7.29
4	United Kingdom	1.53	Germany	2.94	United Kingdom	3.64	United Kingdom	4.76
5	Italy	1.45	United Kingdom	2.34	Germany	3.52	Japan	4.76
6	Russia	0.84	France	2.21	India	3.29	France	4.16
7	Canada	0.75	Italy	1.77	France	3.08	Germany	3.86
8	Spain	0.73	India	1.23	Brazil	2.48	Brazil	3.63
9	Brazil	0.60	Canada	1.20	Italy	2.13	Mexico	2.81
10	Mexico	0.56	Spain	1.18	Canada	1.96	Canada	2.75
11	China	0.53	Brazil	1.10	Spain	1.91	Italy	2.31
12	Australia	0.44	Korea	1.02	Korea	1.84	Korea	2.15
13	Netherland	0.44	Mexico	0.92	Mexico	1.79	Spain	2.06
14	Korea	0.36	Russia	0.91	Australia	1.38	Australia	1.90
15	India	0.35	Australia	0.84	Turkey	1.12	Turkey	1.52
16	Switzerland	0.31	Netherland	0.69	Russia	1.08	Indonesia	1.43
17	Belgium	0.28	Turkey	0.57	Netherland	0.91	Russia	1.26
18	Turkey	0.27	Switzerland	0.41	Indonesia	0.85	Saudi	1.26
19	Sweden	0.26	Sweden	0.40	Saudi	0.77	Netherland	1.05
20	Austria	0.22	Belgium	0.40	Sweden	0.62	Argentina	0.90

( Estimated by JCER)

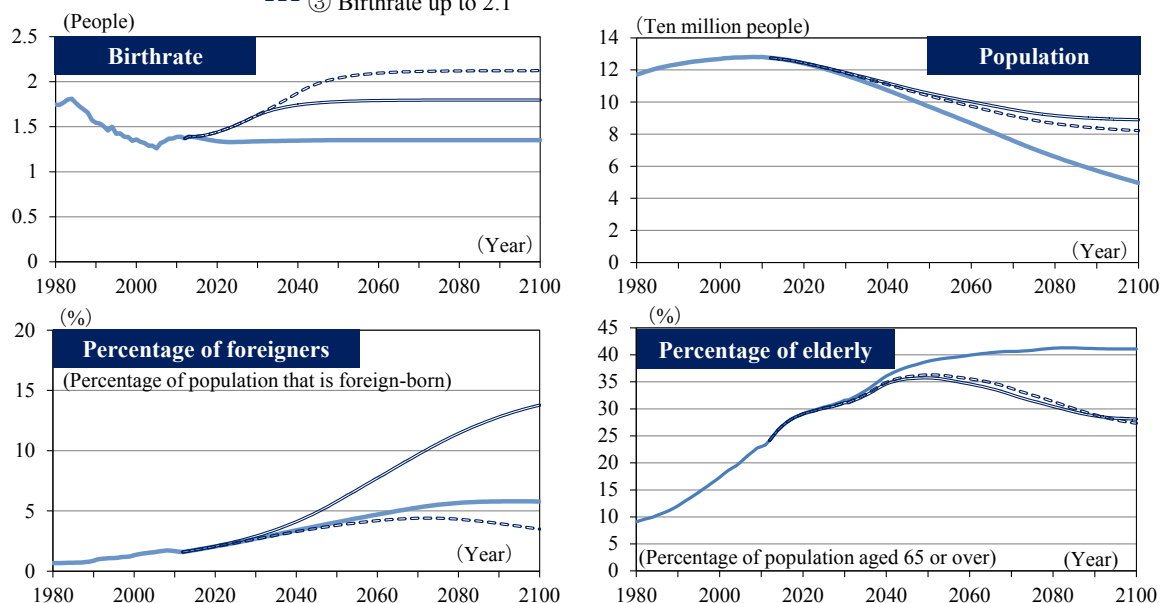
## Follow France's Example and Stabilize Population at 90 Million<sup>8</sup>

### Overview

Japan is likely to tip into fiscal collapse due to rising tax and social security burdens in the future, or Japan's standard of living is likely to erode. At the root of the problem lies population decline. If no action is taken, the population will shrink to 30% of its present size in 100 years and to around 10% of its current size in 200 years, and Japan's presence in the international community will gradually diminish. To avoid such a situation, the Japan Center for Economic Research proposes the establishment of national population targets, aimed at raising the birthrate over the course of forty years and maintaining a stable population of 90 million. We propose combining this with a policy of opening up Japan and inviting people, expertise and investment from overseas.

■ Fig. 18 Halt population decline and aging

- ① Base scenario (If no action is taken to stop population decline)
- ② Birthrate up 1.8% + 200,000 immigrants per year
- ③ Birthrate up to 2.1



Source: JCER estimation. ① is comparable with the mid-range scenario of the National Institute of Population and Social Security Research. ② is the case where, toward 2050, the birth rate is raised to 1.8 and 200,000 immigrants (equal to around half of the UK's intake in proportion to population) are accepted per year, and ③ is the case where the birth rate is increased to 2.1 toward 2050 and the intake of foreigners is kept at the current level.

<sup>8</sup> Contributors include Kazumasa Iwata, JCER President, economists Sumio Saruyama, Tatsuo Kobayashi, Ryo Hasumi, Tetsuya Hattori, Shinji Takenaka, Takashi Onodera and Yuki Masujima, Professor Nariyasu Yamasawa of Atomi University, cooperative researcher Yoichi Tsuchiya, and research assistants Masato Takara and Yuki Sotozono.

### ◆ Reality of population decline

#### --Fear of decline in standard of living due to heavy burden

The fertility rate in Japan today is 1.4 children per woman mother. The population of the new generation will shrink to approximately 70% of the parent population. If this trend continues, the population will decline to 30% of its present size in 100 years and around 10% of its present size in 200 years. Japan is a society with a large proportion of elderly people where one in four is a latter-stage elderly person aged 75 and over and where, at the same time, the population continues to shrink.

The chances of the standard of living falling due to rising tax and social security burdens are high. The decline in the number of workers undermines the sustainability of the government debt and, if the heavy burden becomes untenable, there is also every possibility of fiscal bankruptcy. Even if growth picks up, the structure in which the working generation shoulders a heavy burden will not change. To avoid such a situation, the public and private sectors must work together to create a society that overcomes the falling birthrate problem while keeping women in work.

### ◆ Establish population targets(1)

#### -- Raise the birthrate through French-style policies

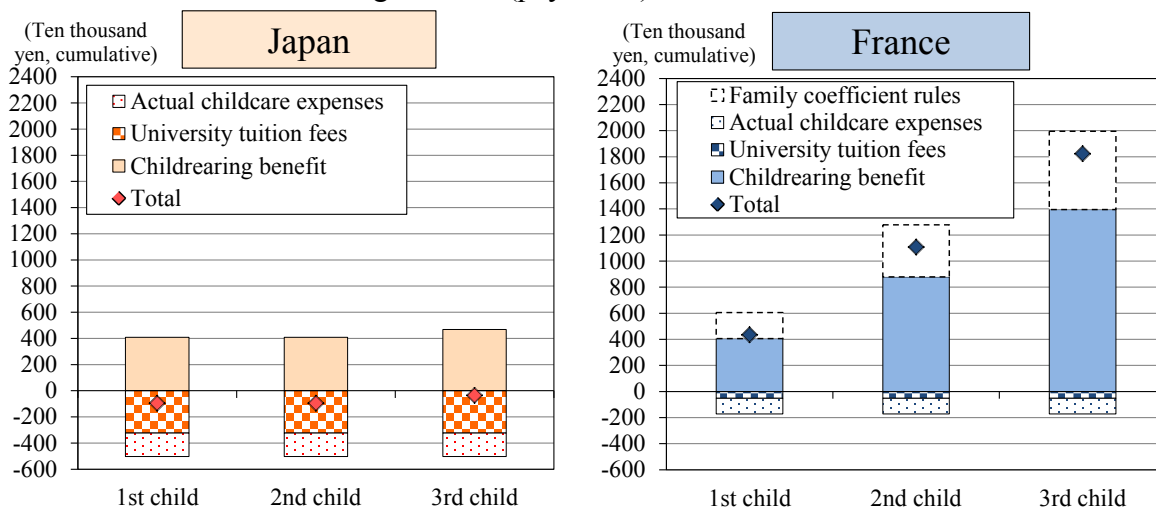
The first step in a new phase of reforms never before attempted is to establish national population targets. Japan must put in place and financially support a childcare system that makes it easy for women to raise more than one child if they so wish while demonstrating their talents in the workplace. Analysis of the relationship between the birthrates and childrearing policies of thirty major countries shows that Japan could raise the birthrate from its present level of 1.4 to around 1.8 by 2050 if it expanded and improved benefits and childcare subsidies at an annual rate of 1.5% of gross domestic product (GDP) (increase of 7–8 trillion yen) to a level comparable with France, which overcame low birthrates<sup>9</sup>. It took thirty years from the time France introduced work-life balance policies in earnest for France's birthrate to approach 2. Japan must also commit to such policies according to a long-term plan.

France put in place initiatives to make it easier to balance raising a child and work, and to cover childrearing costs through (1) various childcare options and public subsidies for each, and (2) a system of benefits and income tax breaks that are more generous the higher the number of children<sup>10</sup>. The amount of benefits paid until a child reaches adulthood is at least 10 million yen greater for the third child than for the first child (see Fig. 19). Supporting childbirth and childrearing so that women can have the number of children they wish does not constitute over-interference by the state.

<sup>9</sup> Fig. 18 also showed the case where the birthrate is raised to 2.1. In this case, childrearing benefit and childcare subsidies equal to 2.7% of annual GDP would be required. On the other hand, the increase in the share of the foreign-born population would be limited. For further details, please refer to the in-depth report "Establishment of Population Targets" to be published shortly.

<sup>10</sup> Please refer to Madoka Kitamatsu (2013) for details on the actual childrearing system in France.

■ Fig. 19 The higher the number of children, the more generous childrearing benefits  
 < Main childrearing benefits (payments) until child reaches adulthood >



Source: Comparison of main benefits and expenditures where there is a considerable difference between Japan and France. Expenses such as elementary and junior high school education expenses and cram school expenses are excluded. Cumulative amount until child reaches adulthood. France's childrearing assistance assumes use of the full amount. "Family coefficient rules" is an income tax initiative whereby the higher the number of children, the lower the income tax, and is figure assuming household with taxable income of 30,000 euro according to Takeshi Fujii(2007). Converted based on 2010 nominal exchange rate of 130 yen per euro. Data is produced by JCER based on evidence gathered locally, etc.

◆ Establish population targets(2)

-- Increase intake of immigrants to 200,000 per year

Besides raising its birthrate, Japan must also focus on the intake of immigrants as another one of the policies in its new phase of reforms. Though the intake of immigrants involves government expenditure, it also has the advantage of increasing tax revenues<sup>11</sup>. If overseas human resources increase, productivity will also improve thanks to skills and ideas not found in Japanese workers, and this will doubtless provide the impetus for foreign investment in Japan. If Japan has immigrants take charge of nursing care and childcare, which are areas with enormous potential demand but insufficient manpower, the number of people that benefit will also increase.

Foreign students are the eggs from which highly skilled human resources hatch, and social friction can also be reduced. Immigration (via foreign students) is a strong option. In view of the size of the Japanese economy, it would not be surprising if the foreign student population was doubled its present size (138,000 students in May 2012). Rather than pursuing the introduction of lectures in English, Japanese universities should endeavor to attract students by pushing Japan's strengths - like its technologies - to the fore.

We propose Japan gradually increases its intake so that, from 2050 onwards, the net

<sup>11</sup> The impact of migration on the balance of government revenue and expenditure has been reported to vary depending on the circumstances, for example, generally speaking, if the percentage of skilled human resources is high, tax revenues exceed expenses and the balance is positive, while in the case of unskilled workers, the balance is said to be negative (Vargas-Silva, 2013). Here, the net fiscal effect is simply assumed to be zero.

number of immigrants is 200,000 people per year. In proportion to population, this is equal to half the UK's present intake. In this case, the percentage of the population that is foreign-born will increase from its present level of 1.8% to 6% in 2050 and to around 13% in 2100.

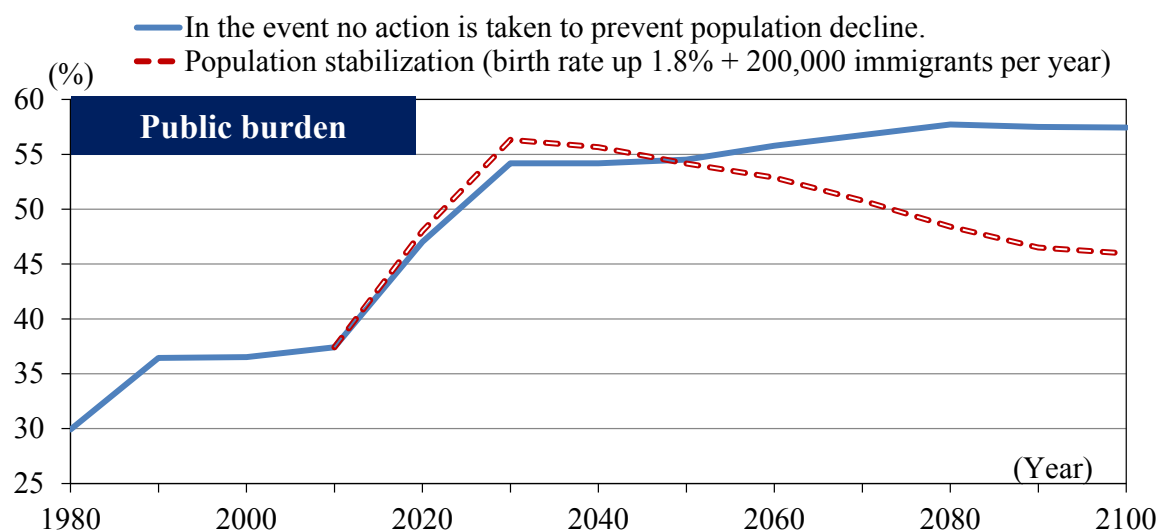
### ◆ Establish population targets(3)

#### -- Achieve reversal of population aging from 2050

The combination of raising the birthrate to 1.8 and accepting 200,000 immigrants per year will halt population decline. The population will stabilize at 90 million from 2100. The percentage of the population that is elderly will stop rising and start to fall from around 2050 (see Fig. 18). The improvement and expansion of childrearing policies and the intake of immigrants will be accompanied by a fiscal burden and a certain degree of social friction. However, such expense is investment for the future and will soon be returned when the number of workers increases. The public burden will increase towards 2030 in the case where

Japan seeks population stability (an extra 3% in the case of consumption tax), but will then start to fall and become lower than the case where no action is taken to prevent population decline from 2050 (see Fig. 20). By 2100, the public burden will fall to 45% and the tax and social security system will stabilize.

■ Fig. 20. Public burden will decline due to population stability



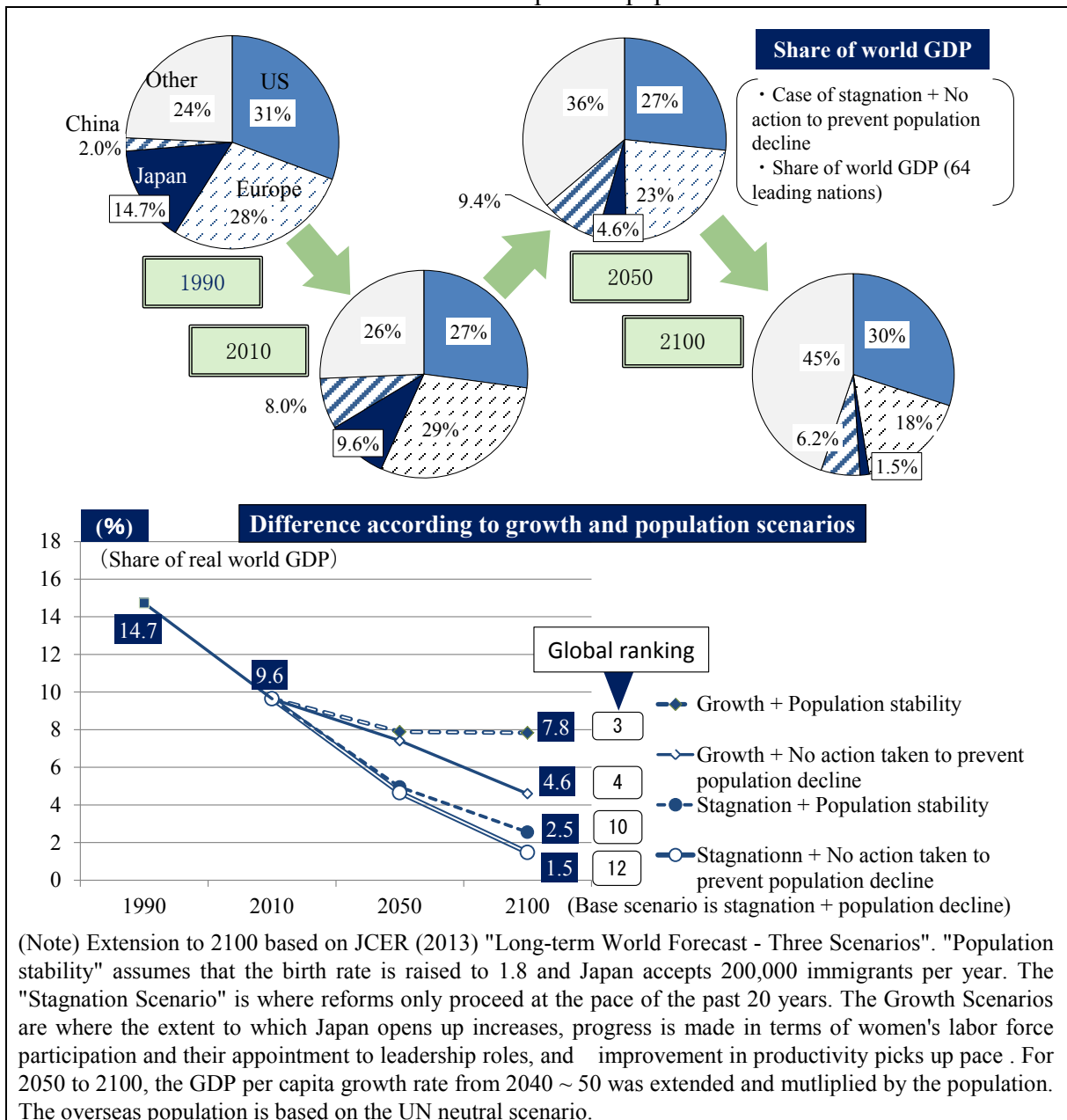
Note: Both cases are based on the scenario where growth accelerates as a result of system reforms. In the Stagnation Scenario, the burden would be higher. The fiscal burden to increase the birth rate (family allowance) is taken into account. Assumes that toward 2030, consumption tax is raised to 25%.

If no action is taken to prevent population decline, the Japanese economy's presence in the international community will gradually diminish. An examination of share of world GDP (64 countries) shows that while Japan accounted for a share of around 15% in 1990 during the bubble economy years, in the case of the Stagnation Scenario<sup>12</sup>, Japan's

<sup>12</sup> Assuming that reforms continue to proceed at the gentle pace of the past 20 years, real GDP growth from 2010 to 2050 will be almost zero (JCER, 2013). This time, we assumed that the GDP per capita growth rate

presence will diminish to around one tenth of its former size in just over 100 years, with its share shrinking to 4.6% in 2050 and 1.5% in 2100 (see top part of Fig. 21). Its presence in proportion to the United States will shrink from around 50% in 1990 to one twentieth of that level in 2100. China's presence will also stop rising steadily as it will still be four times that of Japan in 2100. Japan will fall to twelfth in the global rankings. Under such circumstances, it will no doubt become difficult for Japan to negotiate with the United States and China on an equal footing.

■ Fig. 21 Japan's economic presence will shrink to one tenth of its present size if no action is taken to prevent population decline



from 2040 to 2050 will continue thereafter and we multiplied this by the size of the population to calculate GDP in 2100.



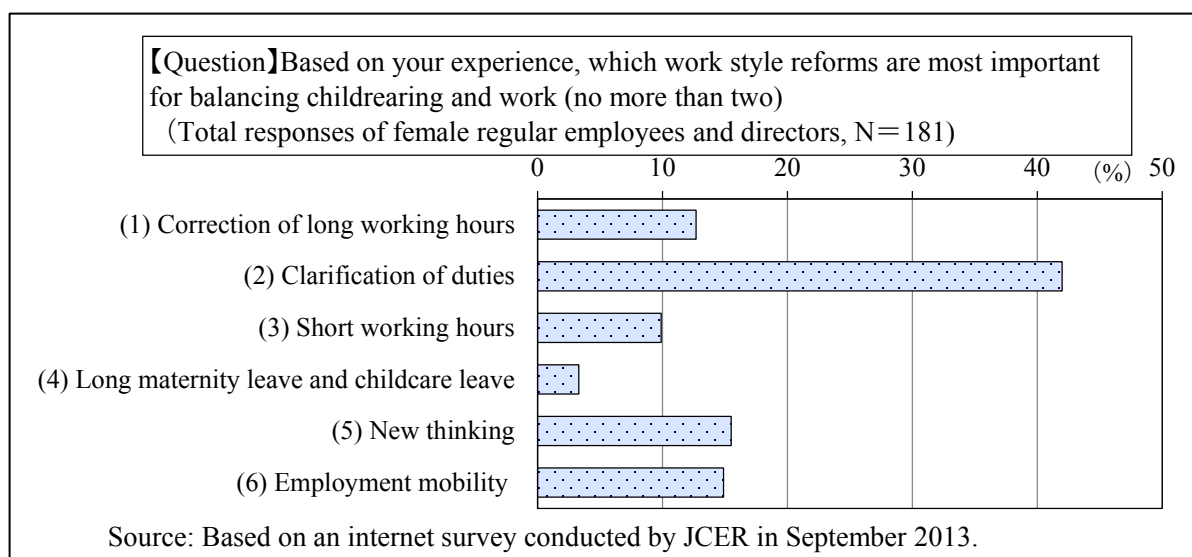
In the Growth scenarios, Japan will be able to maintain a 4.6% share of world GDP in 2100, but it will still be the land of the setting sun (see the bottom part of Fig. 21). However, if Japan were to stabilize its population, the Japanese economy would account for around 8% of world GDP in 2100, making it the third largest economy in the world and enabling Japan to maintain a voice on the world stage.

## Fully exploit the potential of women and foreigners

### ◆ Early appointment to managerial position effective towards a quota system

The third step is to put in place initiatives that enable women to balance work and raising children. The continuation of work is also important to secure the income necessary to raise more than one child. Enterprises should start by trying to achieve the “early appointment” of women. In most cases, women who were entrusted with work at an early stage and achieved results continue to work even after giving birth and raising children. In Japan, the percentage of women in leadership roles, for example, those serving as company directors or in managerial positions, is noticeably low compared with overseas. “Early appointment” increases women’s motivation and is also effective as a first step towards a quota system to establish numerical targets for the appointment of women. In Japanese society, where the employment system and assessment structure have been established around men, the aim of such treatment is to make conditions which are disadvantageous to women at least equal to those of men, and it does not constitute favorable treatment for women.

■ Fig. 22 Balancing work and raising a child is easier if duties are clarified



### ◆ Duty-based employment hold the key

At the same time, “clarification of duties” is the keyword. According to a recent survey conducted by the JCER, the number of respondents wanting clarification of work content as a measure to support a balance between child rearing and work exceeded those wanting correction of long working hours. This suggests that women judge that they will be able to adapt to slightly longer working hours to a certain degree, provided it is possible to predict when work will be busy and slack.

Duty-based employment is also an effective way of harnessing the abilities of foreigners. Japanese employment contracts have few stipulations on duties compared with those of overseas countries. Typical contracts for simultaneously recruited graduate employees are often nearly blank when it comes to the kind of work they will do. Unlike Japanese male employees who work until mandatory retirement age and can expect reward in any case, foreigners often change the companies and countries where they work every two or three years in the hope of career advancement. Such foreigners are more likely to demonstrate their abilities with a short-term employment contract clarifying the work to be assigned and remuneration (assessment).

The foreign students that Japan has gone to the trouble of inviting over cannot demonstrate their abilities if they are treated in the conventional way, that is, starting by treating them all the same and getting them to do anything, and they might end up leaving Japan without having a good impression. Duty-based employment would also help to change the system of assessment of regular male employees which assumes long working hours, and, as a result, is likely to bring about a positive cycle of male participation in child rearing-->facilitation of the career advancement of women-->growth in labor force-->enhancement of growth potential.

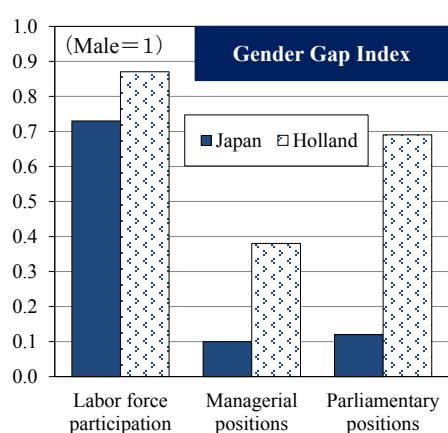
The key to changing the style of working is to change the thinking of senior management and managers and to take another look at their roles. At Japanese enterprises in the past, it was usual to allocate work to “employees who look available” and “employees who appear to have free time” there and then. While this has the advantage of making it easier to deal with an emergency, it also tends to bring about long working hours. This is because employees who are able to comply with this are assessed as being “useful.” However, if short-term, duty-based employment increases, it will be important to (1) clarify the necessity and prioritize the order of work, and (2) consider in advance what kind of action will be taken if the business environment changes or in the event of an emergency. People management will also probably be much more complex. Managerial positions that do the same job they did yesterday will no longer be sufficient. There are already some enterprises that have established numerous managerial positions to deal with the appointment of women. Management functions will need to be powered up.

According to the Gender Gap Index (published by the World Economic Forum), which measures the social participation of women compared to men, Japan is currently woefully low in the world rankings, down at 101st. We should follow the example of the Netherlands with respect to the women’s active role. They have produced an advanced employment framework including “the same wage for the same job” principle. They

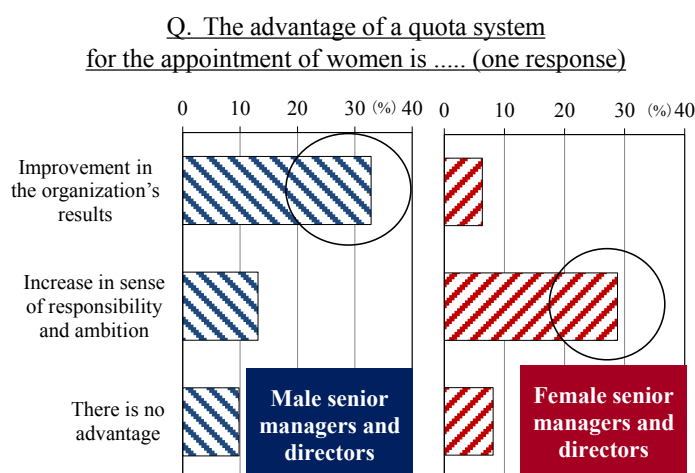
promoted rapidly the rate of female labor participation for the last 20 years and now enjoy 50 thousand dollars in its per capita GNI.

We propose introducing targets for the appointment of women (quotas) : raise the number of women in managerial positions to 40%, and the number of female Diet members to 70% of the number of their male counterparts respectively, thereby bringing both in line with the present levels in the Netherlands (see Fig. 23). According to survey results, few respondents take a negative view toward the quota system.

■ Fig. 23 Increase the social participation of women to levels seen in the Netherlands through a quota system



Source: World Economic Forum  
"The Global Gender Gap Report 2012"



Source: An internet survey conducted by JCER in September 2013

## Activate university-based innovation – combined with employment system reform

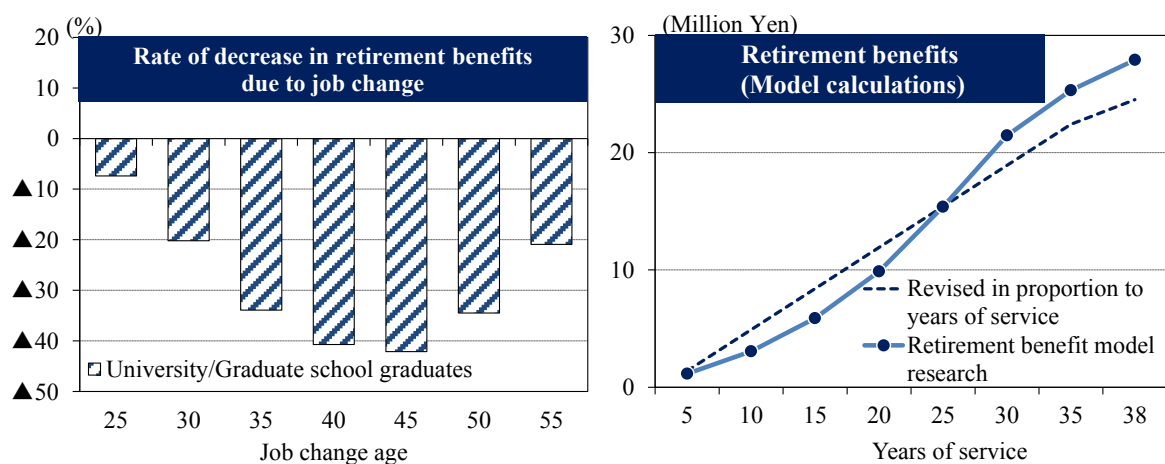
### ◆ Human resources retained within enterprises and post-docs

One of the main objectives of working-style reforms is to create innovation. Japan is trailing behind not only the United States but also South Korea and leading European countries in venture generation to create new industries. This is because Japan has not used its human resources efficiently. More than 4,000 people with PhDs are unable to find work every year and corporate overemployment is also estimated at 4 million. If the generation of new ventures increased, this would provide an opportunity for the effective utilization of such human resources. As in the case where an engineer who left a leading Japanese electronics company is invited to join an enterprise in South Korea or China, for example, the utilization of contacts and know-how — though difficult within a large enterprise — is likely to be possible within a venture enterprise. Also for post-docs who are struggling to find work, venture enterprises represent a chance that will open up new avenues. Even if the human resources capable of developing technologies or business

models to serve as the seeds of new ventures will only be produced according to probability theory, staff to support them will be required and, in Japan today, such human resources are buried within its enterprises.

Here too, it is necessary to change the nature of employment. The twenty-year employment system for graduate recruitment proposed in our interim report is one solution. Retirement benefit programs and suchlike based on the present lifelong employment system, though effective as a means of retaining human resources, put a burden on enterprises grappling with overemployment, and it may be necessary to consider introducing a twenty-year-employment system at the same time as the switchover to a quota system and duty-based employment.

■ Fig. 24 Retirement benefit programs are an obstacle to career moves

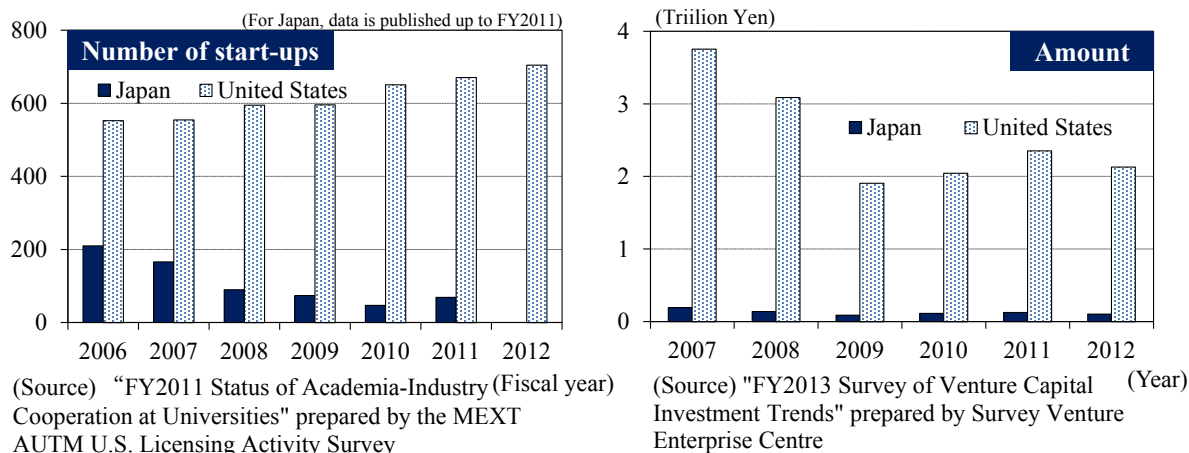


Source: Produced by the JCER based on “Useful Labor Statistics 2013” published by the JILPT, and “General Survey on Wage” published by MHLW

Even if the twenty-year employment system is not introduced straight away, it might be an idea to make a start on the review of retirement benefit programs. For example, many Japanese corporations would see a large reduction in retirement benefits if employees were to leave the company before they reach their mid-forties, and employees leaving in their fifties could receive relatively advantageous retirement benefits (service of thirty years or more on the retirement model research line on the right side of Fig. 7). We suggest that switching to a program of retirement benefits that are fully proportionate to years of service would be a good place to start.

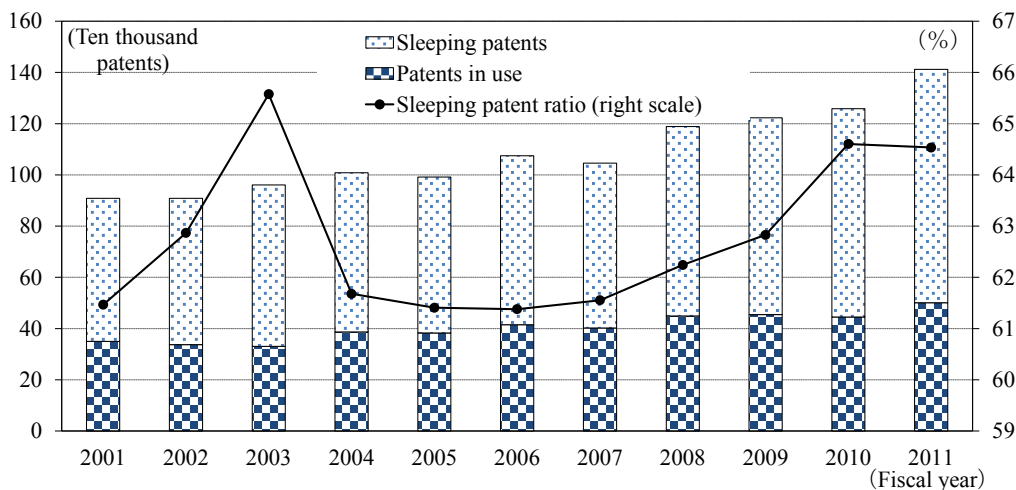
The nature of academia-university cooperation is also in need of reform. Japan’s progress in establishing initiatives so that universities can embark on business in collaboration with enterprises was on a par with that of the United States from the mid-1990s. Japan also has the angel tax system of special incentives for the promotion of investment in venture businesses. However, whereas in the United States, the number of new start-ups per year continued to rise even after the Lehman shock, in Japan, growth in new start-ups was slow from before the Lehman collapse, and the two countries are on different paths. According to our Long-Term World Forecast to 2050, the ease of venture generation is considered to be one factor that determines growth. A difference in venture investment could well lead to a difference in national vitality (see Fig. 25).

■ Fig. 25 Difference in venture investment makes a difference to Japan’s vitality



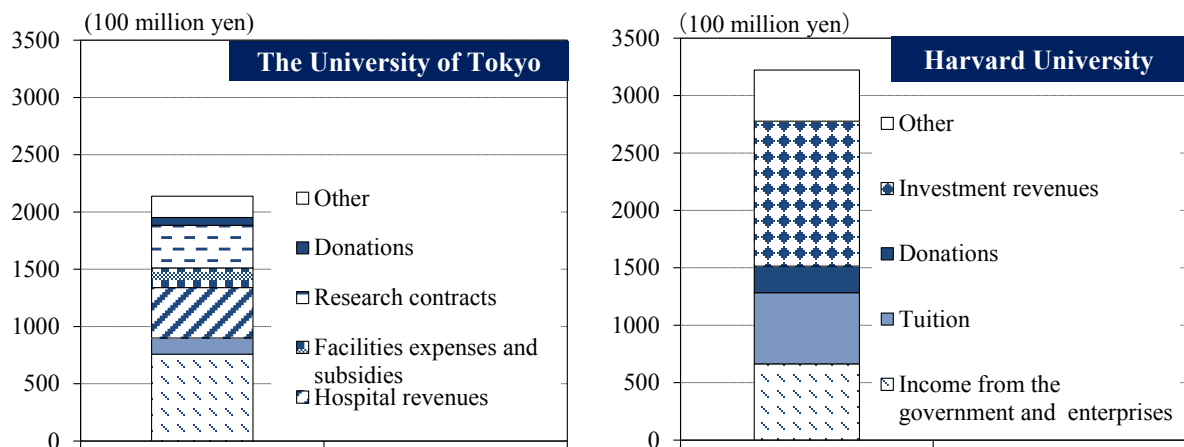
In fact, in Japan, patents generated at universities are not used by venture enterprises. According to the estimates of Professor Watanabe Toshiya et al. of the Policy Alternative Research Center, University of Tokyo, out of the approximately 6,500 patents for which applications are filed in Japan per year, thirty-one are used by ventures. In the meantime, the number of patents for which universities file applications jointly with large enterprises is approximately 2,800, demonstrating that far fewer patents are used by ventures. In the United States, 12,000 patent applications are filed per year, but 1,800 are used by ventures. This means that, in Japan, the technologies that are the seeds of ventures are not being channeled towards the creation of industry to begin with. In Japan, academia-industry cooperation is often undertaken with large enterprises that provide large amounts of research funds, but, as shown in Fig. 26, this often results in sleeping patents. This is because, in some cases, innovative technological developments and business models are not consistent with the technologies or sales channels introduced by the large enterprises or would cause cannibalization with the products and services that are being sold.

■ Fig. 26 Sleeping patents are on the increase



To put in place a structure under which universities supply patents to ventures, it is necessary for universities to establish their own financial base to enable them to pursue independent research and development without being over-reliant on joint research with large enterprises. Prominent private universities in the United States have established their own financial base through asset management, and surely it is necessary for Japan also to consider the privatization of universities and for universities to freely manage their own assets. To enable this, stronger management would be essential while the self-governance of universities would need to be respected. The successful development of university-originated ventures would also serve to underpin the financial base of universities, and, as is the case with prominent universities in the United States, revenues from investment would support university finances and ultimately facilitate the establishment of “self-governance”; in other words, it is likely that a positive growth cycle would be created .

■ Fig. 27 Harvard University generates revenues from investment



Source: Revenue structures of the top universities in Japan and the United States FY2012

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## Maintain position as a first-tier nation

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### ◆ Also beneficial for Japan's social and cultural development

Even with a declining population, there is a way to accelerate growth, through a combination of working-style reforms to fully utilize human resources, including women and foreigners, and policies to open up Japan and invite people, expertise and investment from overseas. It is also possible to (1) lower the public burden through stabilization of fiscal and social security systems and (2) ensure Japan's presence on the international stage, by introducing a policy of population targets. In order to maintain its position as a first-tier nation, Japan must pursue these policies as part of a comprehensive program toward 2050.

To release the latent abilities of human resources and technological resources, Japan must implement a new phase of reforms, reviewing the employment practices built up during the era of high growth with zero based thinking methodology. In order to strengthen support measures for the younger generation, it is also necessary to accept further tax increases and a temporary decline in the level of pensions. The reforms will take a long time. Deciding to raise the consumption tax rates in increments of 1% over the long term (for example, over a period of fifteen years starting in FY2016) may also be an effective way of achieving hardship now, pleasure later.

Some people in Japan take the view that it is fine for Japan not to remain a leading economic power, but if Japan, a country reliant on exports for many of its resources, is to maintain its present standard of living, then it needs to maintain its position as a first-tier nation. It must also not be forgotten that Japan's social and cultural wealth is, in some respects, supported by its economic strength. Looking back on Japan's history from the Asuka and Nara periods to the Meiji Restoration and postwar Japan it is clear that in the days when Japan adopted a policy of opening itself up to the rest of the world and attempted to become a first-tier nation, its social systems and culture also developed massively. The common theme running through all such periods is that Japan was not bound by the past but resolutely implemented a new phase of reforms in its various political and economic systems.



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