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Productivity and Global Competitiveness...

As U.S. Productivity Slows, Emerging Economies Grow Rapidly, but Europe Falls Further Behind

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The times of extraordinary high U.S. labor productivity growth rates are over—at least for now. Though still healthy compared to other developed nations, labor productivity growth in the United States slumped to 1.8 percent in 2005. While several large European economies plod along, some emerging markets of Central and Eastern Europe and Asia are catching fire with China and Poland accelerating to around 8 percent.

About This Report

This Executive Action report offers the most up-to-date and timely data on key productivity and income trends through 2005 based on The Conference Board & Groningen Growth and Development Centre's Total Economy Database. The four statistical tables provide a comprehensive overview of productivity growth rates and levels for 38 countries, including complete coverage of advanced economies in Western Europe, North America, and Japan, and estimates for major emerging economies, including countries in Central and Eastern Europe, India, China, Mexico, and Turkey. The Conference Board's full

report, *Performance 2006, Productivity, Employment and Income in the World's Economies*, to be released in March, will provide a wider range of country-specific analysis and trends, including additional productivity tables covering 102 economies and 98 percent of world output.

The data and detailed source descriptions are available on an annual as well as country-by-country basis from <http://www.conference-board.org/economics/research.cfm> or <http://www.ggdc.net/dseries/totecon.shtml>.

Key Findings

- Most countries in North America, Europe, and developed Asia experienced a slowdown in productivity growth in 2005, with rates in the 1.5 to 2 percent range.
- U.S. labor productivity slowed to 1.8 percent in 2005, down from more than 3 percent in 2004, but it remains at the higher end of the range of advanced countries.
- Japan also showed slower productivity growth at 1.9 percent in 2005 compared to 3.2 percent in 2004.
- Outliers at the lower end of the productivity growth spectrum are situated in Europe, notably Italy (minus 0.9 percent) and Spain (minus 1.3 percent), taking the average of the “old” European Union down to 0.5 percent. But also the UK and Germany registered weak productivity growth of 0.9 percent in 2005.
- Countries at the higher end of the global range are mainly emerging markets, including Eastern and Central European economies (e.g., Poland at 7.7 percent), Korea (2.5 percent) and Turkey (3.7 percent).
- India and China showed productivity growth at 4.4 and 8.4 percent respectively in 2004, the last year for which data is available for these countries.

Productivity in U.S. Slows but Remains High Among Advanced Economies

After a period of productivity acceleration, the U.S. economy experienced a slowdown in labor productivity growth from more than 3 percent from 2002-2004 to 1.8 percent in 2005. Despite this significant slowdown, the United States remains a growth leader internationally. Among advanced economies only South Korea and a handful of small European economies (Denmark, Greece,

Iceland, and Norway) exceeded U.S. growth rates. While productivity slowed, U.S. labor input growth, measured in total working hours, accelerated from 1.2 percent in 2004 to 1.8 percent in 2005, partly offsetting lower productivity in its contribution to GDP growth (GDP increased by 4.2 percent in 2004 and 3.6 percent in 2005).

Slower Productivity Continues in “Old” EU Member States

Productivity and labor input growth continued to be disappointing among the pre-2004 membership of the European Union (EU-15). Following a slight recovery of productivity growth in 2004 to 1.4 percent, productivity growth slowed to 0.5 percent in 2005. Growth in total working hours remained broadly unchanged from 2004 to 2005 (1.1 percent in 2005 versus 0.9 percent in 2004), leaving GDP growth at no more than 1.6 percent in the EU-15.

As always, variations in productivity growth rates were substantial among EU-15 countries. Only the Netherlands and Portugal showed an improvement—albeit moderate—in 2005 vis-à-vis 2004. Finland, Belgium, and Luxembourg experienced large productivity slowdowns of more than 2 percentage points in 2005. Among the EU-15 heavyweights, the United Kingdom and Germany also registered weak productivity gains. Productivity growth even declined in Italy and Spain (minus 0.9 and minus 1.3 percent in 2005 respectively) taking the EU average significantly down.

New Member States Raise European Union Average

In contrast to most old member states of the European Union, most new member states showed a spectacular acceleration in labor productivity growth in 2005. On average, the labor productivity growth rate of the 10 new member states of the European Union increased from 4.1 percent in 2004 to 6.2 percent in 2005. Most countries showed an improvement, notably Poland (from 4.1 to 7.7 percent), Hungary (from 3.7 to 6.3 percent) and Slovakia (from 3.9 to 5.5 percent). On average, employment growth in the new member states remained stable and positive at 1.1 percent in 2005 (equal to that of the EU-15). Only Hungary failed to experience higher total working hours, with a slight fall in labor input at -0.1 percent.

Why Labor Productivity Matters

Labor productivity provides a simple, but powerful indicator of economic efficiency. Labor productivity measures how much output is obtained per hour of work and provides a connection to living standards as measured by per capita income—the higher the relative level of productivity, the higher per capita income is, and the greater the chance for economic expansion. Moreover, labor productivity is a principal source of economic growth since hourly labor productivity times total hours worked in the economy equals GDP.

Japan and Other Advanced Economies Show Mixed Picture

Japan's substantive productivity recovery (its productivity growth rate was 3.6 percent in 2004) was not continued into 2005. While productivity growth fell back to

1.9 percent, this remained higher than in most European countries. Also, for the first time since 2000, employment in Japan showed signs of improvement with a 0.5 percent increase in total working hours.

Other OECD countries present a mixed productivity growth picture. Australia experienced a significant downturn with a negative productivity performance in 2005 of -0.9 percent, coupled with 3.6 percent growth in total hours worked. This continued the trend that began after 2001 and has been characterised by a gradual slowdown in productivity balanced out by rising employment growth. In contrast to Australia, Canada's productivity performance improved to 1.6 percent following zero growth in 2003 and 2004.

Data and Significant Revisions from Prior Years

All data in this report are derived from the Total Economy Database of The Conference Board (TCB) and the Groningen Growth and Development Centre (GGDC). Data and details of sources and data adjustments can be accessed through the Board's website at <http://www.conference-board.org/economics/research.cfm> or <http://www.ggdc.net/dseries/totecon.html>

The data for this report are based on the latest national accounts, labor surveys and other employment statistics available for individual countries. In order to maximize international consistency, the figures are largely derived from international sources, such as the National Accounts and Labor Force Statistics of the OECD, the Statistical Office of the European Union (Eurostat) and the Foreign Labor Statistics of the Bureau of Labor Statistics (U.S. Department of Commerce). However, for many countries data from international sources have been supplemented with those from national statistical offices to increase timeliness when possible (for China, see box on page 5).

The data used in this year's report contain some important changes compared to last year's version of the TCB/GGDC Total Economy Database. This is due to the fact that statistical agencies around the world have been implementing some major changes. These changes partly reflect regular revisions as new information becomes available. In addition, several international co-ordinated efforts are being undertaken to improve the statistical description of economies and enhance international comparability. These include the integration of employment and labor statistics in the framework of national accounts, the allocation to users of non-fee based financial services (FISIM or 'financial intermediation services indirectly measured') and the introduction of annual (chain) weights in the aggregate output measures to reflect changing output shares of industries.

As many statistical agencies are still in the process of implementing these changes, we have tried as much as possible to take stock of the latest estimates for various countries, but at the same time aimed to maintain consistency between output and input estimates, and maximize international comparability. Also, in some cases, official statistics have not been revised historically, creating breaks in the series, which needed to be bridged. More definitive figures will be made available on The Conference Board & GGDC websites by July 2006.

For 2005, the figures are based on preliminary estimates for GDP and employment from the OECD Economic Outlook of December 2005, keeping hours per employee constant compared to 2004 (see also "Quality of Preliminary Estimates of Productivity for 2005" on page 6).

The measures of productivity levels in Table 4 are expressed in terms of U.S. dollars adjusted for differences in relative price levels across countries using purchasing power parities (PPPs) as published by the OECD. For this year's dataset we used purchasing power parities for the benchmark year 2002, which we updated to 2005 using the aggregate inflation rates for each country relative to the United States.

Productivity estimates are relatively sensitive to measurement error in the underlying output and labor input figures. It is reasonable to assume that the uncertainty regarding productivity growth rates reported in Tables 1 to 3 is in a range of 0.2 percentage points. Readers should also use caution when interpreting numerical rankings for individual countries (such as in Table 4). In particular, not much significance should be attached to differences in productivity levels of less than 3 percent around the point estimate.

Emerging Economies Take Productivity Lead; China Soars

In addition to the new EU member states from Central and Eastern Europe, the present estimates of hourly labor productivity for 2005 include two other major emerging economies, Mexico and Turkey, and one newly industrialised Asian economy, South Korea. While Mexico's productivity growth rate was relatively low at less than 1 percent per year both in 2004 and 2005, Korea and Turkey remained at the higher end of OECD countries.

However, the productivity growth rates of the latter two countries are much lower than for the two largest economies in emerging Asia—China and India. According to estimates of employee productivity in 2004, China was the undisputed productivity leader in Asia at 8.4 percent productivity growth, which is in line with an average of 8.7 percent per year since 2000. The significant acceleration in productivity growth since 2000 is striking as productivity increased on average by “only” 3.1 percent per year from 1995 to 2000 ([see box on page 5](#)). This suggests that the dramatic changes in reform policies and the increase in openness prior to China's accession to the WTO showed their major impact only during the most recent years.

India's slower productivity growth (4.4 percent in 2004, and 4.1 percent on average from 2000 to 2004) occurred in a context of faster employment growth at about 2 percent during recent years, double the growth of labor input in China. Indeed, China went through a similar phase of moderate productivity growth and rapid employment growth earlier during the late 1980s and early 1990s.

Leadership Positions in Productivity Levels Continue Erosion in Europe

Although productivity growth rates can vary substantially from one country to another, it takes a long time before growth rates change relative labor productivity levels, especially in the case of emerging economies due to the very large productivity gaps with advanced countries. When, in particular, corrected for differences in relative price levels with the use of purchasing power parities, productivity levels change only slowly.

Nevertheless, compared to earlier years there has been a continuous erosion of comparative productivity levels in Europe. For example, even though France still had an hourly productivity level 12 percent above the U.S. level in 2005, this gap narrowed by 4 percentage points from 2000. Similarly, productivity levels in Germany fell from more than 5 percent ahead of the U.S. level in 2000 to approximately the same level as the United States in 2005.

In Western Europe, labor force participation rates improved marginally, but as average working hours remained low compared to the rest of the advanced world, it did little to offset the impact of lower productivity on economic growth. As a result, per capita income levels in the EU-15 have remained in the range of 73-75 percent of U.S. levels since 1995.

In terms of living standards, most other advanced economies are still well below the United States. In Japan, per capita income levels have significantly suffered due to the combined impact of slow productivity growth and a fall in participation and working hours relative to the United States. In 1997, average per capita income was still at 82 percent of the U.S. level—which was higher than for the EU-15—but it fell to 75 percent by 2005. Per capita income levels in Australia and Canada were slightly higher than in Japan at 79 percent of the U.S. level in 2005.

Adjustments to Chinese GDP Suggest Rapid Productivity Acceleration Since 2000

Given its extraordinary economic advances over the past two and half decades, there has been considerable interest in the measurement of China's economy. The combination of China's change to western national accounting standards and the general rapid expansion of private economic activity has created great uncertainty about the accuracy of any quantitative measures of the state of the Chinese economy. For a long time, there has been concern about the quality of official estimates of output growth adjusted for inflation in China, which some academic scholars claim to have been overstated by as much as 2-3 percentage points over the past decades. In particular, estimates for manufacturing output and the previously unmeasured services sector have been criticized. Manufacturing prices were traditionally reported stable or rising only very slowly, leading to concerns that inflation-adjusted output may be exaggerated. Even today, current output is likely to be overstated as remaining state-owned firms continue to produce output of which a significant extent cannot be sold, and goes into inventory or is even scrapped. In services there has been a genuine concern about the ad-hoc inclusion in recent years of existing private activities (such as distribution and transportation services) that previously went unmeasured. As a result, output and productivity growth in services might typically have been overstated.

The TCB/GGDC data base does therefore not use the official estimates of output growth as published by China's National Bureau of Statistics (NBS) and most international organizations (IMF, World Bank), which would suggest labor productivity growth rates, measured by real GDP per person employed, to have increased at 7.3 percent a year on average from 1995-2004. Instead we adopt downwardly adjusted GDP growth rates from the economic historian, Angus Maddison^a, of the University of Groningen, which leads to an average productivity growth of 5.6 percent over the same period. Maddison also shows much lower growth rates than the official sources for the pre-1995 period, but faster growth rates for the post-2000 period.

In addition to the estimates of output and productivity growth, recent adjustments by the National Bureau of Statistics based on the first National Economic Census have raised the level of GDP by 16.8 percent in 2004. This sudden jump in the GDP level is mainly due to a better coverage of service sector firms that were previously not included, in particular, in the private sector. Employment in both the manufacturing and services sector has also been adjusted upwards, so that the overall impact on the level of productivity remains unclear. These level adjustments have also raised the official estimate of GDP growth by about 0.5 percent per year on average since 1993. However, the impact on productivity is unclear as an adjustment to employment has not yet been provided. Indeed, the present estimate of the share of services in total employment at around 33 percent still seems

relatively low even for a country at this level of development. Moreover, recent estimates on China by the U.S. Bureau of Labor Statistics^b show that manufacturing employment might still be higher at around 109 million (in 2002) instead of the 83.9 million (in 2004) as suggested by the Economic Census. These considerations further support the more cautious view of Maddison on China's growth performance.

	Official estimates:		Maddison estimates:	
	GDP (constant prices)	Labor productivity (per person)	GDP (constant prices)	Labor productivity (per person)
1987-1995	9.8	6.4	8.1	4.7
1995-2004	8.5	7.3	6.8	5.6
<i>of which</i>				
1995-2000	8.3	7.0	4.3	3.1
2000-2004	8.7	7.6	9.9	8.7

Source: Official estimates based on NBS estimates, derived from Asian Development Bank website and China Statistical Yearbook; alternative estimates based on Angus Maddison (2003), *The World Economy, Historical Statistics* (OECD) and updated estimates kindly provided by Maddison (2004 estimates from ADB and NBS).

It should be stressed that after adjustments for differences in relative price levels, as measured by purchasing power parities (PPPs), levels of GDP and productivity are considerably higher than what is mostly reported in the media on the basis of the official exchange rates. Although measures of PPPs for China are imprecise, PPP-adjusted GDP in China is 4 to 5 times as high as GDP measured at official exchange rates. This implies that GDP in China is at least 60 percent of the GDP level of the United States. According to the TCB/GGDC measures, based on Angus Maddison's work, labor productivity (measured as GDP per person employed) is about 14 percent of the U.S. level in 2003.

In sum, there is still considerable uncertainty about the relative levels of Chinese GDP both measured in national currency and in terms of U.S. dollars. Ongoing revisions may have important implications for assessing the performance of China's economy. In the TCB/GGDC database we opt for a somewhat more conservative estimate of China's growth rates, which seems more consistent from a measurement perspective and better in line with economic interpretations of China's growth performance. Further details on measures of productivity and unit labor cost, including measures at industry level, will be published by The Conference Board and the Groningen Growth and Development later in 2006.

^a Angus Maddison (2003), *The World Economy. Historical Statistics*, OECD, Paris; See also Angus Maddison (2006), 'Do Official Statistics Exaggerate China's GDP Growth? A Reply to Carsten Holz', *Review of Income and Wealth*, March (forthcoming)

^b Judith Banister, *Manufacturing employment in China*, *Monthly Labor Review*, July 2005, pp. 11-29

Continuation of the Structural Trend Interferes with Cyclical Impact

It is difficult to accurately project productivity growth. In the short run, over a one- to two-year period, productivity tends to be procyclical and therefore generally rises with an upturn in the business cycle. In this respect, the United States and EU-15 presently stand at two different points in their business cycle. As U.S. GDP growth slows, it might be expected that U.S. productivity growth in 2006 will slow again compared to 2005. If Europe can stage the expected rebound, it might experience some acceleration in productivity growth. In the longer run, however, productivity growth depends more strongly on

the structural characteristics of the economy. These include the flexibility of labor and product markets, which foster the reallocation of labor and capital from less to more productive economic activities.

In this respect, many economies in the EU-15 are only slowly coming to terms with the challenges that the world economy puts on all advanced and emerging economies to realign competitive forces. These long-term factors may be more important in determining productivity growth rates, and underline the urgency to deal with structural reforms and stronger innovation efforts.

Quality of Preliminary Estimates of Productivity for 2005

As in previous years, the estimates of the most recent year are preliminary as they are largely derived from figures from the latest OECD Economic Outlook of December 2005. Hence the estimates for 2005 in this publication are based on annual projections, and subject to change when the actual data are released (see also “Data and Significant Revisions from Prior Years” on page 3). The estimates from the OECD Economic Outlook are based on a combination of projections from econometric models that use quarterly indicators (such national accounts and labour force surveys essentially available up to the second or third quarter of 2005), macroeconomic simulation and expert judgment (see <http://www.oecd.org>).

In our previous version of the TCB/GGDC database, we used the same type estimates from the OECD for 2004 which—after the actual data were released—appeared reasonably accurate. For example, the estimated 2004 productivity growth rate for the EU-15 was 1.3 percent, very close to the realised 1.4 percent rate. For Japan, 2004 productivity was estimated at 3.6 percent and actually was 3.2 percent. For the U.S., we did not make use of the OECD Outlook but of the TCB estimate on GDP which—together with an estimate of employment growth—led to an estimated productivity growth of 3.1 percent in 2004, which compared with a 3.0 percent realised rate.

Table 1

Summary Estimates of Productivity and Labor Input Growth

	United States	EU-15 (old) ^a	EU-10 (new) ^b	EU-25 (enlarged) ^c	Japan	China ^d	India ^d
Labor Productivity Growth (GDP per hour, annual average, percent)							
1987–1995	1.1%	2.3%	—	—	2.8%	4.7%	4.3%
1995–2005*	2.4	1.4	4.4%	1.7%	2.0	5.6	3.9
of which:							
2000–2005	2.6	1.0	4.7	1.4	1.9	8.7	4.1
2003	3.2	0.7	4.3	1.1	1.4	6.4	6.4
2004	3.0	1.4	4.1	1.6	3.2	8.4	4.4
2005	1.8	0.5	6.2	1.0	1.9	—	—
Acceleration/deceleration							
1995–2005 over 1987–1995**	1.2	-0.9	—	—	-0.8	0.9	-0.5
2004 over 2003	-0.2	0.6	-0.3	0.5	1.8	2.0	-2.0
2005 over 2004	-1.2	-0.9	2.2	-0.6	-1.3	—	—
Growth in Total Hours Worked (annual average, percent)							
1987–1995	1.6%	0.0%	—	—	0.1%	3.2	1.7
1995–2005*	1.0	0.9	-0.2%	0.7%	-0.8	1.1	2.1
of which:							
2000–2005	0.0	0.6	-0.4	0.4	-0.6	1.1	2.0
2003	-0.5	0.4	-0.4	0.2	-0.1	0.9	2.0
2004	1.2	0.9	1.1	1.0	-0.5	1.0	2.0
2005	1.8	1.1	1.1	1.1	0.5	—	—
Acceleration/deceleration							
1995–2005 over 1987–1995**	-0.6	0.9	—	—	-0.9	-2.1	0.4
2004 over 2003	1.7	0.6	1.5	0.7	-0.4	0.1	0.0
2005 over 2004	0.6	0.1	0.0	0.1	0.9	—	—

* For China and India: 1995–2004

** For China and India: 1995–2004 over 1987–1995

a Referring to membership of the European Union until 30 April 2004

b Referring to new membership of the European Union as of 1 May 2004

c Referring to all members of the European Union as of 1 May 2004

d India and China refer to labor productivity measures as GDP per person employed and total employment—assuming that working time per person remain unchanged over the years

Sources: TCB/GGDC database, based on OECD National Accounts, Economic Outlook, and Labour Force Statistics. India from Asian Development Bank (ADB); China updated estimates from A. Maddison, The World Economy, Historical Statistics (OECD, 2003), except 2004 from ADB.

Table 2
Labor Productivity Growth

	1987– 1995	1995– 2005	2000– 2005*	Of which:			Acceleration/deceleration:		
				2003	2004	2005	1995-2005 over 1987-1995**	2004 over 2003	2005 over 2004
United States	1.1%	2.4%	2.6%	3.2%	3.0%	1.8%	1.2%	-0.2%	-1.2%
European Union (EU-15, old)^a	2.3	1.4	1.0	0.7	1.4	0.5	-0.9	0.6	-0.9
Austria	2.8	2.6	1.9	1.6	3.3	1.6	-0.2	1.7	-1.7
Belgium	2.3	1.5	1.3	1.3	3.3	0.8	-0.9	2.1	-2.6
Denmark	2.1	1.6	1.6	0.6	3.5	2.2	-0.5	2.9	-1.3
Finland	3.2	2.0	1.5	3.0	2.4	0.1	-1.1	-0.6	-2.3
France	2.1	2.0	1.9	1.3	1.6	1.5	-0.1	0.3	-0.2
Germany	3.2	1.9	1.2	0.7	0.8	0.9	-1.3	0.1	0.1
Greece	0.8	2.4	2.9	1.9	4.2	2.2	1.6	2.2	-1.9
Ireland	4.0	4.3	3.0	4.0	1.4	1.0	0.2	-2.7	-0.4
Italy	2.0	0.3	-0.3	-0.4	0.7	-0.9	-1.7	1.1	-1.6
Luxembourg	2.5	2.0	1.0	2.4	4.0	1.8	-0.6	1.6	-2.2
Netherlands	1.6	0.6	0.8	-0.7	2.9	1.3	-1.0	3.7	-1.6
Portugal	2.3	1.8	0.2	0.4	0.1	0.7	-0.5	-0.3	0.6
Spain	2.1	-0.4	-0.6	-1.1	-0.7	-1.3	-2.6	0.4	-0.6
Sweden	1.4	2.3	2.3	2.9	3.0	1.7	0.9	0.0	-1.3
U.K.	2.1	1.9	1.8	2.3	2.3	0.9	-0.2	0.1	-1.5
European Union (EU-10, new)^b	—	4.4	4.7	4.3	4.1	6.2	—	-0.3	2.2
Cyprus	—	0.9	1.0	0.7	2.4	2.4	—	1.8	0.0
Czech Republic	—	3.2	4.2	5.0	4.2	4.0	—	-0.8	-0.2
Estonia	—	7.4	7.4	5.5	7.0	6.9	—	1.3	0.1
Hungary	—	3.2	4.1	1.5	3.7	6.3	—	2.2	2.6
Latvia	—	6.5	7.3	5.8	6.4	8.1	—	0.6	1.7
Lithuania	—	7.6	7.9	8.5	6.4	5.3	—	-2.0	-1.2
Malta	—	2.1	-0.3	-1.3	-0.3	0.2	—	1.0	0.5
Poland	—	5.1	5.0	4.8	4.1	7.7	—	-0.7	3.7
Slovakia	—	4.4	4.8	5.2	3.9	5.5	—	-1.3	1.6
Slovenia	—	2.5	2.7	2.3	2.1	3.5	—	-0.1	1.4
European Union (EU-25, enlarged)^c	—	1.7	1.4	1.1	1.6	1.0	—	0.5	-0.6
Japan	2.8	2.0	1.9	1.4	3.2	1.9	-0.8	1.8	-1.3
Other OECD members	1.2	1.9	1.8	2.8	1.6	1.5	0.8	-1.1	-0.2
Australia	1.3	1.9	1.5	2.0	0.8	-0.9	0.6	-1.2	-1.7
Canada	1.0	1.4	1.2	0.0	0.0	1.6	0.4	0.0	1.6
Iceland	0.6	3.0	3.3	3.8	6.7	2.6	2.4	2.9	-4.1
Mexico	-0.8	0.9	0.4	1.9	0.9	0.9	1.7	-1.0	0.0
New Zealand	1.5	1.2	0.8	1.6	0.1	-0.3	-0.3	-1.5	-0.4
Norway	3.2	2.3	2.2	2.3	0.7	2.1	-0.9	-1.7	1.5
South Korea	5.9	3.7	3.7	4.1	3.1	2.5	-2.2	-1.0	-0.6
Switzerland	0.8	1.3	1.1	-0.3	2.0	1.3	0.5	2.3	-0.7
Turkey	1.5	3.0	3.4	6.5	6.3	3.7	1.6	-0.2	-2.6
China^d	4.7	5.6	8.7	6.4	8.4	—	0.9	2.0	—
India^d	4.3	3.9	4.1	6.4	4.4	—	-0.5	-2.0	—

* For China and India: 1995–2004

** For China and India: 1995–2004 over 1987–1995

a Referring to membership of the European Union until 30 April 2004

b Referring to new membership of the European Union as of 1 May 2004

c Referring to all members of the European Union as of 1 May 2004

d India and China refer to labor productivity measures as GDP per person employed and total employment—assuming that working time per person remain unchanged over the years

Sources: TCB/GGDC database, based on OECD National Accounts, Economic Outlook, and Labour Force Statistics. India from Asian Development Bank (ADB);

China updated estimates from A. Maddison, The World Economy, Historical Statistics (OECD, 2003), except 2004 from ADB.

Table 3

Growth in Total Working Hours

	1987– 1995	1995– 2005	2000– 2005*	Of which:			Acceleration/deceleration:		
				2003	2004	2005	1995-2005 over 1987-1995**	2004 over 2003	2005 over 2004
United States	1.6%	1.0%	0.0%	-0.5%	1.2%	1.8%	-0.6%	1.7%	0.6%
European Union (EU-15, old)^a	0.0	0.9	0.6	0.4	0.9	1.1	0.9	0.6	0.1
Austria	0.0	-0.4	-0.4	-0.2	-0.8	0.2	-0.4	-0.7	1.0
Belgium	0.1	0.6	0.2	-0.3	-0.7	0.7	0.5	-0.4	1.4
Denmark	-0.3	0.5	-0.2	0.0	-1.4	0.8	0.8	-1.4	2.2
Finland	-2.4	1.3	0.6	-0.5	1.2	1.2	3.7	1.7	0.0
France	0.1	0.3	-0.2	-0.5	0.7	0.2	0.1	1.2	-0.5
Germany	1.1	-0.5	-0.5	-0.9	0.8	0.2	-1.6	1.7	-0.6
Greece	1.0	1.4	1.4	2.6	0.5	1.3	0.4	-2.2	0.8
Ireland	1.2	3.0	2.2	0.4	3.0	4.1	1.8	2.6	1.0
Italy	-0.1	1.0	1.0	0.6	0.5	1.1	1.1	-0.1	0.6
Luxembourg	2.6	3.0	1.9	0.5	0.3	1.7	0.3	-0.2	1.4
Netherlands	1.1	1.6	0.0	0.6	-1.2	-0.6	0.5	-1.8	0.6
Portugal	0.8	0.5	0.4	-1.5	1.1	0.1	-0.3	2.6	-0.9
Spain	0.7	4.1	3.8	4.1	3.8	4.8	3.4	-0.3	1.0
Sweden	-0.2	0.4	-0.1	-1.2	0.7	0.7	0.6	2.0	-0.1
U.K.	-0.1	0.8	0.5	0.2	0.8	0.8	0.9	0.6	0.0
European Union (EU-10, new)^b	—	-0.2	-0.4	-0.4	1.1	1.1	—	1.5	0.0
Cyprus	—	2.6	2.2	1.2	1.1	1.5	—	-0.1	0.2
Czech Republic	—	-0.7	-0.8	-1.7	0.4	1.0	—	2.2	0.6
Estonia	—	-0.9	0.0	1.1	0.7	1.4	—	-0.2	0.5
Hungary	—	1.0	0.3	1.9	1.1	-0.1	—	-0.8	-1.1
Latvia	—	0.1	0.4	1.3	1.8	0.9	—	0.4	-0.8
Lithuania	—	-1.5	-0.2	1.8	0.6	1.6	—	-1.3	1.2
Malta	—	0.5	0.3	-0.6	1.3	0.6	—	1.9	-0.7
Poland	—	-0.4	-0.8	-0.9	1.3	1.4	—	2.2	0.1
Slovakia	—	0.0	0.4	-0.7	1.6	1.6	—	2.3	0.0
Slovenia	—	1.3	0.6	0.4	2.0	0.3	—	1.7	-1.7
European Union (EU-25, enlarged)^c	—	0.7	0.4	0.2	1.0	1.1	—	0.7	0.1
Japan	0.1	-0.8	-0.6	-0.1	-0.5	0.5	-0.9	-0.4	0.9
Other OECD members	2.2	1.6	1.1	-0.2	2.6	1.8	-0.6	2.7	-0.7
Australia	2.0	1.6	1.8	1.7	2.2	3.6	-0.3	0.5	1.4
Canada	1.0	1.9	1.4	1.9	2.9	1.4	1.0	1.0	-1.5
Iceland	-0.2	1.2	0.0	-0.2	-0.5	4.0	1.5	-0.3	4.4
Mexico	3.1	2.7	1.5	-0.5	3.4	2.0	-0.4	3.9	-1.4
New Zealand	0.5	2.0	2.9	2.1	4.2	3.0	1.5	2.1	-1.2
Norway	-0.4	0.5	-0.2	-1.2	2.1	0.3	0.9	3.3	-1.8
South Korea	2.3	0.7	0.8	-1.0	1.5	1.3	-1.6	2.4	-0.1
Switzerland	0.6	0.1	-0.2	0.0	0.0	-0.1	-0.5	0.0	-0.2
Turkey	2.3	0.9	0.6	-0.7	2.5	2.0	-1.4	3.1	-0.5
China^d	3.2	1.1	1.1	0.9	1.0	—	-2.1	0.1	—
India^d	1.7	2.1	2.0	2.0	2.0	—	0.4	0.0	—

* For China and India: 1995–2004

** For China and India: 1995–2004 over 1987–1995

a Referring to membership of the European Union until 30 April 2004

b Referring to new membership of the European Union as of 1 May 2004

c Referring to all members of the European Union as of 1 May 2004

d India and China refer to labor productivity measures as GDP per person employed and total employment—assuming that working time per person remain unchanged over the years

Sources: TCB/GGDC database, based on OECD National Accounts, Economic Outlook, and Labour Force Statistics. China and India from Asian Development Bank (ADB).

Table 4

The Effect of Labor Utilization on the Difference between Productivity and Per Capita Income, 2005

	Productivity			Effect of working hours	Effect of employment/ population ratio	Per capita income		
	GDP/hour (2005 US\$)	%U.S.	Rank			GDP/capita (2005 US\$)	%U.S.	Rank
Luxembourg	61.5	127%	1	-24%	38%	59,296	141%	1
Norway	60.5	125	2	-32	5	41,415	99	3
France	54.1	112	3	-23	-12	31,952	76	15
Ireland	50.6	105	4	-10	-1	39,522	94	4
Belgium	49.7	103	5	-13	-14	32,142	77	14
Austria	49.1	102	6	-18	-4	33,567	80	7
Netherlands	48.5	101	7	-26	3	32,441	77	13
United States	48.2	100	8	0	0	41,906	100	2
Germany	47.6	99	9	-20	-7	29,901	71	18
Denmark	43.4	90	10	-16	5	33,219	79	9
Sweden	43.0	89	11	-12	0	32,545	78	12
U.K.	42.9	89	12	-10	-1	32,859	78	11
Finland	42.2	88	13	-8	-3	31,897	76	16
Italy	42.1	87	14	-10	-8	28,737	69	20
Switzerland	41.3	86	15	-13	12	35,252	84	6
Australia	38.2	79	16	-3	3	33,451	80	8
Canada	37.8	78	17	-2	2	32,996	79	10
Japan	35.8	74	18	-3	3	31,277	75	17
Iceland	35.7	74	19	0	11	35,436	85	5
Spain	34.8	72	20	-1	-2	29,001	69	19
Greece	30.4	63	21	3	-9	23,900	57	22
New Zealand	28.9	60	22	-2	4	26,285	63	21
Malta	26.3	54	23	4	-12	19,227	46	28
Hungary	26.0	54	24	0	-10	18,077	43	29
Portugal	24.5	51	25	-3	1	20,393	49	26
Slovenia	24.4	51	26	5	0	23,098	55	23
Czech Republic	22.8	47	27	3	-2	20,256	48	27
Cyprus	22.2	46	28	7	-1	22,006	53	24
Slovakia	20.0	41	29	3	-7	15,886	38	30
Poland	19.9	41	30	4	-11	14,293	34	32
South Korea	19.4	40	31	13	-1	21,809	52	25
Estonia	16.7	35	32	4	-3	14,896	36	31
Lithuania	15.6	32	33	6	-6	13,806	33	33
Latvia	14.0	29	34	5	-3	13,132	31	34
Turkey	13.9	29	35	2	-10	8,535	20	36
Mexico	12.3	25	36	4	-4	10,509	25	35
EU-15 (old)^a	43.8	91		-13	-5	30,519	73	
EU-10 (new)^b	20.7	43		-13	-5	16,021	38	
EU-25 (enlarged)^c	39.7	82		4	-8	28,151	67	

a Referring to membership of the European Union until 30 April 2004

b Referring to new membership of the European Union as of 1 May 2004

c Referring to all members of the European Union as of 1 May 2004

Source: TCB/GGDC database, based on OECD National Accounts, Economic Outlook, and Labor Force Statistics, with GDP converted to US\$ at 2002 EKS PPPs updated to 2005.

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