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Bank of Japan

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## **Japan's Economy and Innovation**

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## **Introduction**

It is a great honor for me to have the opportunity to speak to you today at the prestigious Japan National Press Club.

The last time I spoke here was in May 2008, immediately after I became Governor of the Bank of Japan. Looking back at developments since then, it is no exaggeration to say that the global economy has gone through a tumultuous two years. The subprime mortgage problem triggered by the plunge in the U.S. housing market was followed by the Lehman shock, and, more recently, events surrounding fiscal conditions in some European countries such as Greece have cast a large shadow on international financial markets. Having said that, however, it is also a fact that, following a severe downturn, the global economy bottomed out around spring 2009 and has since been on a recovery trend. Looking ahead, there remain factors that warrant attention, including the issues in Europe I just referred to; nevertheless, the global economy this year is expected to achieve a relatively high growth rate of about 4 percent, mainly due to the strong growth in emerging and commodity-exporting economies.

Against the backdrop of these developments in the global economy, Japan's economy is also following a recovery trend. At the end of April, the Bank released its semiannual *Outlook for Economic Activity and Prices*, which presents the Bank's assessment of the prospects for economic activity and prices over the next two years.<sup>1</sup> The baseline scenario in the report suggests that Japan's economic growth rate will gradually rise toward fiscal 2011 and that the year-on-year rate of change in the consumer price index (CPI), which is negative at present, may enter positive territory in fiscal 2011. While it would be encouraging if these projections materialize, at the same time, this is unlikely to be sufficient to lift the sentiment of business managers and the public at large. The key issue is the growth path to which Japan is expected to return following the current recovery phase. If the growth path has shifted downward, then naturally sentiment will not improve much. From this perspective, the job of the central bank is not only to present objectively its assessment of the outlook for the next two years, but also to state its view on the fundamental challenges facing Japan's economy and the efforts necessary to meet those challenges. To state the conclusion in

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<sup>1</sup> See the April 2010 *Outlook for Economic Activity and Prices* released by the Bank of Japan on May 1, 2010.

advance, a key issue in meeting the challenges is the role of innovation in economic activity. Therefore, in addition to current economic and price developments, what I would like to talk about today are the fundamental challenges facing Japan's economy and the necessary responses by focusing on the role of innovation.

## **I. Japan's Economy**

### *Baseline Scenario for Economic Activity and Prices*

Let me first explain developments in Japan's economic activity and prices.

Japan's economy is starting to recover moderately, induced by improvement in overseas economic conditions. The main reason is the strong growth in emerging and commodity-exporting economies. These countries have been growing faster than forecasted by international and private organizations, and forecasts continued to be revised upward. Against this background, Japan's economy has also been growing faster than envisaged at the beginning of this year as a result of, for example, continuing high growth in exports. In addition, recently, first signs pointing toward a self-sustaining recovery in domestic private demand have gradually begun to appear. That is, with exports and production continuing to increase, business fixed investment is showing signs of picking up. As for private consumption, in addition to the pick up in sales of electrical appliances and automobiles, which were boosted by policy measures, the declining trend of sales at department stores has been coming to a halt since the turn of the year. Moreover, the severity in the employment situation has eased somewhat, with non-scheduled hours worked increasing and the ratio of job offers to applicants on an uptrend. Nevertheless, the employment and income situation remains severe on the whole, which warrants continued attention.

The baseline scenario for the outlook is that Japan's economy is likely to follow a recovery trend. The eco-point system and subsidies for energy-efficient cars are expected to be wound up in the course of fiscal 2010 and their demand-boosting effects will dissipate gradually. On the other hand, exports and production are likely to continue increasing on the back of strong growth in emerging and commodity-exporting economies, and business fixed investment is also likely to pick up. In addition, as business activity increases, the

employment and income situation is likely to gradually improve, and growth in private consumption and housing investment is expected to accelerate. Based on these projections, Japan's economy, following a contraction of 1.9 percent in fiscal 2009, is expected to grow by around 2 percent in both fiscal 2010 and 2011.

Let me now turn to price developments. On a year-on-year basis, the CPI excluding fresh food continues to decline, although the pace of decline has been slowing since it peaked in August last year at minus 2.4 percent. In April 2010, it was minus 1.0 percent excluding the effects of subsidies for high school tuition fees. Moreover, recently, the number of CPI components for which prices are declining has almost stopped increasing, and consumer surveys suggest that the percentage of consumers expecting prices one year ahead to rise has been steadily increasing, while that of consumers expecting prices to decline has been falling. Past experience tells us that, in Japan, changes in prices tend to lag about one year behind changes in the aggregate supply and demand balance. Looking at recent developments, the aggregate supply and demand balance in Japan has been improving since around the spring of 2009, and the effects of that improvement may now be gradually starting to spread to prices. As mentioned at the beginning, the Bank projects that the year-on-year rate of change in the CPI will remain negative for fiscal 2010, but will enter positive territory in fiscal 2011.

#### *Risk Factors*

As just described, Japan's economy is making steady progress toward returning to a sustainable growth path with price stability, helped by the improvements in overseas economic conditions. The Bank is fully aware of both upside and downside uncertainties regarding the outlook for the economy. On one hand, if emerging and commodity-exporting economies achieve faster growth, Japan's domestic private demand could recover at a faster pace than expected through spillovers from an increase in exports. On the other hand, Japan's economy could decline if developments in fiscal conditions in Greece and other economies further intensify strains in international financial markets or exert downward pressure on the global economy. Also, the consequences of balance-sheet adjustments in the United States and Europe continue to demand vigilance. The Bank will continue to thoroughly examine these various risk factors without having a predetermined

view.

## **II. Fundamental Problems Japan's Economy Faces**

So far, I have talked about the outlook for Japan's economy in the next two years, but what is equally important as such short-term outlook is the medium- to long-term growth path of Japan's economy. At present, we often hear pessimistic views about the future of Japan's economy and the reason for this mainly seems to be a lack of confidence in Japan's medium- to long-term growth potential. In fact, from a long-term perspective, Japan's economic growth rate is on a downtrend. I believe that the greatest challenge Japan's economy is facing now is the decline in the potential growth rate as well as the shrinking of the population and sluggish productivity growth underlying this. It could be said that the deflation in Japan is also a manifestation of the fundamental problem facing the economy, namely the decline in growth expectations. Consequently, what I would now like to talk about next is the growth potential of Japan's economy.

### *The Rise and Fall in the Growth Rate*

Let me start by considering Japan's experience during the high-speed growth era. The average rate of economic growth from 1955 through 1973 was 9.3 percent. The first reason why such high growth was possible is buoyant domestic demand in the form of business fixed investment and private consumption. The contribution of domestic demand to the aforementioned growth rate during the high-speed growth era was 9.5 percentage points, while the contribution of net external demand, that is, exports minus imports, was minus 0.3 percentage points. While the contribution of net external demand was negative, this does not mean that external demand, and in turn the global economy, did not contribute to Japan's economic growth. The reason why the contribution of net external demand made a small negative contribution was that not only exports increased but also imports, as a result of the growth in domestic demand, increased considerably. In other words, it can be said that Japan achieved rapid economic growth precisely because it was able to access global markets through foreign trade and direct investment. This is the second reason why it was possible for Japan to enjoy high growth.

After the rapid growth from the mid-1950s to the beginning of 1970s, the pace of growth

slowed gradually. Nevertheless, Japan's growth rate still exceeded that of other advanced economies up until the 1980s. However, following the burst of the bubble, Japan's economic growth rate declined significantly in the 1990s and has been at the lower end among the G7 countries in the 1990s and 2000s (see Appendix).

There are two major factors that underlie the decline in the growth rate. The first is the decline in labor force growth due to the low birth rate and population aging. The growth rate of Japan's labor force was about 1 percent in the 1980s, but fell to almost zero in the 1990s and has plunged to minus 0.6 percent since 2000. This is in stark contrast with developments in the United States, where the labor force has consistently grown at a rate of more than 1 percent since the 1980s.

The second major factor for the drop in the growth rate is the decline in productivity growth in the economy as a whole. While the growth rate of GDP per worker in Japan was 3.2 percent in the 1980s, the highest among the G7 countries, it declined rapidly to 0.9 percent in the 1990s. In the 1990s, the world experienced a substantial transformation through the rapid development of information and communication technology and the intensification of global competition; however, Japan during this period was busy overcoming the various "excesses" in production capacity, debt, etc., that had built up during the bubble period, and thus was not able to grapple with these new challenges head-on. To be more precise, while the declining trend in productivity growth seems to have begun before the start of the bubble, this was masked by the temporary demand increase during the economic boom in the bubble period. At any rate, individual firms found it difficult to engage in forward-looking economic activities in line with the changes in the global economy, and responses to the new challenges were delayed. Another element is that, at the same time, adjustments of "excesses" did not always progress smoothly and that may have resulted in preserving inefficient sectors of Japan's economy. Against this backdrop, the environment continued to be such that the efforts of high-productivity firms and market entry of promising new firms were not sufficiently rewarded, leading to a decline in productivity growth in the economy as a whole.

In the preceding discussion I treated labor force and productivity trends as independent

factors, but they are interrelated. As the aging of the population progresses and the share of the population that requires support from the generations still in work increases, this could affect the work incentives for the generations still in work through channels such as an increase in the fiscal burden. Thus, a country's demographic trends and the vitality or energy of its society as a whole, or the productivity of the economy as a whole, are intricately intertwined and cannot be considered separately.

#### *Ways to Raise Japan's Growth Potential*

In order to raise growth expectations for Japan in the future, it is necessary to address the factors underlying the decline in the growth rate that I just mentioned and transform the economy into one that people believe will achieve growth in the future.

To address the first factor, the decline in the labor force, the very least is to make consistent efforts to raise the labor force participation rate of women and the elderly. To address the second factor underlying the decline in the growth rate, that is, the decline in productivity growth, a key point is how individual firms can tap new demand. The term "rise in productivity" carries the connotation of producing existing products at lower costs. Of course, this aspect is important. However, when there are dynamic changes in customer needs, raising productivity also means tapping new demand and increasing sales by establishing a supply system that matches such new demand. Due to economic globalization, the range of potential customers has rapidly increased also for Japanese firms. The explosive spread of personal computers and the internet has rapidly reduced the distance between firms and customers, and, in this respect, the gap between large and small firms has shrunk. The low birth rate and population aging in advanced economies and major structural changes such as the shift to a low carbon economy bring with them new customer needs. While it is a difficult task to discover potential demand that cannot be easily discerned, transforming such potential demand into actual demand and linking this with a rise in productivity is something that firms should perceive as a challenge and that would provide one approach to innovation, as I will explain later.

#### *Japan's Economic Strengths*

Unfortunately, through what mechanisms innovation takes place nobody can say for certain.

However, innovation is not likely to take place unless there is sufficient energy to overcome the kind of pessimism many currently feel in Japan with regard to the future. Of course, when growth is actually sluggish and the reason for this is a decline in productivity growth, such pessimism is not entirely unfounded. On the other hand, however, I feel that there is also a tendency for the strength of Japan's economy to be underestimated and the pessimism to be overdone. With regard to well-founded pessimism, it is necessary to accurately recognize the essence of the underlying issues and squarely address them. At the same time, we cannot allow ourselves the luxury of indulging in groundless pessimism. It is important to calmly recognize the relative strengths of our country and utilize them to the maximum extent possible.

Earlier, I identified trends in the labor force and productivity growth as factors responsible for the decline in Japan's growth potential since the 1990s. These trends in themselves are a fact. To provide some detail, while the average rate of change in the labor force declined over the past two decades, productivity growth plunged in the 1990s, but has recovered somewhat since 2000. Looking at the growth rate of GDP per worker since 2000, this was 1.6 percent for Japan, which was again higher than for European countries and, among the G7 countries, second only to the United States, which registered 1.8 percent. This growth in GDP per worker is the first strength of Japan's economy that I would like to highlight. Strenuous efforts to raise productivity will continue to be a driving force of Japan's economic growth.

The second strength is Japan's high level of technology as a whole. For example, Japan ranks second in the number of international patent applications next to the United States, and the number has been steadily increasing. In addition, according to a research by the Ministry of Internal Affairs and Communications, Japan ranks first among advanced countries in terms of the number of researchers per capita. What is important for Japan is how to effectively use this fundamental strength and link it with tapping new demand.

Third, Japan's financial system is considerably more stable than those in the United States and Europe. The issuing environment in the CP and corporate bond markets had become favorable again by around autumn last year. Financial institutions' lending attitudes, as



viewed by firms, have also become favorable. Compared with the United States and Europe, which face the structural problem of balance-sheet adjustments and have to contend with a tight lending stance by financial institutions, it can be said that Japan's economy is in a superior position.

And fourth, Japan has strong economic and historical ties with, and is geographically close to, the rest of East Asia, which currently is the most rapidly expanding region in the world. It is now widely recognized that China is no longer merely a production base but also the world's premier consumption market, demanding versatile goods and services. China has already become number one in the world in terms of car sales and internet users, and markets are expected to further expand as the social infrastructure, such as roads and telecommunication, develops. It is necessary for Japan to seize the development of Asia as a golden opportunity to foster innovation.

### **III. Growth and Innovation**

#### *What is Innovation?*

I have thus far talked without explaining in detail the term innovation. While in Japan, the term innovation has often been used interchangeably with "technological revolution," Joseph Schumpeter, who first introduced the term to the field of economics, understood it in a broader sense. Stressing in particular the role of innovation as a driving force of economic development, he distinguished five different types, namely the introduction of a new good, the introduction of a new method of production, the opening of a new market, the conquest of a new source of supply of raw materials, and the carrying out of the new organization of any industry. Thus, innovation is a very broad concept that embraces various new efforts by firms to capture new demand and is not limited to the field of technology.

Given the current situation in Japan, it seems necessary to recognize again the original meaning of the term "innovation." With regard to Japan's manufacturing sector, it has recently been pointed out that the gap in technological prowess vis-à-vis other East Asian countries has been rapidly shrinking, and even in the area of process innovation, which used to be Japan's forte, Japan has been losing its edge. Against this backdrop, firms, or

entrepreneurs, need to take on new challenges. In fact, many Japanese firms have recently been pursuing strategies consisting of setting up local production bases or establishing new sales networks in order to capture demand for infrastructure or the consumption demand of the wealthy and the middle classes in emerging economies. Moreover, firms have actively explored new alliances or organizational forms between firms that are not constrained by traditional arrangements such as business affiliations or business groupings, as illustrated, for instance, by the promotion of cross-border supply chain management to respond promptly to customer demand. This applies even to nonmanufacturers and small-sized firms. While business efforts such as developing new sales channels, reviewing suppliers and processing methods, and reorganizing management structures are routine at firms, adding the new challenge of capturing potential demand could lead to these routine efforts developing into innovations.

#### *The Role of Financial Institutions*

With regard to innovation and raising productivity, another aspect I would like to emphasize is the important role played by financial institutions. Schumpeter stressed the role of "the banker" in providing funds to entrepreneurs and support efforts toward innovation. In Japan, too, it was mainly financial institutions, particularly banks, that provided long-term risk money to firms and nurtured many growing firms for a long period after the war. Recently, there have been signs that financial institutions are taking a more strategic approach to such business, actively providing loans or business support to firms that develop proprietary technologies or expand abroad, or to projects in promising areas related to the environment, energy, medical care, and nursing care.

Of course, for risk money to be supplied to firms, it is important that there exist a variety of financial markets and investors. That being said, in Japan, the role of capital markets in the provision of such risk money is relatively small, and with regard to fostering venture businesses, the situation in Japan hardly matches that in the United States. Although various initiatives in these areas by concerned parties are currently underway, I think that, for the time being, financial institutions will continue to play a central role in promoting innovation in Japan.

The economy is made up of a variety of firms and industries with differing rates of productivity growth. This means that financial institutions play the extremely important role of gauging borrower firms' future profitability and growth potential and of making loan decisions and setting loan conditions. It is therefore strongly hoped that financial institutions hone their ability to identify firms with growth potential and thereby contribute to the growth of Japan's economy. At the same time, in order for financial institutions to make such a contribution, it is important that the role of financial intermediation is properly appreciated also in Japan.

### *The Role of Policy Makers*

Now let me talk about the role policy makers play in innovation. While in every respect it is private economic agents that are the bearers of innovation, policy makers play an important role in creating an environment that is conducive to innovation.

The first area in which policy makers play an important role is the development of the framework under which firms conduct their business. This means that regulations and taxes have to be reviewed constantly as the situation requires so as not to impede firms' innovative efforts and to help firms earn the fruit of such efforts in the form of corporate profits. In this regard, we need to be aware that just as Japanese firms are exposed to global competition, Japan's business framework is also subject to international competition.

The second contribution policy can make is to enhance the flexibility of economic structures so that productive resources such as labor and capital can move smoothly from areas where there is a low need to areas where there is a high need. To this end, the most important thing is a policy conduct that does not impede competition.

The third policy contribution is the provision of various safety nets. Innovative activity is not always crowned by success and carries the risk of failure. Moreover, the economic metabolism is a process that is inevitably accompanied by pain for some sectors. Therefore, it is essential to establish social safety nets that mitigate the pain for firms and individuals and allow them to tackle new business ventures with a sense of security.

Finally, the fourth area in which policy makers play a role is in the appropriate conduct of fiscal and monetary policies to reduce swings in economic activity and prices. Less uncertainty over future economic conditions and inflation means that, to that extent, firms can pursue innovation without concern.

However, while the provision of safety nets and the implementation of countercyclical policies are desirable and effective measures when the economy suffers a large temporary shock, if those measures go too far, they may impede the economic metabolism and even reduce productivity. For that reason, policy makers need to strike a delicate balance in their policy conduct.

On this point, there have been various discussions regarding the current events in Europe. Since the Lehman shock, aggressive fiscal policies implemented in many countries played a significant role in stemming the economic plunge. However, at the same time, fiscal policies are not a "cornucopia" and eventually nations have to repay their public debt through the value added generated by economic activity. Therefore, confidence in fiscal sustainability is critical and once it is lost, economic activity can be severely hurt through rapid changes in financial markets. Keeping this point in mind, policy makers should work to appropriately conduct policies so as to maintain sufficient market confidence. In this regard, current events seem to have served as a "wakeup call" to many countries.

#### **IV. The Bank's Policy Responses**

##### *Aggressive Monetary Easing*

Finally, let me briefly touch on policy responses by the Bank of Japan given the economic and price developments discussed earlier.

Aware of the great importance of overcoming deflation and returning Japan's economy to a sustainable growth path with price stability, the Bank has continued to implement a policy of strong monetary easing. The policy rate was lowered to 0.1 percent, that is, effectively zero. Moreover, to encourage a further decline in longer-term interest rates in the money market, the Bank introduced in December 2009 a new funds-supplying operation, through which funds with a maturity of three months are provided at a fixed rate. As a result of

these measures, market rates and bank lending rates have been declining. The Bank will continue to maintain the extremely accommodative financial environment so as to help the economy achieve a self-sustaining recovery in domestic private demand.

Another important responsibility of the Bank is to ensure financial market stability. As I mentioned at the beginning, strains in short-term U.S. dollar markets heightened from the beginning of May against the backdrop of fiscal problems in some European economies. These developments carry the risk of reducing liquidity in or destabilizing financial markets around the world, including Japan. Therefore, the Bank, in cooperation with other major central banks, has re-established U.S. dollar funds-supplying operations, which had been highly effective during the financial crisis in 2008. The Bank has been working to ensure financial market stability by responding flexibly in terms of funds-supplying operations whenever there were grave problems in financial markets. The re-establishment of U.S. dollar funds-supplying operations is one example of the Bank's flexible response. Not only the current problems in Greece, but also many other issues remain in international finance that still warrant attention. The Bank, while cooperating with overseas central banks, will continue to make every effort to ensure the stability of financial markets.

#### *Funds Provision to Help Strengthening the Foundations for Economic Growth*

As I have explained today, the most important challenge for Japan's economy at present is to raise its growth potential, and to this end, promoting innovation is indispensable. Moreover, to do so, the role of private financial institutions is also important. Taking these points into account, the Bank, in addition to its policy of monetary easing and measures to stabilize financial markets explained earlier, has announced its intention to introduce fund-provisioning measures for strengthening the foundations for economic growth. While the specifics of these fund-provisioning measures are being examined through an exchange of views with financial institutions, basically, the Bank is considering to provide funds to financial institutions -- which through their lending and investment provide the financial resources for strengthening the foundations for economic growth -- based on the actual amount of such lending and investment. To support financial institutions' efforts in this respect, the Bank is thinking about providing loans of longer-term funds at a rate equivalent to the policy rate, which is 0.1 percent at present, in a manner that enables

financial institutions to obtain loans longer than one year.

Of course, the Bank is fully aware that raising the growth potential essentially is something that can only be achieved through the efforts of the private sector, and such efforts will be supported by the government from the institutional side. Clearly recognizing this, and taking into account the fact that the issue facing Japan is one of declining growth expectations, which in turn considerably contributes to the current fall in prices, the Bank concluded that it should use the central banking functions it is endowed with to help strengthening the growth foundations of Japan's economy from the financial side. This is consistent with the mission of monetary policy in the Bank of Japan Act, which stipulates that "[c]urrency and monetary control by the Bank of Japan shall be aimed at achieving price stability, thereby contributing to the sound development of the national economy." In this regard, we at the Bank are paying attention to the following two points. First, the aim of this measure is to provide temporary support from the funding side for initiatives taken by financial institutions at their own accord and does not imply that the Bank will be involved in the allocation of funds to individual industries or firms. And second, the measure should not inhibit the future conduct of monetary policy. The measure will be conducted while maintaining the soundness of the Bank of Japan's balance sheet and without constraining interest rate policy by, for example, setting a limit on the total loan amount.

### **Concluding Remarks**

Time is running out, so I will try to wrap up my speech. The following three conclusions can be drawn. First, at present, Japan's economy is making steady progress toward returning to a sustainable growth path with price stability. However, we need to continue to be vigilant for both upside and downside risks such as higher growth in emerging and commodity-exporting countries and international financial developments. Second, the most important challenge for Japan's economy is the downward trend in the potential growth rate, and we need to squarely address this problem. The so-called deflation problem is, in my view, also a manifestation of the fundamental problem Japan is facing, namely, the decline in growth expectations. And third, in order to put the brakes on the decline in the potential growth rate and productivity growth, efforts at innovation are more

important than ever. To this end, in addition to the efforts by individual firms, it is important to achieve an optimal allocation of resources and raise the metabolism of the economy.

The decline in the growth rate is a phenomenon that has gradually progressed over a long period of time. Therefore, raising the potential growth rate will also be a long-drawn-out process. If there was a magic wand that could resolve the problem immediately, somebody would already have used it. The economy is a complex network. For that reason, to escape from the current low growth equilibrium, above all what is necessary is the will to resolve the current problems. And, based on that will, the only way to do so is for private economic agents and policy makers to make the necessary efforts based on their respective roles. The Bank, too, will continue to consistently make contributions as a central bank while listening carefully to various opinions.

### GDP Growth Rates in the G7 Countries

#### 1. Growth Rates of Real GDP

	1980s	1990s	Since 2000
Japan	4.4	1.5	1.5
United States	3.1	3.2	2.4
Canada	3.0	2.4	2.6
Germany	1.8	1.5	1.5
France	2.3	1.8	1.9
United Kingdom	2.4	2.2	2.5
Italy	2.6	1.4	1.2

#### 2. Growth Rates of per Capita GDP

	1980s	1990s	Since 2000
Japan	3.2	1.2	1.3
United States	2.5	1.9	1.4
Canada	1.9	1.3	1.6
Germany	1.8	1.2	1.5
France	1.9	1.4	1.2
United Kingdom	2.8	2.0	2.0
Italy	2.4	1.4	0.7

#### 3. Growth Rates of GDP per Worker

	1980s	1990s	Since 2000
Japan	3.2	0.9	1.6
United States	1.2	1.5	1.8
Canada	1.0	1.4	0.7
Germany	1.0	1.6	0.9
France	2.1	1.4	0.9
United Kingdom	1.8	2.1	1.6
Italy	2.0	1.3	-0.1

#### 4. Labor Force Growth Rates

	1980s	1990s	Since 2000
Japan	0.9	0.1	-0.6
United States	1.2	1.1	1.3
Canada	1.2	1.1	1.3
Germany	0.7	0.1	-0.1
France	0.9	0.3	0.6
United Kingdom	0.4	0.2	0.7
Italy	0.7	0.1	0.1

Notes: 1. The labor force in the United States is the population aged 16 and over. For other countries, the labor force is the population aged between 14 and 65.

2. The figures for Germany for the 1980s are those for West Germany. The figures for Germany for the 1990s are the average for the period from 1992 to 1999.

3. The figures for the period since 2000 are from 2000 through 2008.