



**Global Macroeconomic Scenarios
and World Trade Statistics and
Forecast**

**Escenarios Macroeconómicos
Globales y Estadísticas y
Pronósticos del Comercio Mundial**

Global Insight, Inc.

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Resumen Ejecutivo

Executive Summary of the Project

The Panama Canal Authority (ACP) contracted with Global Insight in 2005 to update macroeconomic forecasts that were produced in 2001 for the ACP. At that time, the project, carried out under the corporate name of Global Insight, Inc., included the development of a baseline, or best estimate, of the long-term macroeconomic trajectory for the world, with a focus on particular nations of importance to the Canal. Additionally, Global Insight developed a more optimistic scenario as well as a more pessimistic one, and, consistent with each of these 3 scenarios, world sea trade projections were developed as inputs to the ACP's transit forecasting work.

In the current study, Global Insight developed 3 macroeconomic scenarios as well but used the latest versions of its econometric models, and updated historical databases. Also, the models themselves have been restructured to reflect economic developments in the last 4 years. The new scenarios are, then, fresher and they portray a more positive world outlook, in general, although the risks to the baseline forecast are many. No corresponding trade scenarios were developed for the best and worst cases; the trade projections provided in this study were based on the most probable, baseline, macroeconomic scenario.

General Methodology

This study was carried out using the latest econometric models and data available at Global Insight. It used the latest U.S. macroeconomic model with the most current values for all macroeconomic variables that tend to influence global markets at the local (U.S.) and international levels. The development of the study consisted primarily of three parts. For each country, Global Insight used its own country model and the most current information regarding economic, political, and social climate in each country and developed a baseline forecast – the most probable case. This forecast provides Global Insight's most recent expectations about these economies in the short, medium, and long terms. Second, we modified each country's model to incorporate a new set of positive assumptions (described below) regarding the most probable case and evaluated the results. These results were defined as the "Best Case". Third, we modified each country's "Most Probable" base case model to incorporate a new set of negative assumptions (described below) regarding the "Most Probable" case and evaluated the result. These results were defined as the "Worst case".

In developing the Most Probable Case, Global Insight first researched all economic conditions at a particular point in time and created a "present day" economic reality, and calibrated each country model to "present day" conditions. Then, Global Insight made several assumptions regarding the immediate future based on current data. Finally, we extended this forecast to the year 2025. In turn, the economic projection has a short term, based on current expectations and a long term projection based on long term trends. For example, we first look the current situation of the US and created a current-day scenario based on the extent of the economic recession and the impact of the terrorist attacks. Based on current assumptions we then developed a forecast for the short term and then extended the forecast to the year 2025.

Below is a summary of the short, medium, and long term outlooks for world economic growth under the base case, or most probable case. Global Insight assigns a 70% probability to this case.

Short-term World Growth

Global Insight's latest detailed baseline forecast projects world economic growth moderating to 3.9% year on year (y/y) in the third quarter of this year, after having peaked at 4.5% during the preceding quarter. The forecast calls for growth to moderate further, to 3.5% y/y in the fourth quarter and 3.3% by the final quarter of 2005. The forecast calls for average annual growth rate to decelerate from 4.2% in 2004 to 3.4% in 2005 and 3.2% in 2006.

The 2001 was completed during a recessionary period, which is now finished. Indeed, many economies, and principally the U.S., have rebounded well since then, and even the terrorist attacks of 2001 did not, in the end, set the U.S. back. Even corporate scandals in 2004-05 did not stop the US consumer from continuing his spending spree. Leading up to the early-2005 date of this study, the world's economies saw strength that had been missing for many years in most regions; and now, we see some areas of strength such as the U.S., and some "soft patches" including Europe and Japan. The huge US budget and trade deficits have also influenced the short-term, and the long-term, outlooks for that economy, and the dollar's steady decline will continue to shift the economic focus to matters of world trade and the importance of oil.

Medium-term World Growth

After five years of weak or uneven growth during 1998-2003, the global economy is now in the midst of a period of above trend performance. Global Insight's latest detailed forecast, which was completed in January, 2005, projects that the world economy will maintain an above-trend rate of growth for several more years, before edging back to its trend growth rate of 3.1% per year. Our projected average annual growth rate for the five years from 2004 through 2008 is 3.4%, compared with 2.6% for the preceding five years (1999-2003).

Long-term World Growth

The world economy's long-term growth prospects are generally favorable, but they are not so rosy as they appeared to be during the 1990s, when energy prices were low and the Soviet Union's collapse along with the prospects of economic reform in the former Communist world led to widespread euphoria about "a new world order." The current outlook appears even more sober when it is contrasted with the spectacular economic growth projections that were popular during the heyday of "new economy" in the late 1990s.

It is now widely accepted that the "new" economy operates on exactly the same principles as the "old" economy. While technological improvements in computers, telecommunications, biology, and other fields will likely lead to spectacular results in some sectors, their impact on overall economic growth will not be spectacular. Furthermore, the American economy's impressive productivity gains during the last ten years now appear to have been mainly the cumulative results of the country's market deregulation and corporate-sector restructuring in the 1980s, global trade liberalization in the 1990s, and an overinvestment binge in the 1990s, rather than any "new economy" magic.

Global Insight's latest detailed forecast of the world economy's GDP projects an average annual trend growth rate of 3.1% for the 20-year period through 2025. This is roughly in line

with the average global growth for the past 30 years. (Unless noted otherwise, all world and regional GDP growth rates are based on country GDP numbers converted to US dollars at market exchange rates. Based on purchasing power parity exchange rates, the global economy's trend growth rate would be 3.8%.)

The key economic *growth drives* underlying the forecast is the productivity gains from new technological advances which will moderate the impact of the secular slowdown in factor accumulation. In other words, a combination of capital and labor productivity improvements—resulting from technological breakthroughs, incremental advances in production processes, and improvements in business organization and management techniques—would in the long term compensate for the slowdown in labor supply growth (due to demographic trends) and capital stock growth (due to a lower global savings rate). This is an important, even fundamental point, concerning the long-term structure of the world economy.

Other factors that affect the long-term economic picture, and that serve as growth drivers to the forecast, are listed below.

- Aggregate world population growth will continue its gradual, secular long-term decline, from 1.2% per year in recent years to 0.8% in 2025.
- Domestic saving rates increase as incomes rise in the early stages of economic development, but they moderate and decline in the later stages.
- The world economy will not face any extended, severe petroleum shortages over the next 25 years. Indeed, Global Insight believes there is plenty of oil still waiting to be discovered, on top of the huge quantities in previously discovered fields waiting to be developed.
- Crude oil prices will decline from their current, artificially-high levels over the next ten years, but recover gradually as OPEC's excess capacity fades away.
- The global economy will not fall into a deflationary trap. The current pockets of deflation will disappear during the next few years as the world recovery advances.
- The major industrialized countries do not allow their commercial disputes to frustrate global trade liberalization or to degenerate into a major, competitive trade war. In short, incremental trade liberalization will continue.
- After completing their current recovery, non-oil primary commodity prices will resume their secular long-term decline.
- Emerging markets will not backtrack on their economic reforms on any large scale, but instead will continue the trend toward greater openness, deregulation, and privatization.
- The global trend toward more flexible exchange rate regimes and greater capital mobility will continue without any major backtracking.
- Most industrialized countries will not completely shut their doors to immigration, but will become more selective in their immigration policies.

- There will not be any global calamity that depresses world population or capital stock, or leads to a prolonged depression in world output, such as a world war, medieval-scale plagues or epidemics, a giant meteor crash, or other planetary-scale disasters.

The projected regional pattern of growth is very similar to that of the last 20 years.

Selected Country and Regional Summaries

Among industrialized regions, the **United States and Canada** will remain the growth leaders thanks to a combination of favorable demographic factors, abundant natural resources, efficient financial institutions, high rate of immigrant absorption, huge market size, science and technology leadership, and a tremendous capacity for innovation and entrepreneurship. North America's more mobile workers and flexible labor markets are another strong competitive advantage over other major industrialized regions. Still another key factor in North America's superior economic performance is its relatively dynamic political and social institutions, particularly at the grassroots level. Thanks to these advantages, North America's economic long-term growth will easily outpace those of Western Europe and Japan and will remain the world's primary oil importer.

Western Europe and Japan will have major problems keeping up with North America. First, their demographic and natural resource endowments are not as favorable. Second, their markets are generally not as open or as flexible. Third, they are less attractive to skilled immigrants and less effective in integrating them. Fourth, their labor force is less mobile. Fifth, their political and social institutions are less dynamic. Finally, economic growth in both regions is to some extent constrained by burdensome social-welfare programs that will become more severe over the next few decades with the aging of their populations.

Western Europe's economic problems are of course in many ways quite different from those of Japan. For one thing, Western Europe is a much more heterogeneous society. The **United Kingdom** in particular is relatively more dynamic than the "old Europe" economies of Germany, France, and Italy. In addition, there is a substantial amount of cultural and ethnic diversity within Europe that reinforces the problems stemming from historical animosities and political and language barriers. While the European Union (EU) has broken most of the economic barriers among its current 15 member states, it has created other problems by imposing various centralized bureaucratic superstructures on the members. The cumbersome EU decision-making processes have made European political and social institutions less dynamic. Similarly, the European Monetary Union (EMU) and the EU Stability and Growth Pact have made European macroeconomic policy far too rigid. These institutional rigidities, which could become more acute as the European Union adds 15 new members to its roster in expanding eastward, will be a significant drag on the long-term growth of Germany, France, and Italy.

Among emerging-market regions, Asia and Oceania, led by non-Japan Far East, will continue to have the highest growth rates. In particular, the economic bloc known as "Greater China"—made up of the increasingly integrated economies of **China, Hong Kong, and Taiwan**—should be a growth leader. As in the past several decades, this is mainly due to the region's combination of openness to trade, high domestic saving rates, and a relatively well-educated labor force. Thanks to these favorable factors, Asia and Oceania is likely to receive the bulk of global foreign investment flows over the next few decades and is destined to become the

world's dominant manufacturing center and the main consumer of non-oil primary commodities.

A summary of China's position now and how it has changed since 1980 can be seen in this table, showing the dramatic rise in consumerism, income, and exports.

	1980	2004
Real GDP per capita (2004\$ billions)	181	1,597
Relative real GDP (% of U.S. level, 2004\$)	3%	14%
Real GDP growth in previous 10 years	5.3%	8.6%
Population (millions)	981	1,300
Real per capita GDP (2004\$)	171	964
Trade's share of GDP	15%	85%
Number of super markets	0	70,000
Current account surplus (\$ billions)	1	14
Agriculture's share of GDP	30%	15%
Urbanization	20%	33%

The momentum of the last 5 years will be difficult to slow down; nevertheless, Global Insight assumes a moderate slowdown in China's growth, without a hard landing. The modification to the exchange rate procedures reinforces our thinking that a soft landing is feasible from the current heights.

If political and military risks stymie China's growth, however, **India** has the potential to become the dominant destination for foreign investment. Over the next few decades, India should be able to sustain a growth rate of 5% per year, but with accelerated economic reforms it has the potential to grow at 7-8%. Unfortunately, India's outlook also faces two major risks. India's tense relations with Pakistan could escalate into a regional nuclear Armageddon, and its internal Hindu-Muslim religious divide could degenerate into a fratricidal civil war.

Meanwhile, the Far East consumer sector continues to grow, and as incomes are expected to rise, so will purchases of consumer goods, especially automobiles. The economies represented in the following table are all expected to see improved domestic conditions in the baseline scenario, and consumers are spending large portions of their incomes and prior-year savings on automobiles and SUVs. In the Global Insight forecast of vehicle sales, below, China is rapidly approach Japan and will surpass it by 2006.

Note: In the table below, LCVs (Light Commercial vehicles) are all the trucks, SUVs and Vans with Gross Vehicle Weight of less than 6 metric tons. HCVs are all the Heavy Commercial Vehicles which includes heavy trucks and buses.

Vehicle Demand Overview - All Asia 2004, 2005, and 2010
(Thousands)

Country	CAR			LCV			HCV			ALL VEHICLES		
	2004	2005	2010	2004	2005	2010	2004	2005	2010	2004	2005	2010
Japan	4768	4809	5116	962	961	1014	124	118	117	5854	5888	6246
Korea	880	974	1214	203	215	293	38	39	41	1122	1228	1548
China	2471	2692	4172	2091	2211	2864	637	631	634	5199	5534	7671
India	804	912	1701	350	417	643	185	178	195	1340	1508	2539
Thailand	207	212	327	402	451	586	17	19	21	626	682	933
Malaysia	388	393	510	97	116	155	3	4	6	488	513	671
Taiwan	389	405	490	87	92	88	9	8	10	485	505	588
Indonesia	88	97	172	357	398	504	38	44	63	484	539	740
Philippines	34	37	83	53	55	102	2	2	3	88	94	188
Australia	593	596	620	343	372	429	19	16	16	955	984	1064
Pakistan	96	103	123	29	31	36	4	4	6	130	138	164
OTHERS	186	183	211	67	68	91	13	14	17	266	265	320
Grand Total	10,904	11,413	14,740	5,041	5,388	6,804	1,091	1,078	1,127	17,036	17,878	22,672

Among the other emerging markets, **Latin America's outlook** is constrained by its low saving rate, over-dependence on primary commodities, politicized labor forces, corruption, and policy instability (as a result of periodic upsurges in support for populist leaders). As oil exporters, **Venezuela and Ecuador** enjoy some benefits from high oil prices, but internal growth remains stymied by structural rigidities. **Chile** has had better luck at freeing its economy, and consequently has better growth potential, but it too suffers from policies and cultural attitudes that restrain progress. The **Middle East** and **North Africa's** prospects are frustrated by boom-bust growth patterns, overdependence on petroleum exports, burdensome social welfare and subsidy programs, low labor and capital productivity, increasing social tensions, and political uncertainty. Finally, most of **Sub-Saharan Africa** has little chance of breaking out of its poverty trap, given the region's problems of political instability and civil war, rampant crime and corruption, and widespread institutional failures.

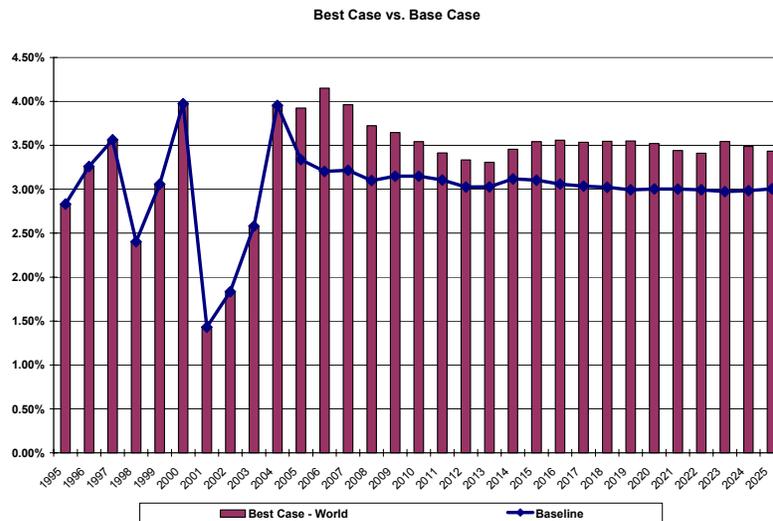
World Macroeconomic Outlook - Best Case

Global Insight used its global macroeconomic scenario model to generate a series of scenarios for the world, and the scenario driven by the assumptions below is called the Best Case scenario. Global Insight gives this scenario a 15% probability.

- Productivity growth is 0.5 percentage points higher every year than in the base case.
- Long-term interest rates are 1 percentage point lower every year than in the base case.
- World oil prices are 10 \$/barrel lower every year than in the base case.

All of the scenario work was developed around the base case, which has a 70% probability. Therefore, the world macroeconomic outlook, below, shows the comparisons of this best case with the base case outlook.

Under the above assumptions, world economic output is improved.

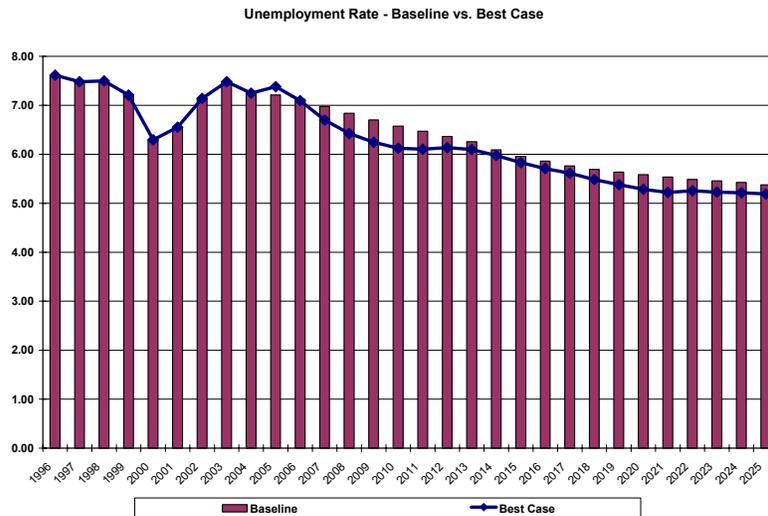


In the baseline, world economic growth is expected to average 3.1% per year over the full 2005-2025 forecast period, while in the best case, this growth is magnified to 3.5% per year, a significant difference on the positive side. In 2025, the difference in nominal terms is more than \$8.5 trillion.

The major industrialized countries all contribute to this improved outlook, including the U.S., China, Europe, and Japan (to a lesser extent). Developing nations, such as Brazil, Chile, Malaysia, India, etc., also show improved performance in this best case as a result of open trade policies, and the pull-effect from the industrialized nations.

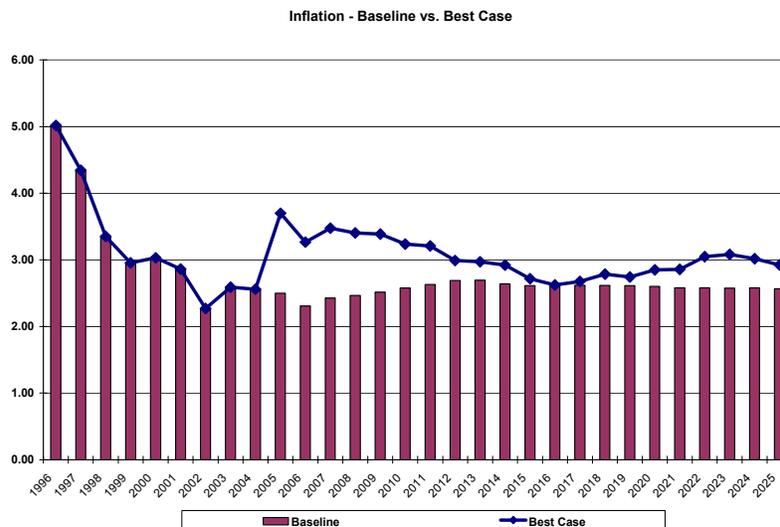
There are implications, as well, for unemployment and inflation in this best case scenario.

Unemployment is slightly lower than in the base case, under the best case assumptions, which include higher productivity. The amount by which the unemployment rate is lower is less than the amount by which it is higher than the baseline in the worst case scenario. This small difference in the unemployment rates in the best case and the base case is shown in the chart below.



The higher economic output is good for the jobs market; however, the assumed higher rates of productivity imply a lower demand for labor inputs. Hence, the best case shows only a modest improvement in unemployment.

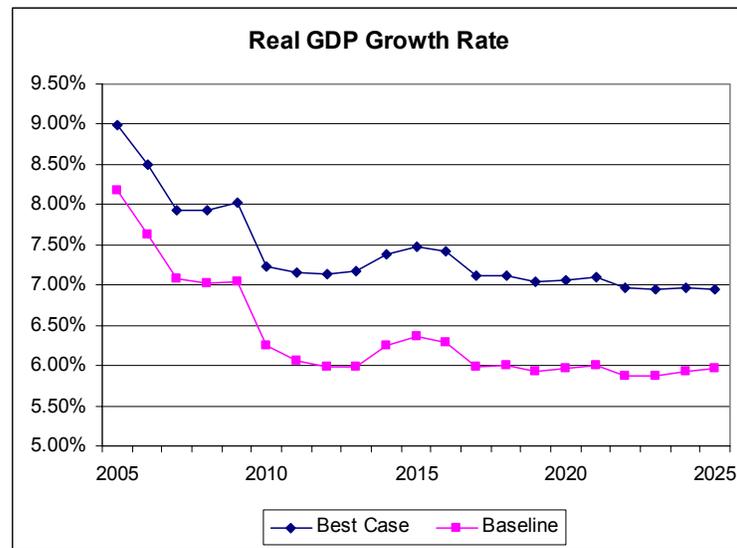
In terms of inflation, the higher rate of economic growth generates stronger increases in prices (CPI), as shown in the chart below.



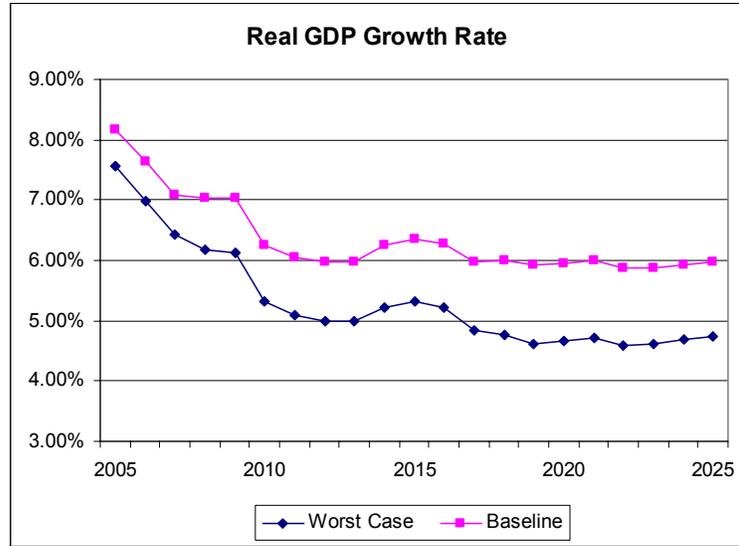
Higher demand produces increases in most inputs prices as well.

For the U.S., under the best case conditions, growth is much faster than in the baseline case: over the medium term, 2005-2010, GDP increases at an annual rate of 3.9%, significantly higher than the baseline growth rate of 3.2%. Over the entire forecast horizon out to 2025, average best case growth is 0.5 percentage points higher than baseline (3.5% vs. 3.0%). These gains reflect the benefits of higher productivity, moderate oil prices, low interest rates, and also faster growth overseas which assists US exports. The accumulated effect of faster growth means that, by 2025, GDP is 10% higher than baseline, equal to \$2,062 billion (constant 2000 dollars) of additional output.

In the best case scenario, China's real GDP growth will average 7.4% from 2005 to 2025, one full percent point higher than in the base case. The economy will flourish mainly due to faster productivity gains. Improve efficiency through structural reforms has been the secret of China's economic success since 1978. Since China was moving from a highly inefficient central planning economy to a market based system, the country was able boost productivity substantially in the early stages of reform.



For China in the worst case scenario, real GDP growth will average 5.3% between 2005 and 2025, versus 6.4% in the base case. Mirroring the best case scenario, productivity loss is the main reason for China's economic woes in the worst case. And the biggest culprit for falling productivity is the lack of progress in economic reform.



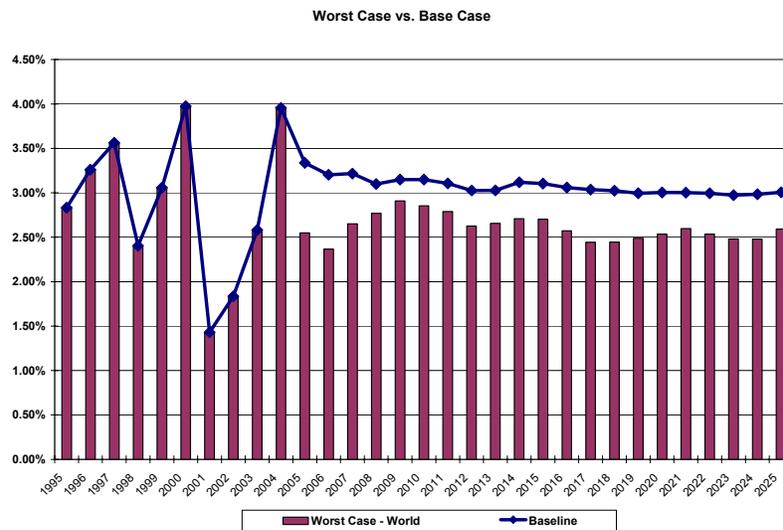
World Macroeconomic Outlook - Worst Case

Global Insight used its global macroeconomic scenario model to generate a series of scenarios for the world, and the scenario driven by the assumptions below is called the Worst Case scenario. Global Insight gives this scenario a 15% probability.

- Productivity growth is 0.5 percentage points lower every year.
- Long-term interest rates are 1 percentage point higher every year.
- World oil prices are 10 \$/barrel higher every year.

All of the scenario work was developed around the base case, which has a 70% probability. Therefore, the world macroeconomic outlook, below, shows the comparisons of this best case with the base case outlook. Global Insight gives this scenario a 15% probability.

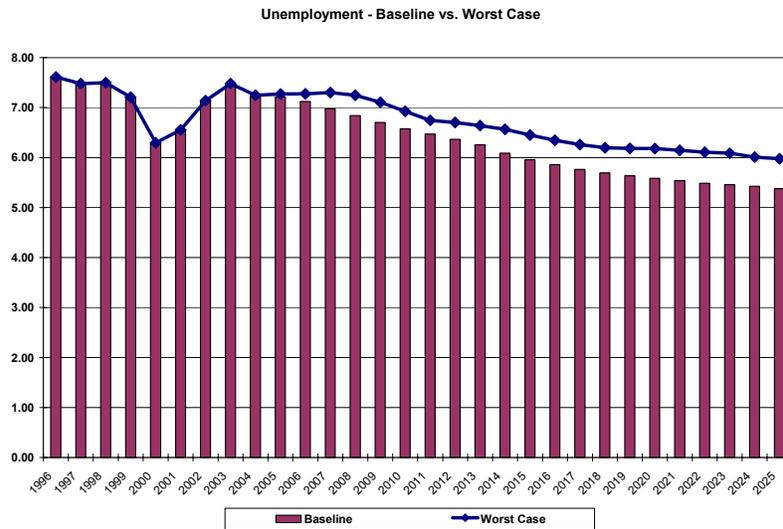
In this weaker outlook, real world GDP averages only 2.6% annually over the 2005-2025 period, representing a reduction in 2025 of about \$17 trillion dollars in nominal terms in that year.



Oil prices are probably the single biggest threat to the global economy in the next couple of years. So far, record oil prices (in nominal terms) can be blamed for half to two-thirds of the deceleration in world growth from 4.1% last year to 3.2% this year. Simulations done using Global Insight's Global Scenario Model show that a sustained rise in oil prices to US\$80 per barrel would be enough to push some economies (e.g., Japan, Germany, and Italy) into recession. Even in such an extreme scenario, however, some parts of the world economy would prosper, including the energy-producing regions of the United States (such as Texas, Alaska, Wyoming, Louisiana, and Oklahoma) and Canada (especially Alberta), Norway, Russia, and all other non-OPEC and OPEC oil-exporting countries

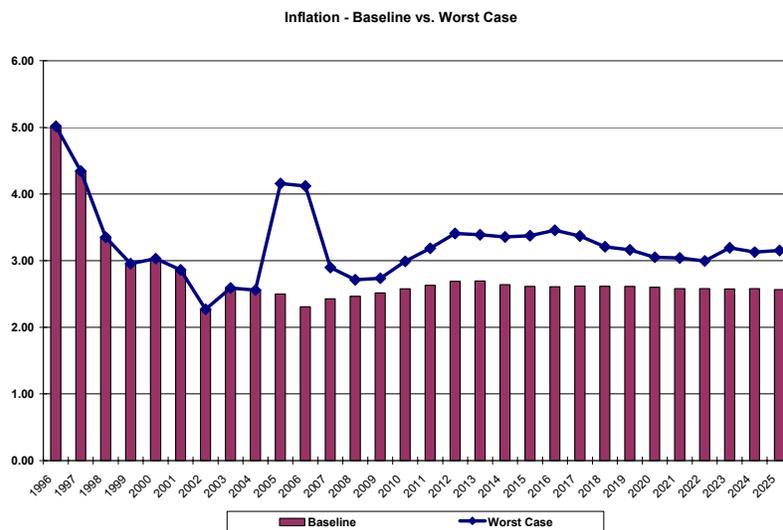
The weaker economic outlook is spread across most of the major industrialized nations (see below) with depressing effects on the economic performance of those developing nations that depend on economic growth in the industrialized world.

Under the worst case assumptions, unemployment worldwide does not improve as quickly in the long term. This can be seen in the chart below, where the line representing the rate of unemployment is higher than the baseline projection.



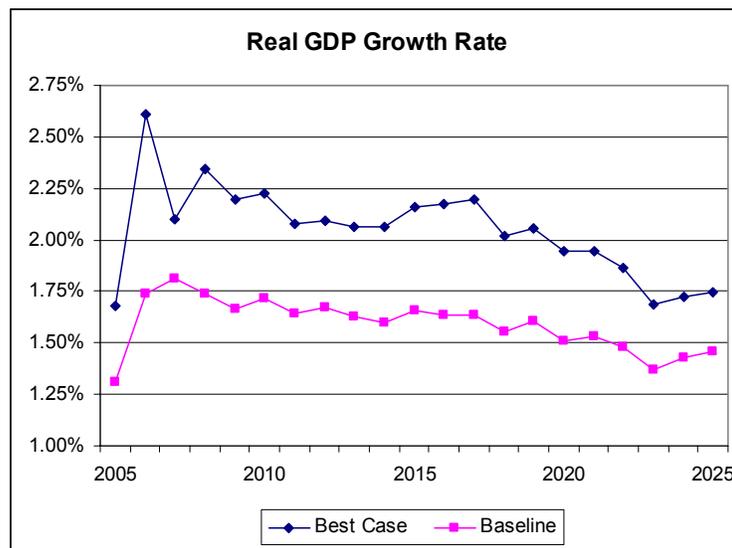
When economic output slows, the models produce less demand for labor, which translates into a high rate of unemployment.

For inflation, the weaker scenario produces higher prices, especially since one of the main assumptions behind this scenario is the higher price of oil, which later feeds through the economy. This higher rate of price changes is clearly shown in the chart below. The weaker rate of economic output in this scenario eventually pulls prices down but still not to the level of the baseline, most probable scenario.

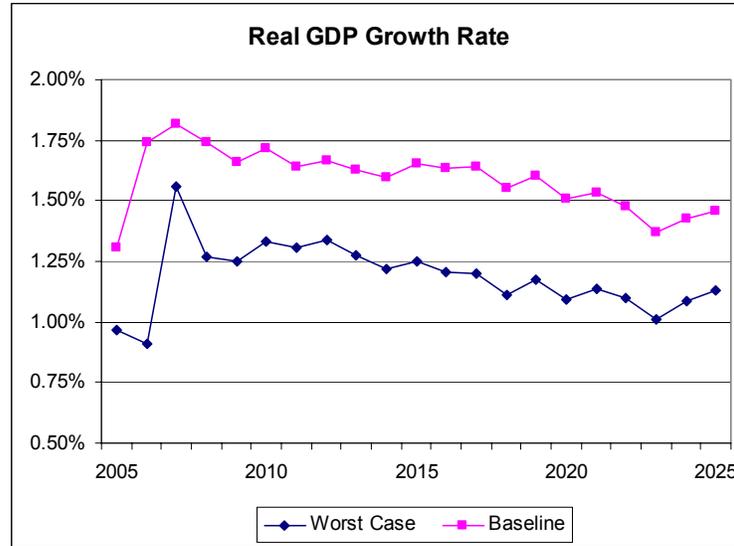


For the United States, growth is reduced significantly in the worst case scenario: real GDP growth out to 2025 falls by 0.4 percentage point to 2.6%. This means that at the end of the forecast period real GDP is more than 8% lower than the baseline forecast, a reduction of \$1,715 billion in constant 2000 dollars.

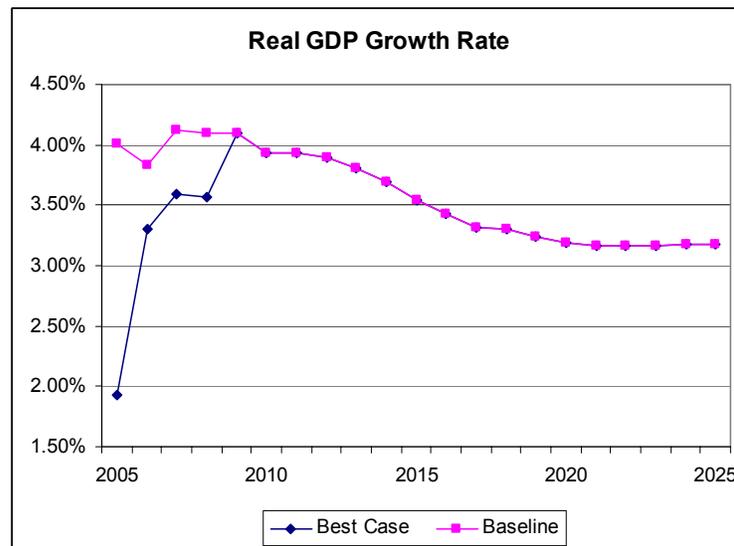
For Germany, representing the general effects of the positive scenario for Europe, Real GDP growth in Germany averages 2.2% per annum over the five-year period 2005-2009 in the best case scenario, representing a boost of 0.55 percentage points from the 1.65% average expansion rate achieved under the baseline. Consequently, real GDP stands at US\$2.13 trillion in 2009 under the best case scenario, compared to US\$2.07 trillion under the baseline.



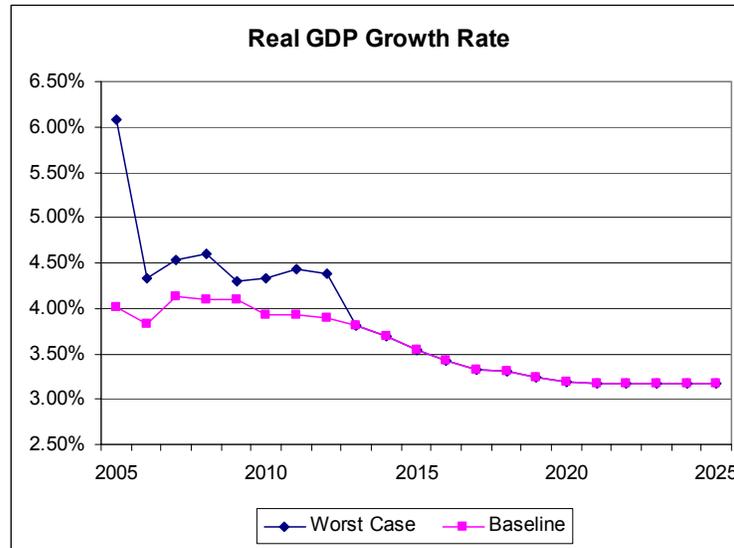
Under the worst case scenario, Germany's real GDP growth averages 1.2% per annum over the five-year period 2005-2009, representing a reduction of 0.5 percentage points from the 1.7% average expansion rate achieved under the baseline. Consequently, German real GDP stands at US\$2.025 trillion in 2009 under the worst case scenario, compared to US\$2.073 trillion under the baseline.



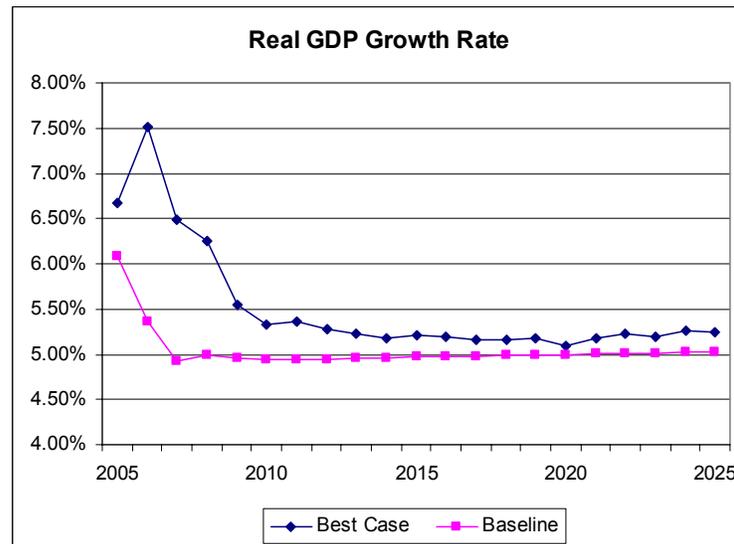
In the case of an oil exporter, like Venezuela, the tables are turned. Our world best case scenario represents a “bad” scenario for Venezuela, as lower oil prices more than offset any possible gain from lower international interest rates and faster productivity growth. Indeed, under the lower oil prices scenario, the Venezuelan economy growth rate reaches only 2% in 2005 or 2 percentage points below our baseline scenario.



On the other hand, the worst case, in which oil prices are higher than the baseline, represents good news for Venezuela. We have defined the worst case scenario as one in which oil prices increased by \$10 per barrel, international interest rates rise by one percentage point and productivity growth decelerates. The impact of such shocks in any non-oil economy would be evidently negative in terms of GDP growth but not necessarily in the case of a net oil exporter country such as Venezuela, which depends to a great extent on the oil sector and the fiscal proceeds the government obtains from it.



For Chile, which is South America's poster child economy in many ways, with remarkably stable politics, and sense of good organization in the government, and rising incomes, under the best case scenario, the productivity shock and lower oil prices push the already booming Chilean economy to an average growth rate of 6.5% in 2005-2009, which compares favorably to the 5.3% estimated in our baseline scenario. The favorable shock affects investment not only through lower interest rates but also by improving business sentiment, a key variable that shapes business cycles in the Chilean economy. Our model predicts fixed investment to increase rapidly during the second, third and fourth years after the shock. On average, gross capital formation would grow 7.5% in 2005-2009, compared to 6.3 in the baseline.



On the downside, when we examine the worst case scenario, a negative shock of lower productivity, higher oil prices and higher interest rates coupled with a less favorable international economic environment would slowdown output expansion in Chile, particularly due to lower investment. At Global Insight we estimate a deceleration in growth—during the

2005-2009 period— from 5.3% in the baseline scenario to 4.3% under the worst case assumptions. Expectations of an adverse economic climate and lower profitability would discourage new investment projects and also delay the replacement of relatively old machinery. On average, the rate of growth of gross capital formation would slowdown to 4.1% in 2005-2009, compared to 6.3% in the baseline. Government consumption would not suffer in the first year since the Copper Stabilization Fund has been replenished in 2004 and has the resources to finance public spending even if tax collection decreases as overall economic activity slows down; however, in the following years, prudent fiscal management would lead to change the fiscal budget assumptions on potential GDP growth and long-term copper prices, so expected government revenue should decline and therefore planned expenditure would shrink compared to the baseline.

