Projecting World Economic Growth:

The Contribution of Information Technology

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Abstract : *This paper introduces a framework for projecting economic growth that takes into account the contribution of information and communications technology. We apply this framework to project the growth of labor productivity, GDP, and per capita GDP over the ten-year period 2006-2016 for 122 economies. Relative to the historical growth observed for the period 1996-2006, the base-case projections of this model are slightly higher for productivity but lower for GDP and GDP per capita growth. By comparison with World Bank forecasts, our projections are less optimistic for all groups of economies except for Eastern Europe and Sub-Saharan Africa. Our projections are also below the Goldman Sachs forecasts for all economies except for the U.S. (JEL Code: 0400.)*

1. Introduction

The rapid pace of globalization and technological progress and the ascendance of new growth centers such as China and India over the past decade have made the task of projecting world economic growth more challenging. At the same time, however, growth projections have become much more important in assessing the potential performance of the world economy. For these reasons the projection of world economic growth has begun to attract the interest of economists and policy makers.

Official projection methodologies use a one-sector neoclassical model. Output and productivity growth are projected on the basis of assumptions concerning the dynamics of the three main sources of growth – capital input, labor input, and total factor productivity (TFP).[1] Among the agencies that provide intermediate-term growth projections for the

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[1] There have also been efforts to develop forecasting frameworks based on cross-country regression techniques. These omit data on capital and productivity and use regressions with explanatory variables affected by policy, such as institutions, openness, human capital development, and innovative capacity. For examples, see Batista and Jalduendo, 2004.

U.S. economy, the Congressional Budget Office (CBO) sets the standard.[2] The CBO employs a Cobb-Douglas model: $Y=A.K^{0.3}.H^{0.7}$, where Y is the potential output, K is the potential capital input, H is the potential hours worked, and A is the potential total factor productivity[3].

The CBO projects capital input as the service flow from three types of capital assets: producers' durable equipment, computers, and nonresidential structures. The capital service flow from each capital asset type is computed as the product of capital stock and its rental price; hence, changes in capital quality, defined as capital services per unit of capital stock, are incorporated into the CBO model. TFP growth, which implicitly includes labor quality growth, is projected on the basis of recent historical trends[4].

This paper utilizes a model for intermediate-term projections introduced by Jorgenson, Ho and Stiroh (2003). This takes into account the potential contribution to economic growth of investments in information and communication technology (ICT) and productivity growth in the ICT-producing sector. This is critical to world economic growth in view of the dramatic decline in the prices of ICT equipment documented by Jorgenson and Stiroh (2000) and Jorgenson (2001). We use this model to project the growth of productivity, GDP, and GDP per capita over the period 2006-2016 for 122 economies[5].Our data for the 122 economies are compiled from the following sources:

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[2] See Stiroh 1998). Other agencies include the Social Security Administration (SSA), the Office of Management and Budget (OMB), the Council of Economic Advisors (CEA), and the General Accounting Office (GAO). The forecasting models employed by these agencies are based on the one-sector, neoclassical framework and vary only in detail.

[3] See CBO(2001) for more details.

[4] See Jorgenson and Stiroh (2000) for more details.

[5] An updated version of Jorgenson and Vu (2005), estimates the sources of economic growth, including the contribution of ICT investment, for the 122 economies over three periods – 1989-1995, 1995-2000, and 200-2006. Details are available at: http://dvn.iq.harvard.edu/dvn/dv/jorgenson/faces/SearchPage.jsp;jsessionid=baa5b4c7643999c168a47da9e7a2.dvnInstance1?mode=1&collectionId=435

(1) World Development Indicators 2008, available at http://www.worldbank.org/data, for the key economic indicators for all 122 economies. This incorporates the results of the 2005 International Comparison Program, released in 2008.[6]

(2) The EU KLEMS data set, available at http://www.euklems.net/, provides data on employment for 25 or 27 EU economies (excluding Bulgaria and Romania) and data on capital and labor inputs for the OECD members within this group, released in 2008.

(3) UNIDO IDSB 2007: Industrial Demand-Supply Balance Database at the 4-digit level of ISIC (Rev. 2 and 3) and UNIDO INDSTAT4 2007: Industrial Statistics Database at the 4-digit level of ISIC (Rev. 2 and 3), for data on output and value-added of the ICT-producing sectors, available at http://unido.org/index.thp?id=4879, released in 2007.

(4) U.S. Census projections of population by age group in all economies through 2050, available at http://www.census.gov/ipc/www/idb, released in 2008.

In order to capture the growth patterns and trends of different types of economies, we combine the 122 economies into seven groups, following the United Nations (2002) classification. The seven groups are: G7 (7 economies), Non-G7 Industrialized (17), Developing Asia (16), Latin America (20), Eastern Europe (22), Sub-Saharan Africa (29), and North-Africa and the Middle-East (11). We combine the seven groups to obtain data for the World Economy.

This paper is organized as follows. Section 2 presents our methodology for constructing growth projections. Section 3 lays out the assumptions used for our projection model. Section 4 discusses the projections and compares them with medium-term forecasts by the World Bank (2006) and Goldman Sachs (2005). Section 5 presents our conclusions.

[6] See World Bank (2008a).

2. The Projection Model

We employ the methodology for analyzing the sources of growth based on the production possibility frontier introduced by Jorgenson (1996, pp. 27-28). This framework encompasses efficient combinations of outputs and inputs for an economy.
In the production possibility frontier output (Y) consists of IT investment goods (I_{IT}), which includes computer hardware, software, and communications equipment, and non-IT output (Y_n), while input (X) consists of capital services (K) and labor services (L). Capital services can be decomposed into the capital service flows from IT capital (K_{IT}) and non-IT capital services (K_n).Input (X) is augmented by total factor productivity (A), so that the production possibility frontier is:

(1) $Y(Y_n, I_{IT}) = A.X(K_n, K_{IT}, L)$.

The growth of TFP for an economy reflects contributions of individual industries.[7] The IT-producing sector, thanks to rapid technology progress, has experienced rapid TFP growth in recent years, as documented in detail by Jorgenson, Ho, and Stiroh (2005). To capture this trend, we decompose economy-wide TFP growth (A) into the contribution of IT-production (A_{IT}) and the contributions of other industries, as well as reallocations of inputs and outputs among sectors (A_n). As a result, the production possibility frontier (1) can be rewritten as:

(2) $Y(Y_n, I_{IT}) = A(A_{IT}, A_n).X(K_n, K_{IT}, L)$

Under the assumption that product and factor markets are perfectly competitive, we transform the model (2) into the following accounting framework:

(3) $\Delta \ln Y = \overline{v}_K \Delta \ln K + \overline{v}_L \Delta \ln L + \overline{w}_{IT} \Delta \ln A_{IT} + \overline{w}_n \Delta \ln A_n$,

[7] For more details, see Jorgenson, Ho, and Stiroh (2005).

where $\Delta \ln X$ denotes the growth rate of variable X over the two periods under consideration, $\overline{v}$ represents the input share of the subscripted input, and $\overline{w}$ represents the value-added share of the subscripted sector in GDP. The bar over the shares indicates a two-period average[8].

Equation (3) can be transformed to present the growth of labor productivity as:

(4) $\Delta \ln y = \overline{v}_K \Delta \ln k + \overline{v}_L \Delta \ln L_Q + \overline{w}_{IT} \Delta \ln A_{IT} + \overline{w}_n \Delta \ln A_n$,

where y is labor productivity (defined as Y/H, the ratio of total output Y to total labor hours worked H), k is capital deepening (defined as k=K/H, the ratio of capital services to total hours worked), and labor quality (defined as L_Q=L/H, the ratio of labor input to total hours worked). Equation (4) serves as the starting point for our model for projecting productivity growth.

First, capital quality K_Q is defined as the ratio of capital services K to effective capital stock Z[9]:

(5) $K_Q = \frac{K}{Z}$.

This can be transformed into[10]

(6) $\Delta \ln k = \Delta \ln K_Q - \Delta \ln H + \Delta \ln Z$.

[8] The contribution of non-ICT to TFP growth ($\overline{w}_n \Delta \ln A_n$) is the residual after deducting the ICT contribution from TFP growth.

[9] See Jorgenson, Ho, and Stiroh (2003).

[10] Because equation (5) implies that $\Delta \ln K_Q = \Delta \ln K - \Delta \ln Z = \Delta \ln k + \Delta \ln H - \Delta \ln Z$.

Second, we consider the gap between the growth rates of the reproducible capital stock Z_R and output Y, $\tau = \Delta \ln Z_R - \Delta \ln Y$. The gap τ implies that

$$(7)\ \Delta \ln Z_R = \Delta \ln Y + \tau = \Delta \ln y + \Delta \ln H + \tau .$$

The gap τ approaches zero in the long term, when the economy is at its steady state. However, for intermediate-term projections, this gap is not necessarily zero. The values of τ observed for 122 economies over the period 2000-2006 center around a mean of 0.2% with a standard deviation of 2.2%.

The aggregate capital stock Z consists of the reproducible capital stock Z_R and land, denoted by LAND and assumed to be fixed, which implies the following decomposition:

$$(8)\ \Delta \ln Z = \bar{\mu}_R \Delta \ln Z_R + (1 - \bar{\mu}_R)\Delta \ln LAND = \bar{\mu}_R \Delta \ln Z_R ,$$

where $\bar{\mu}_R$ is the value share of reproducible capital stock in aggregate capital stock.

Combining equations (6), (7) and (8) yields:

$$(9)\ \Delta \ln k = \Delta \ln K_Q - \Delta \ln H + \bar{\mu}_R \Delta \ln Z_R = \Delta \ln K_Q - \Delta \ln H + \bar{\mu}_R (\Delta \ln y + \Delta \ln H + \tau) .$$

Combining equations (5) and (9) leads to our model for projecting productivity growth:

$$(10)\ \Delta \ln y = \frac{\bar{\nu}_K \Delta \ln K_Q - \bar{\nu}_K (1 - \bar{\mu}_R)\Delta \ln H + \bar{\nu}_K \bar{\mu}_R \tau + \bar{\nu}_L \Delta \ln L_Q + \bar{w}_{IT} \Delta \ln A_{IT} + \bar{w}_n \Delta \ln A_n}{(1 - \bar{\nu}_K \bar{\mu}_R)}$$

With productivity growth projected from (10), we can project output and output per capita growth as:

$$(11)\ \Delta \ln Y = \Delta \ln y + \Delta \ln H ,$$

and:

(12) $\Delta \ln Ypcap = \Delta \ln Y - \Delta \ln POP$,

respectively, where *Ypcap* is output per capita and *POP* is population. We use the projection model (10) to project the growth of productivity, output (GDP), and output per capita (GDP per capita) over the period 2006-2016 for the 122 economies in our dataset.

3. Assumptions

The variables on the right-hand side in equation (10) can be divided into two groups, based on the degree of uncertainty about their likely development over the next decade. The first group includes the variables that are subject to low uncertainty: capital share in the total value-added ($\overline{v}_K$), the value share of reproducible capital stock in aggregate capital stock ($\overline{\mu}_R$), growth in labor hours worked ($\Delta \ln H$), the contribution of labor quality to GDP growth ($\overline{v}_L \Delta \ln L_Q$), and the share of the ICT-producing sector in the total value-added ($\overline{w}_{IT}$). We construct only one set of projections for each of these variables and refer to these as the *common assumptions*.

The second group of variables required for our projections is subject to a higher degree of uncertainty. These include capital quality growth (K_Q), the gap between the growth rate of the reproducible capital stock and output (τ), TFP growth in the ICT-producing sector ($\Delta \ln A_{IT}$), and TFP growth in the non-ICT sectors ($\overline{w}_n \Delta \ln A_n$). In making assumptions for each of these variables, we consider three scenarios: "base-case," "pessimistic," and "optimistic" and label these assumptions as the *alternative assumptions*.

We follow the approach suggested by Jorgenson, Ho, and Stiroh (2008) in making the common and alternative assumptions for our projection model. First, the common assumptions are that for each economy over the period 2006-2016:

- The capital share ($\overline{v}_K$) will be the same as the average level observed for the period 2000-2006;
- The value share of reproducible capital stock in aggregate capital stock ($\overline{\mu}_R$) is 0.80 times the value observed for the US for all economies;
- Labor hours worked (H) grows at the same rate as the population aged 15-64, which is projected by the US Census for the period 2005-2015.
- The labor quality contribution ($\overline{v}_L \Delta \ln L_Q$) remains the same as it was for the period 2000-2006.
- The share of the ICT-producing sector in the total value-added ($\overline{w}_{IT}$) is the same as the average level observed for the period 2000-2006. The share of the ICT-producing sector in the total value-added is calculated as the ratio of total value-added of the ICT-producing sector to GDP[11].

For each economy over the period 2006-2016, our alternative assumptions for the more uncertain variables are specified in the three scenarios – "base-case," "pessimistic," and "optimistic":

- Capital quality growth ($\Delta \ln K_Q$):
  - For the "base-case" scenario, we assume this growth to be the same as the level observed over the 6-year period 2000-2006 ($\Delta \ln K_Q^{2000-06}$), which is expected to capture the trend of capital quality growth over the period 2006-2016. That is, $\Delta \ln K_Q^{base-case} = \Delta \ln K_Q^{2000-06}$.
  - We use the group-level standard deviation of capital quality growth over the period 2000-2006 (denoted as $\sigma_G[\ln K_Q^{2000-06}]$) to construct the lower and upper ends of the economy's capital quality growth over the period 2006-2016[12]:

[11] This paper defines the ICT-producing sector as including three industries: computer hardware (ISIC code=3000), telecommunications equipment (ISIC code=3220), and electronic components ((ISIC code=3210); the data on value-added for these industries are from UNIDO (2007).

[12] Each economy belongs to one of the seven groups: G7 (7 economies), Non-G7 Industrialized (17), Developing Asia (16), Latin America (20), Eastern Europe (22), Sub-Saharan Africa (29), and North-Africa

$band\{\Delta \ln K_Q\} = \sigma_G[\ln K_Q^{2000-06}]$; this yields;

$\Delta \ln K_Q^{pessimistic} = \Delta \ln K_Q^{base-case} - band\{\Delta \ln K_Q\}$ for the "pessimistic" scenario, and

$\Delta \ln K_Q^{optimistic} = \Delta \ln K_Q^{base-case} + band\{\Delta \ln K_Q\}$ for the "optimistic" scenario.

- The gap between the growth rates of the reproducible capital stock and output (τ):

For the "base-case" scenario, we assume that this gap can be deduced from the level

  - For the "base-case" scenario, we assume that this gap can be deduced from the level observed for the 6-year period 2000-2006 ($\tau^{2000-06}$) as follows: $\tau^{base-case} = \tau^{2000-06}$ for economies belonging to Non-G7 Industrialized, Developing Asia, Latin America, and Sub-Saharan Africa, and $\tau^{base-case} = \tau^{2000-06}/2$ for economies from the G7, Eastern Europe and the former USSR, and North-Africa and the Middle-East, for which this gap tends to narrow over the period 2000-2006.
  - We use the group-level standard deviation of the gap $\tau^{2000-06}$ (denoted as $\sigma_G[\tau^{2000-06}]$) as the band with which to construct the lower and upper ends for the economy's gap between the growth rates of the reproducible capital stock and output over the period 2006-2016: $band\{\tau\} = \sigma_G[\tau^{2000-06}]$; this yields

    $\tau^{pessimistic} = \tau^{base-case} - band\{\tau\}$ for the "pessimistic" scenario, and

    $\tau^{optimistic} = \tau^{base-case} + band\{\tau\}$ for the "optimistic" scenario.

- Regarding TFP growth in the ICT-producing sector ($\Delta \ln A_{IT}$), Jorgenson, Ho, and Stiroh (2008) project a U.S. growth rate of 9.52% for the "base-case," 8.05% for the "pessimistic," and 10.77% for the "optimistic" scenario based on what they observed for the periods 1990-2005, 1973-1995, and 2000-2005, respectively. We assume that the TFP growth rate in the ICT-producing sector for other economies in each scenario is two thirds (2/3) of the projected growth rates for the U.S.

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and Middle-East (11). The band for capital quality growth ($\Delta \ln K_Q$) ranges from 0.32% (for Latin America) to 0.95% (for Non-G7 Industrialized).

- Our assumptions about the residual of TFP growth or TFP growth generated by non-ICT sectors, which we denote as $TFPG_{NICT}$ ($TFPG_{NICT} = \overline{w}_n \Delta \ln A_n$), are as follows:
  - The residual for the "base-case" scenario (denoted by $TFPG_{NICT}^{base-case}$) is average TFP growth contributed by the non-ICT sector observed for the two periods 1995-2000 and 2000-2006. For the economies of the Eastern Europe and former USSR group, we assume that $TFPG_{NICT}^{base-case}$ takes the value of $TFPG_{NICT}$ observed for the period 2000-2006 because most economies of this group experienced profound changes during the period 1995-2000, with substantial shrinking and negative TFP growth, and then an unusual resurgence with large TFP growth during the period 2000-2006. For this group, we believe that the period 2000-2006 better captures the coming trend over 2006-2016; however, we cap the $TFPG_{NICT}^{base-case}$ at 4.5%.
  - We use a portion of the group-level standard deviation of the $TFPG_{NICT}^{base-case}$ as the band with which to construct the lower and upper bounds of the economy's $TFPG_{NICT}$ over the period 2006-2016: $band\{TFPG_{NICT}\} = \sigma_G[TFPG_{NICT}^{base-case}]$ *k, where k is equal to 0.25 for the Eastern Europe and former USSR group, and 0.5 for all other economies. Then we have $TFPG_{NICT}^{pessimistic} = TFPG_{NICT}^{base-case} + band\{TFPG_{NICT}\}$ for the "pessimistic" scenario, and $TFPG_{NICT}^{optimistic} = TFPG_{NICT}^{base-case} - band\{TFPG_{NICT}\}$ for the optimistic scenario.

4. Results and Comparisons

Based on the model presented in Section 2 and assumptions outlined in Section 3, we project the growth rates of productivity, defined as GDP per employee, GDP, and GDP per capita over the period 2006-2016 under each of three scenarios – "base-case", "pessimistic", and "optimistic". Table 1 summarizes the projection results for the world economy, each of the seven groups, the seven major industrialized economies, and the seven major developing economies. We report our projections for all 122 economies in Appendix 1.

We compare our projection results under the base-case scenario with the growth rates observed for the period 2000-2006 in Table 1. For the world economy our projections show that productivity growth will increase slightly to 2.7% for the period 2006-2016 from 2.6% for the period 1996-2006, while growth of GDP is expected to fall from 3.9% to 3.3% and per capita GDP growth will slow from 3.0% to 2.7% for the period. The principal reason for the gain in productivity growth and a slowdown in GDP growth is slower growth of employment over the period 2006-2016, relative to the period 1996-2006.

We observe similar trends for five of the seven groups. For the G7 countries productivity growth is expected to rise to 1.9% for the period 2006-2016 from 1.7% for the period 1996-2006, while GDP and per capita GDP growth rates are projected to decline to 2.1% and 1.6% for 2006-2016 from 2.6% and 1.9% for 1996-2006. Similar comparisons for Developing Asia, Non-G7 Industrialized, Latin America, and North Africa and the Middle-East are given in Table 1.

For Eastern Europe and the former USSR, our base-case projections for productivity growth are slightly lower than the historical levels for the period 1996-2006 – 4.7% vs. 4.8%. GDP growth will fall to 4.3% from 4.7%, while per capita GDP growth will decline from 5.0% to 4.6%. This group continues to experience shrinking labor force and population, trends observed in the period 1996-2006. For the Sub-Saharan Africa group our projection for productivity growth of 2.1% is higher than the historical level of 1.9%. We also project higher per capita GDP growth of 2.5% vs. 1.9%, but lower GDP growth – 3.8% vs. 4.1%. The growth rates of employment and population in Sub-Sahara Africa are expected to decrease significantly over the period 2006-2016.

We next compare our projections for the major developed and developing economies with the results achieved over the period 1996-2006. Our projections reveal some grounds for optimism about productivity growth in all G7 economies, except for France and the U.K., and for all seven major developing economies, except for Brazil. For GDP growth, however, our projections show a significant drop for all G7 economies and all the

seven major developing economies, except for Indonesia. Our projections of growth in GDP per capita also show a sharp slowdown for all G7 economies, except for Japan, and for all seven major developing economies, except for Indonesia and South Korea.

Finally, we compare our projections with forecasts produced by the World Bank (2005) and Goldman Sachs (2005), which cover the period 2005-2015. The World Bank forecasts *GDP per capita growth* for selected economy groups and economies for 2005-2015.[13] We incorporate these into Table 2 for our comparisons. The World Bank projections fall within the range of our pessimistic and optimistic scenarios. However, we are more optimistic than the World Bank about the growth prospects for the world economy. We project per capita GDP at 2.7% by comparison with the World Bank's forecast of 2.1%.

Our projections are less optimistic than the World Bank's for the industrialized, high-income group as a whole – 1.6% vs. 2.4%. We are also less optimistic about growth in East Asia and Pacific, Latin America, and South Asia, as well as North Africa and the Middle-East, the group of developing economies as a whole, Eastern Europe, and Sub-Saharan Africa. In summary, the World Bank forecast results are more optimistic than our projections for the developed group and less optimistic for developing economies except for Eastern Europe and Sub-Saharan Africa. We are unable to determine the reasons that the World Bank's forecast for the world is lower than its forecasts for both the developed and the developing groups or why its forecast for the developing group is lower than for the major subgroups.

Goldman Sachs (2005, Appendix 4, p.20) reports its forecasts of GDP and GDP per capita (measured in 2005 US$) until 2050 on a five-year span for the G7 economies, the BRIC economies – Brazil, Russia, India, and China – and the N-11. The N-11 or "next eleven emerging economies" include Bangladesh, Egypt, Indonesia, Iran, Korea, Mexico, Nigeria, Pakistan, Philippines, Turkey, and Vietnam. The growth rates[14] of GDP and

[13] See World Bank (2005), Table 1.2, p. 8.
[14] The growth rate of variable X from time 0 to time T is computed as $(1/T)*[\ln(X_T)-\ln(X_0)]$.

GDP per capita over the period 2005-2015 calculated from the Goldman Sachs forecasts are given in Table 3 along with our projections.

For all G7 economies, except for Italy, the Goldman Sachs' forecasts fall between our pessimistic and optimistic projections for both GDP and GDP per capita growth. For Italy our projection range is below the Goldman Sachs' forecast. Our base-case projections are generally less optimistic than Goldman Sachs' forecasts for both GDP and per capita GDP growth. However, our base case GDP projection for the U.S. of 3.0% is more optimistic than Goldman Sachs' 2.4%. Similarly, our projection of U.S. GDP per capita is 2.1% vs. Goldman Sachs' 1.5%. For the remaining G7 economies we are more pessimistic that Goldman Sachs.

For each of the four BRIC economies, our projection range is below Goldman Sachs'. Our base-case projection of GDP growth for Brazil of 1.2% is considerably below Goldman Sachs' 5.5%. For China we project GDP growth of 8.6% vs. Goldman Sachs' 10.6%; for India we project GDP growth of 6.1% vs Goldman Sachs' 8.1%, while for Russia we project growth of 4.6% vs. Goldman Sachs' 8.1%.

Similar to the BRIC economies, our projection ranges are below the Goldman Sachs forecasts of both GDP and per capita GDP growth for all the N-11 economies, except for Bangladesh and Turkey. In fact, our base-case projections are significantly lower than the Goldman Sachs' forecasts for the remaining nine economies. For Bangladesh and Turkey the Goldman Sachs' forecasts fall into our projection ranges for both GDP and per capita GDP growth, although our base-projections are lower than the Goldman Sachs' forecasts: In summary, the Goldman Sachs forecasts are more optimistic than our projections for all the economies we have examined, except for the U.S.

5. Conclusions

We have presented a framework developed by Jorgenson, Ho, and Stiroh (2003) for projecting economic growth. The most important innovation in this framework is that we incorporate the impacts of ICT-using and ICT-producing sectors on growth. This is crucial for future world economic growth as a consequence of the rapid decline in ICT prices documented by Jorgenson and Stiroh (2000) and Jorgenson (2001).

We have applied our framework to project the growth rates of productivity, GDP, and GDP per capita over 2006-2016 for the world economy, seven regions, and 122 individual economies. Relative to the historical growth trends for the period 1996-2006, our base-case projections are slightly higher for productivity but lower for GDP and GDP per capita growth.

It is important to emphasize that we have tried to capture the potential for future growth of the world economy. This depends on future trends in demography and technology. The trends in demography are subject to only modest uncertainty, while the development of technology is relatively uncertain. Nonetheless, we conclude that the resurgence of world economic growth, beginning around 1995 and documented by Jorgenson and Vu (2005), seems likely to continue.

By comparison with World Bank forecasts, our projections are less optimistic for the world economy and the regional groups of economies, except for Eastern Europe and Sub-Saharan Africa. Our projections are also below the Goldman Sachs' forecasts for all economies except for the U.S. The main reason for these differences is the much greater importance that we assign to investments in ICT and Non-ICT assets as sources of world economic growth.

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Table 1: The World Economy: Growth Projections, 2006-2016

Note: the weight for aggregating growth by region and world is based on PPP$ GDP in 2006

Group	Productivity Growth				GDP Growth				GDP per Capita Growth			
	Projections, 2006-2016			Actual	Projections, 2006-2016			Actual	Projections, 2006-2016			Actual
	Pessimistic	Base-case	Optimistic	1996-06	Pessimistic	Base-case	Optimistic	1996-06	Pessimistic	Base-case	Optimistic	1996-06
Group Summaries												
World (122 Economies)	**1.7**	**2.7**	**3.8**	**2.6**	**2.2**	**3.3**	**4.4**	**3.9**	**1.6**	**2.7**	**3.8**	**3.0**
G7 Economies	1.2	1.9	2.6	1.7	1.3	2.1	2.8	2.6	0.9	1.6	2.3	1.9
Developing Asia	3.8	5.2	6.5	5.1	4.9	6.3	7.6	6.6	4.0	5.4	6.7	5.5
Non-G7	0.5	1.6	2.8	1.1	0.6	1.8	2.9	3.2	0.3	1.4	2.6	2.4
Latin America	-0.2	0.8	1.9	0.7	1.3	2.3	3.3	3.0	0.2	1.2	2.3	1.6
Eastern Europe	2.5	4.7	6.9	4.8	2.1	4.3	6.5	4.7	2.4	4.6	6.8	5.0
Sub-Sahara Africa	0.7	2.1	3.6	1.9	2.3	3.8	5.2	4.1	1.0	2.5	4.0	1.9
N. Africa and Middle-East	0.0	1.5	2.9	1.1	1.7	3.2	4.6	4.2	0.5	2.0	3.4	2.6

G7 (7 Economies)

Group	Productivity Growth				GDP Growth				GDP per Capita Growth			
	Projections, 2006-2016			Actual	Projections, 2006-2016			Actual	Projections, 2006-2016			Actual
	Pessimistic	Base-case	Optimistic	1996-06	Pessimistic	Base-case	Optimistic	1996-06	Pessimistic	Base-case	Optimistic	1996-06
Canada	0.9	1.6	2.3	1.4	1.6	2.2	2.9	3.4	0.7	1.4	2.1	2.4
France	0.5	1.2	1.9	1.2	0.6	1.3	1.9	2.3	0.3	1.0	1.6	1.7
Germany	0.7	1.4	2.0	1.1	0.5	1.2	1.8	1.5	0.6	1.2	1.9	1.4
Italy	-0.1	0.6	1.2	0.2	-0.4	0.3	0.9	1.4	-0.3	0.4	1.0	1.1
Japan	1.2	1.9	2.6	1.2	0.3	0.9	1.6	1.1	0.4	1.1	1.8	0.9
United Kingdom	0.7	1.4	2.1	1.8	1.0	1.7	2.4	2.8	0.7	1.4	2.1	2.4
United States	1.6	2.4	3.1	2.3	2.2	3.0	3.7	3.4	1.4	2.1	2.9	2.4
All Group	**1.2**	**1.9**	**2.6**	**1.7**	**1.3**	**2.1**	**2.8**	**2.6**	**0.9**	**1.6**	**2.3**	**1.9**

Seven Major Developing and Transition Economies (7 Economies)

Group	Productivity Growth				GDP Growth				GDP per Capita Growth			
	Projections, 2006-2016			Actual	Projections, 2006-2016			Actual	Projections, 2006-2016			Actual
	Pessimistic	Base-case	Optimistic	1996-06	Pessimistic	Base-case	Optimistic	1996-06	Pessimistic	Base-case	Optimistic	1996-06
Brazil	-1.0	0.0	1.0	0.0	0.2	1.2	2.3	2.5	-0.7	0.3	1.4	1.1
China	6.6	7.9	9.3	7.7	7.3	8.6	10.0	8.8	6.6	8.0	9.3	8.0
India	2.9	4.2	5.5	4.2	4.8	6.1	7.4	6.3	3.3	4.6	5.8	4.8
Indonesia	0.6	1.9	3.2	1.4	2.1	3.4	4.7	2.5	1.0	2.3	3.5	1.1
Mexico	0.7	1.8	2.8	1.0	2.3	3.3	4.3	3.5	1.2	2.2	3.2	2.3
Russia	2.8	5.0	7.1	4.6	2.1	4.3	6.5	4.8	2.6	4.8	7.0	5.2
South Korea	2.1	3.6	5.0	3.1	2.6	4.1	5.5	4.2	2.3	3.8	5.2	3.6
All group	**3.6**	**4.9**	**6.3**	**4.7**	**4.5**	**5.8**	**7.2**	**6.1**	**3.7**	**5.1**	**6.5**	**5.2**

Table 2: Comparison to the World Bank Forecast: GDP per capita growth, 2006-16

	Our Forecast			WB*	Actual
	Pessimistic	Base-case	Optimistic	Forecast	1996-2006
World Total	**1.6**	**2.7**	**3.8**	**2.1**	**3.0**
High-income countries	**0.8**	**1.6**	**2.3**	**2.4**	**2.0**
Japan	0.4	1.1	1.8	1.9	0.9
United States	1.4	2.1	2.9	2.5	2.4
Developing economies	**2.6**	**4.0**	**5.5**	**3.5**	**4.3**
East Asia and Pacific	2.6	4.0	5.5	5.3	4.3
Eastern Europe	2.4	4.6	6.8	3.5	5.0
Latin America	0.2	1.2	2.3	2.3	1.6
North Africa and Middle-East	0.5	2.0	3.4	2.6	2.6
South Asia	2.7	4.0	5.3	4.2	4.3
Sub-Saharan Africs	1.0	2.5	4.0	1.6	1.9

Note: World Bank forecast is for the period 2006-2015

Table 3: Comparison to Goldman Sachs Forecast Results

Country	GDP Growth (2006-2016)					GDP per Capita Growth (2006-2016)				
	Our Forecast			GS*	Actual	Our Forecast			GS*	Actual
	Pessimistic	Base-case	Optimistic	Forecast	1996-2006	Pessimistic	Base-case	Optimistic	Forecast	1996-2006
G7										
Canada	1.6	2.2	2.9	2.4	3.4	0.7	1.4	2.1	1.6	2.4
France	0.6	1.3	1.9	1.7	2.3	0.3	1.0	1.6	1.4	1.7
Germany	0.5	1.2	1.8	1.6	1.5	0.6	1.2	1.9	1.7	1.4
Italy	-0.4	0.3	0.9	1.5	1.4	-0.3	0.4	1.0	1.6	1.1
Japan	0.3	0.9	1.6	1.0	1.1	0.4	1.1	1.8	1.1	0.9
United Kingdom	1.0	1.7	2.4	2.1	2.8	0.7	1.4	2.1	1.8	2.4
United States	2.2	3.0	3.7	2.4	3.4	1.4	2.1	2.9	1.5	2.4
BRIC										
Brazil	0.2	1.2	2.3	5.5	2.5	-0.7	0.3	1.4	4.6	1.1
China	7.3	8.6	10.0	10.6	8.8	6.6	8.0	9.3	10.0	8.0
India	4.8	6.1	7.4	8.1	6.3	3.3	4.6	5.8	6.8	4.8
Russia	2.1	4.3	6.5	8.1	4.8	2.6	4.8	7.0	8.5	5.2
N-11										
Bangladesh	3.3	4.6	5.8	5.6	5.4	1.4	2.6	3.9	3.7	3.5
Egypt, Arab Rep.	2.7	4.1	5.4	6.3	4.5	1.1	2.5	3.8	4.7	2.7
Indonesia	2.1	3.4	4.7	6.1	2.5	1.0	2.3	3.5	4.9	1.1
Iran	0.7	2.1	3.5	6.6	4.4	-0.2	1.2	2.6	5.5	2.9
Mexico	2.3	3.3	4.3	5.7	3.5	1.2	2.2	3.2	4.6	2.3
Nigeria	3.0	4.4	5.8	6.2	4.3	0.6	2.0	3.4	3.8	1.8
Pakistan	1.6	2.9	4.3	6.2	4.2	-0.3	1.0	2.4	4.3	1.9
Philippines	2.3	3.6	5.0	6.5	4.1	0.6	2.0	3.3	4.8	2.0
S. Korea	2.6	4.1	5.5	8.2	4.2	2.3	3.8	5.2	8.0	3.6
Turkey	2.4	3.9	5.4	4.6	4.0	1.5	2.9	4.4	3.6	2.5
Vietnam	4.8	6.1	7.4	12.1	6.9	3.8	5.1	6.4	11.1	5.6

Note: Goldman Sachs (GS) forecast is for the period 2005-2015

Appendix: Growth Projections over the period 2006-2016 for other groups of economies

Developing Asia (16 Economies)

Group	Productivity Growth				GDP Growth				GDP per Capita Growth			
	Projections, 2006-2016			Actual	Projections, 2006-2016			Actual	Projections, 2006-2016			Actual
	Pessimistic	Base-case	Optimistic	1996-06	Pessimistic	Base-case	Optimistic	1996-06	Pessimistic	Base-case	Optimistic	1996-06
Bangladesh	1.5	2.8	4.1	3.1	3.3	4.6	5.8	5.4	1.4	2.6	3.9	3.5
Cambodia	2.9	4.2	5.4	2.8	5.3	6.6	7.9	8.5	3.5	4.8	6.0	6.5
China	6.6	7.9	9.3	7.7	7.3	8.6	10.0	8.8	6.6	8.0	9.3	8.0
Hong Kong, China	0.1	1.5	2.8	2.9	0.5	1.9	3.2	4.0	0.0	1.4	2.8	3.3
India	2.9	4.2	5.5	4.2	4.8	6.1	7.4	6.3	3.3	4.6	5.8	4.8
Indonesia	0.6	1.9	3.2	1.4	2.1	3.4	4.7	2.5	1.0	2.3	3.5	1.1
Malaysia	0.7	2.2	3.7	2.1	2.8	4.3	5.8	4.1	1.0	2.6	4.1	2.0
Nepal	-0.3	1.0	2.2	1.0	2.3	3.5	4.8	3.8	0.2	1.5	2.8	1.6
Pakistan	-1.3	0.1	1.4	0.7	1.6	2.9	4.3	4.2	-0.3	1.0	2.4	1.9
Philippines	0.1	1.4	2.8	2.1	2.3	3.6	5.0	4.1	0.6	2.0	3.3	2.0
Singapore	0.7	2.3	3.8	2.7	1.6	3.2	4.8	5.0	0.6	2.2	3.8	3.0
South Korea	2.1	3.6	5.0	3.1	2.6	4.1	5.5	4.2	2.3	3.8	5.2	3.6
Sri Lanka	0.8	2.1	3.4	2.2	1.7	3.0	4.3	4.7	0.8	2.1	3.4	3.9
Taiwan	2.0	3.5	4.9	3.1	2.5	4.0	5.5	4.1	2.0	3.5	4.9	3.5
Thailand	-1.0	0.4	1.7	1.4	-0.2	1.1	2.4	2.6	-0.8	0.5	1.8	1.7
Vietnam	3.1	4.4	5.7	4.4	4.8	6.1	7.4	6.9	3.8	5.1	6.4	5.6
All Group	**3.8**	**5.2**	**6.5**	**5.1**	**4.9**	**6.3**	**7.6**	**6.6**	**4.0**	**5.4**	**6.7**	**5.5**

Non-G7 (17 Economies)

Group	Productivity Growth				GDP Growth				GDP per Capita Growth			
	Projections, 2006-2016			Actual	Projections, 2006-2016			Actual	Projections, 2006-2016			Actual
	Pessimistic	Base-case	Optimistic	1996-06	Pessimistic	Base-case	Optimistic	1996-06	Pessimistic	Base-case	Optimistic	1996-06
Australia	1.1	2.2	3.4	1.4	1.7	2.9	4.1	3.4	0.9	2.1	3.3	2.2
Austria	0.7	1.8	2.9	1.8	0.6	1.7	2.9	2.2	0.5	1.7	2.8	1.8
Belgium	0.5	1.7	2.8	1.3	0.5	1.7	2.8	2.3	0.4	1.6	2.8	1.9
Denmark	-0.5	0.7	1.8	1.5	-0.4	0.7	1.9	2.1	-0.7	0.4	1.6	1.8
Finland	1.3	2.5	3.8	2.2	0.9	2.2	3.4	3.8	0.8	2.1	3.3	3.5
Greece	2.0	3.0	4.1	2.5	1.9	3.0	4.0	4.0	1.8	2.9	3.9	3.6
Iceland	1.9	3.0	4.1	2.5	2.7	3.8	4.9	4.3	2.0	3.1	4.2	3.1
Ireland	3.2	4.4	5.6	2.7	4.0	5.2	6.4	6.9	2.9	4.1	5.3	5.3
Israel	-0.8	0.4	1.6	0.6	0.5	1.7	2.9	3.3	-0.6	0.6	1.8	1.1
Luxembourg	-0.9	0.2	1.3	1.3	0.3	1.4	2.5	4.9	-0.8	0.2	1.3	3.9
Netherlands	-0.6	0.6	1.8	1.1	-0.4	0.8	1.9	2.5	-0.8	0.4	1.5	2.0
New Zealand	0.6	1.8	3.1	0.9	1.5	2.7	4.0	2.8	0.7	1.9	3.1	1.7
Norway	0.7	1.9	3.0	1.5	1.0	2.2	3.3	2.7	0.7	1.8	3.0	2.1
Portugal	2.4	3.5	4.6	0.9	2.5	3.6	4.7	2.2	2.2	3.3	4.5	1.6
Spain	-0.4	0.7	1.8	-0.4	-0.6	0.5	1.6	3.7	-0.7	0.4	1.5	2.6
Sweden	1.1	2.3	3.6	2.3	1.0	2.2	3.4	3.0	0.8	2.0	3.2	2.8
Switzerland	0.0	1.2	2.4	1.0	0.1	1.3	2.5	1.8	-0.2	1.0	2.2	1.2
All Group	**0.5**	**1.6**	**2.8**	**1.1**	**0.6**	**1.8**	**2.9**	**3.2**	**0.3**	**1.4**	**2.6**	**2.4**

Latin America (20 Economies)

Group	Productivity Growth				GDP Growth				GDP per Capita Growth			
	Projections, 2006-2016			Actual	Projections, 2006-2016			Actual	Projections, 2006-2016			Actual
	Pessimistic	Base-case	Optimistic	1996-06	Pessimistic	Base-case	Optimistic	1996-06	Pessimistic	Base-case	Optimistic	1996-06
Argentina	-0.3	0.8	1.8	1.1	0.9	1.9	2.9	2.5	0.0	1.0	2.1	1.5
Bolivia	-1.2	-0.1	0.9	-0.2	1.1	2.1	3.2	3.2	-0.2	0.8	1.8	1.2
Brazil	-1.0	0.0	1.0	0.0	0.2	1.2	2.3	2.5	-0.7	0.3	1.4	1.1
Chile	0.4	1.5	2.5	0.8	1.5	2.6	3.6	3.8	0.7	1.7	2.8	2.6
Colombia	-0.3	0.7	1.7	0.8	1.4	2.5	3.5	2.6	0.1	1.1	2.1	1.0
Costa Rica	0.1	1.2	2.3	1.4	1.9	3.0	4.0	5.1	0.6	1.6	2.7	3.0
Dominican Republic	2.0	3.0	4.0	3.0	3.8	4.8	5.8	5.8	2.3	3.3	4.3	4.1
Ecuador	-1.2	-0.2	0.8	0.1	0.7	1.7	2.7	3.3	-0.6	0.4	1.4	2.0
El Salvador	-0.3	0.7	1.8	-0.3	1.8	2.8	3.9	2.9	0.2	1.2	2.2	1.2
Guatemala	-0.3	0.7	1.7	0.5	2.7	3.7	4.7	3.3	0.7	1.7	2.7	0.9
Honduras	-0.5	0.6	1.6	0.3	2.4	3.4	4.4	3.5	0.5	1.5	2.5	1.5
Jamaica	-0.1	0.9	2.0	-0.5	1.4	2.5	3.6	1.1	0.7	1.8	2.8	0.5
Mexico	0.7	1.8	2.8	1.0	2.3	3.3	4.3	3.5	1.2	2.2	3.2	2.3
Nicaragua	-1.1	-0.1	0.9	0.0	1.6	2.6	3.6	3.8	-0.2	0.9	1.9	2.3
Panama	0.1	1.2	2.3	2.5	1.7	2.9	4.0	4.9	0.3	1.4	2.5	3.0
Paraguay	-1.4	-0.3	0.7	-1.5	1.4	2.4	3.4	1.6	-1.0	0.0	1.0	-0.5
Peru	-1.0	0.1	1.1	1.5	0.8	1.9	3.0	3.8	-0.3	0.7	1.8	2.5
Trinidad and Tobago	1.8	2.8	3.8	4.5	0.8	1.8	2.8	7.3	1.7	2.7	3.7	6.9
Uruguay	-1.0	0.1	1.2	-0.2	-0.2	0.9	2.0	1.6	-0.6	0.5	1.6	1.4
Venezuela, RB	1.0	2.0	3.0	1.6	2.8	3.8	4.8	2.6	1.5	2.5	3.5	0.8
All Group	**-0.2**	**0.8**	**1.9**	**0.7**	**1.3**	**2.3**	**3.3**	**3.0**	**0.2**	**1.2**	**2.3**	**1.6**

Eastern Europe (22 Economies)

Group	Productivity Growth				GDP Growth				GDP per Capita Growth			
	Projections, 2006-2016			Actual	Projections, 2006-2016			Actual	Projections, 2006-2016			Actual
	Pessimistic	Base-case	Optimistic	1996-06	Pessimistic	Base-case	Optimistic	1996-06	Pessimistic	Base-case	Optimistic	1996-06
Albania	3.8	5.9	8.1	6.7	4.6	6.8	8.9	4.9	4.1	6.2	8.4	4.7
Armenia	2.3	4.5	6.6	11.7	3.1	5.3	7.4	8.9	3.1	5.3	7.4	9.5
Azerbaijan	3.1	5.3	7.4	11.8	4.7	6.8	9.0	12.6	3.9	6.0	8.2	11.7
Belarus	3.3	5.5	7.7	7.3	3.1	5.3	7.5	7.4	3.5	5.7	7.9	7.8
Bulgaria	2.0	4.2	6.4	2.9	0.8	3.0	5.2	3.7	1.6	3.8	6.0	4.6
Croatia	1.7	4.0	6.4	3.6	1.6	4.0	6.4	3.9	1.7	4.1	6.4	4.0
Czech Republic	2.1	4.3	6.6	3.0	1.5	3.8	6.0	2.8	1.6	3.9	6.1	2.8
Estonia	3.7	6.0	8.4	7.0	2.7	5.0	7.4	7.3	3.3	5.7	8.0	7.9
Georgia	2.9	5.0	7.1	7.0	2.8	5.0	7.1	6.2	3.2	5.3	7.5	7.3
Hungary	1.4	3.7	6.0	3.5	1.0	3.3	5.6	4.3	1.2	3.5	5.8	4.6
Kazakhstan	2.7	4.8	6.9	5.9	3.2	5.4	7.5	7.1	2.9	5.0	7.1	7.3
Kyrgyz Republic	-0.9	1.4	3.7	1.4	1.0	3.3	5.5	4.2	-0.4	1.9	4.1	3.1
Latvia	3.5	5.9	8.3	6.3	2.7	5.1	7.5	7.4	3.3	5.7	8.1	8.3
Lithuania	4.4	6.7	9.0	6.1	4.1	6.5	8.8	6.1	4.4	6.8	9.1	6.7
Poland	1.5	3.7	5.9	4.4	1.3	3.5	5.7	4.1	1.4	3.6	5.8	4.3
Romania	4.0	6.2	8.3	4.8	3.8	5.9	8.1	2.5	3.9	6.1	8.3	2.9
Russia	2.8	5.0	7.1	4.6	2.1	4.3	6.5	4.8	2.6	4.8	7.0	5.2
Slovak Republic	2.8	5.0	7.3	4.1	2.8	5.0	7.3	4.1	2.7	4.9	7.2	4.0
Slovenia	1.8	4.0	6.2	3.5	1.3	3.5	5.7	4.0	1.4	3.6	5.8	3.9
Tajikistan	1.5	3.7	5.8	6.0	4.0	6.2	8.4	7.0	2.2	4.4	6.6	5.7
Ukraine	2.2	4.3	6.5	5.9	1.6	3.7	5.9	4.4	2.2	4.4	6.6	5.3
Uzbekistan	1.7	3.9	6.0	3.0	3.8	6.0	8.2	5.1	2.1	4.3	6.5	3.7
All Group	**2.5**	**4.7**	**6.9**	**4.8**	**2.1**	**4.3**	**6.5**	**4.7**	**2.4**	**4.6**	**6.8**	**5.0**

Sub-Sahara Africa (29 Economies)

Group	Productivity Growth				GDP Growth				GDP per Capita Growth			
	Projections, 2006-2016			Actual	Projections, 2006-2016			Actual	Projections, 2006-2016			Actual
	Pessimistic	Base-case	Optimistic	1996-06	Pessimistic	Base-case	Optimistic	1996-06	Pessimistic	Base-case	Optimistic	1996-06
Benin	1.3	2.7	4.2	1.5	4.4	5.8	7.2	4.4	1.9	3.3	4.7	1.2
Botswana	2.4	3.8	5.2	3.7	3.1	4.5	5.9	6.3	3.1	4.5	5.9	4.8
Burkina Faso	1.8	3.2	4.6	2.7	5.0	6.4	7.8	5.8	2.0	3.4	4.8	2.8
Cameroon	1.4	2.8	4.2	2.1	3.9	5.3	6.7	4.0	1.8	3.2	4.6	1.7
Central African Republic	-1.9	-0.5	0.9	0.0	0.2	1.6	3.0	1.5	-1.2	0.2	1.6	-0.4
Chad	3.4	4.8	6.2	5.6	6.6	8.0	9.4	8.1	3.7	5.1	6.5	4.6
Congo, Rep.	-0.5	0.9	2.3	0.7	2.7	4.1	5.5	3.5	0.0	1.3	2.7	1.0
Cote d'Ivoire	-1.8	-0.4	1.0	-1.3	0.3	1.7	3.1	0.9	-1.6	-0.2	1.2	-1.2
Ethiopia	1.9	3.4	4.8	2.3	4.7	6.1	7.5	4.7	2.5	3.9	5.4	1.9
Gabon	-1.9	-0.6	0.8	-1.0	0.1	1.5	2.9	0.8	-1.9	-0.5	0.9	-1.2
Ghana	0.1	1.5	3.0	2.3	2.7	4.1	5.5	4.7	0.8	2.2	3.7	2.5
Guinea	-1.1	0.3	1.7	0.7	1.6	3.0	4.4	3.4	-1.0	0.4	1.8	1.4
Kenya	-0.6	0.9	2.3	0.4	2.0	3.5	4.9	3.0	-0.4	1.0	2.4	0.4
Madagascar	0.9	2.3	3.7	0.2	4.2	5.6	7.1	3.3	1.2	2.7	4.1	0.4
Malawi	1.1	2.5	3.9	0.3	3.8	5.2	6.6	2.4	1.4	2.9	4.3	-0.3
Mali	2.3	3.7	5.1	3.3	5.2	6.6	7.9	5.8	2.4	3.8	5.1	2.9
Mauritius	1.8	3.3	4.7	3.2	2.7	4.2	5.7	4.5	1.9	3.4	4.9	3.5
Mozambique	4.2	5.6	7.0	6.0	6.3	7.7	9.2	7.8	4.5	5.9	7.3	5.3
Namibia	2.8	4.2	5.6	4.5	4.1	5.5	6.9	4.0	3.8	5.2	6.6	2.2
Niger	-0.8	0.6	2.0	0.2	2.1	3.5	4.9	3.6	-0.8	0.6	2.0	0.0
Nigeria	0.6	2.0	3.4	2.0	3.0	4.4	5.8	4.3	0.6	2.0	3.4	1.8
Senegal	0.6	2.0	3.5	1.9	3.3	4.8	6.3	4.3	0.8	2.3	3.8	1.7
South Africa	0.1	1.6	3.1	1.5	0.1	1.6	3.2	3.3	0.6	2.1	3.7	1.7
Sudan	3.0	4.5	5.9	4.9	6.1	7.6	9.0	6.8	3.8	5.2	6.7	4.6
Swaziland	-1.1	0.3	1.7	0.1	-0.9	0.5	1.9	2.6	-0.4	1.0	2.4	0.6
Tanzania	1.3	2.7	4.1	3.0	3.7	5.2	6.6	5.3	1.8	3.2	4.7	2.8
Togo	-0.9	0.6	2.2	-0.4	2.0	3.5	5.1	2.8	-0.7	0.9	2.4	-0.4
Uganda	1.5	2.9	4.3	2.7	5.2	6.6	8.1	5.6	1.8	3.2	4.6	2.5
Zambia	2.0	3.5	4.9	1.6	4.2	5.6	7.1	3.6	2.6	4.0	5.5	1.6
All Group	**0.7**	**2.1**	**3.6**	**1.9**	**2.3**	**3.8**	**5.2**	**4.1**	**1.0**	**2.5**	**4.0**	**1.9**

North Africa and Middle-East (11 Economies)

Group	Productivity Growth				GDP Growth				GDP per Capita Growth			
	Projections, 2006-2016			Actual	Projections, 2006-2016			Actual	Projections, 2006-2016			Actual
	Pessimistic	Base-case	Optimistic	1996-06	Pessimistic	Base-case	Optimistic	1996-06	Pessimistic	Base-case	Optimistic	1996-06
Algeria	-1.5	-0.1	1.3	-0.6	0.4	1.8	3.2	3.8	-0.7	0.6	2.0	2.4
Egypt, Arab Rep.	0.6	2.0	3.4	1.8	2.7	4.1	5.4	4.5	1.1	2.5	3.8	2.7
Iran, Islamic Rep.	-0.7	0.7	2.1	-0.3	0.7	2.1	3.5	4.4	-0.2	1.2	2.6	2.9
Jordan	-0.9	0.6	2.1	1.2	2.3	3.8	5.3	4.9	0.1	1.6	3.1	2.4
Lebanon	-1.1	0.3	1.7	-0.1	0.4	1.8	3.2	2.8	-0.7	0.7	2.1	1.5
Mauritania	1.2	2.7	4.2	1.5	4.4	5.9	7.4	3.8	1.6	3.1	4.6	0.9
Morocco	0.9	2.4	3.8	1.9	3.0	4.4	5.8	3.9	1.5	3.0	4.4	2.6
Syrian Arab Republic	-1.1	0.4	1.8	-1.3	1.7	3.1	4.5	3.3	-0.4	1.0	2.4	0.7
Tunisia	1.1	2.5	3.9	1.7	2.5	3.9	5.3	4.7	1.5	2.9	4.4	3.7
Turkey	1.0	2.5	4.0	3.3	2.4	3.9	5.4	4.0	1.5	2.9	4.4	2.5
Yemen, Rep.	-0.6	0.8	2.3	0.4	3.1	4.5	5.9	4.4	-0.4	1.0	2.5	1.4
All Group	**0.0**	**1.5**	**2.9**	**1.1**	**1.7**	**3.2**	**4.6**	**4.2**	**0.5**	**2.0**	**3.4**	**2.6**