

GLOBAL MACROECONOMIC AND TRADE SCENARIOS TO 2025

PANAMA CANAL AUTHORITY

CONTRACT No. SAA75897BGP

VOLUME I: Most Probable Case

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DRI-WEFA

A Global Insight Company



WWW.DRI-WEFA.COM

1200 G Street NW, 10th Floor, Washington, DC 20005
Tel. (202)383-2000 Fax. (202)383-2005

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TABLE OF CONTENTS

EXECUTIVE SUMMARY OF THE PROJECT..... 1

 INTRODUCTION 1

 GENERAL METHODOLOGY 1

 PROBABILITIES 7

 SELECTED RESULTS..... 8

 MOST PROBABLE CASE 13

 WORST CASE SCENARIO..... 26

 BEST CASE SCENARIO 27

EXECUTIVE SUMMARY --MOST PROBABLE SCENARIO..... 1

I. NORTH AMERICA 15

 UNITED STATES..... 15

 CANADA..... 23

II. ASIA 33

 JAPAN 33

 CHINA 43

 HONG KONG..... 53

 TAIWAN..... 63

 KOREA..... 71

III. EUROPE..... 81

 UNITED KINGDOM 81

 GERMANY 93

 FRANCE..... 103

 ITALY 115

IV. SOUTH AMERICA 125

 VENEZUELA..... 125

 ECUADOR 137

 CHILE 147

PART II: COMMODITY TRADE FORECASTS 157

 WORLD TRADE OVERVIEW..... 159

APPENDIX A: DRI•WEFA’S WORLD TRADE MODEL SYSTEM..... 173

 INTRODUCTION 173

 DATA SOURCES 197

APPENDIX B: DRI•WEFA’S THEORY AND PROPERTIES OF THE DRI-WEFA MODEL OF THE U.S. ECONOMY..... 199

Core Quantitative Properties 210

APPENDIX C: SPECIFIC SOURCES OF DATA AND OTHER REFERENCES..... 214

APPENDIX D: WORLD TRADE SERVICE COUNTRIES AND REGIONS..... 217

Executive Summary of the Project

Introduction

In this study prepared for the Autoridad del Canal de Panamá, DRI•WEFA presents its latest world macroeconomic forecast to 2025 and two alternative scenarios. In the study, DRI•WEFA projected macroeconomic and trade conditions of the world, covering nearly 100 countries. This report summarizes the macroeconomic results for a group of fourteen selected countries, which are the representative economies of the various regions of the world. These projections were carried out in the midst of a global recession, when the U.S., Europe, Japan, and other major countries were all experiencing negative real growth in their economies. Therefore, the development of long-term scenarios from this point depends to a great extent on the implementation of government stimuli and how consumers view the economy ahead, as well as more traditional drivers of long-term growth such as labor productivity. These and other factors were considered in the general methodology.

General Methodology

This study was carried out using the latest econometric models and data available at DRI-WEFA. 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, DRI-WEFA 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 DRI-WEFA’s most recent expectations about these economies in the short to long term. Second, we modified the 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 the country’s “Most Probable” 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”.

The three macroeconomic scenarios were then run through the DRI•WEFA world trade model, a detailed representation of how 77 commodity groups will be shipped internationally across more than 3,600 trade routes worldwide. Seaborne trade measured in tons was the primary focus of this secondary analysis, although trade values and other modes (air and over land) were also estimated for the same group of commodities and routes.

In developing the Most Probable Case, DRI•WEFA 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, DRI•WEFA 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. We defined the short term in terms of the period between 2001 and 2005, the medium term as being the period between 2006 and 2010, and the long term as being the projection between 2011 and 2025.

Short Term (2001 – 2005)

For the short term, DRI•WEFA first looked at the causes of the current recession. This economic recession was mainly caused by an economic structural adjustment. During the 1990s, promoted by technological progress, pushed by eager entrepreneurs and investors, and lured by irresponsible or even greedy financial analysts, there was over investment in the IT industry. When the IT investment surpassed the demand in both the consumption and production sectors, the bubble burst. This mostly happened in the United States. The vertical chain reaction hurt all industries, and the horizontal chain reaction hurt other countries. Thus for the short-term assumption we assessed the lightest possible chain reaction and the heaviest possible chain reaction.

Originally we had expected that the economic structural adjustment could be complete by the end of 2001 or the beginning of 2002. Unfortunately, the September 11 terrorist attack on the United States destroyed the prospective adjustment process and brought the economy down to the edge of a global recession. This required us to assess the impact of the terrorist attack besides economic structural adjustment for the short term.

Most Probable Case Scenario

For each country/region in our global economic and trade coverage, the macroeconomic forecasting exercise has taken into account three groups of factors. The *first* include the country's normal economic conditions and special issues. For example, for Japan we needed to understand the problems in its financial institutions and the structural problems in its electronic industry, and for Argentina we needed to understand the problems with its foreign debt and the problems with its exchange regime. The *second* group of factors include the magnitude of a country's own economic structural adjustment and the impacts from other partner countries' adjustment. Finally, the *third* group of factors include the magnitude of the impact of the terrorist attacks and the impacts from other countries.

In addition, DRI•WEFA assumed that:

- A) The existing DRI•WEFA short-term most probable case forecast is assumed to hold through 2006;
- B) Any cyclical or other patterns seen in the short-term forecast (2006) are not assumed to continue in the longer term;
- C) Each economy's trends toward its natural state of equilibrium, in which supply is sufficient to meet demand in the real sector;

- D) Fiscal policy is accommodative and does not impose pinch points, such as credit crunches;
- E) The world moves more toward open trade, as barriers are reduced over time;
- F) Consumers move in line with current economic trends locally and globally, based on the most current data and trends i.e consumer confidence indices, etc.
- G) Government policy continues to move along its recent path in terms of action and response — based on the most current data and trends.
- H) Investment continues to move along the expected trends based on recent history.
- I) Trade continues to follow the path of economic conditions locally and globally.
- J) Exchange rates move to their natural free-market levels based on economic growth, inflation, and relative interest rates.

Worst Case Scenario

In the “Worst Case” scenario we assume that we have sufficiently accessed the country/regions’ normal economic conditions and special issues in the “Most Probable” case, so for alternative scenarios we focus on the variation of the impact of economic structural adjustments and the impacts of the terrorist attacks. For the **Worst Case scenario**, such impacts will result in a lower real GDP growth and higher inflation, which in turn results in higher international commodity prices.

Because the economic structural adjustments begin and are the strongest in the United States, and the terrorist attacks unfortunately were also on the US, in the worst case scenario the heaviest setback is seen in the US. Other country/regions will receive the negative impact through their international trade and industry linkages with the US. We rank all other country/regions according to their international trade and industry linkage with the US, ranging from the strongest (Mexico, Canada, Japan, Germany, etc.), to the weakest (Russia). The magnitude of real GDP growth could decline from the baseline forecast in the order this rank. In 2002, US real GDP growth could decline by 2.4% from the “Most Probable” case, Japan by 2.3%, and for Russia it could decline by 0.6%. We also consider exceptions to the trade and industry linkage with the US. For example, for the Other India Subcontinent region, which excludes India and Pakistan but includes Afghanistan, we estimate the impact of the on-going antiterrorist war. For Egypt, we estimate the impact of terrorism on its vital tourism industry. For these countries real GDP growth could decline by 2.5% or more from the forecast in the Most Probable case.

In such a serious situation, lowering interest rates to stimulate economy and the destruction of productivity can cause inflation and in turn higher international commodity prices. But the worst case is that, if the antiterrorist war does not go as well as expected and causes an instability in the Arab world, it will cause a panic on crude oil supply and in turn higher oil prices. In this case, we would anticipate that the price growth of energy commodities could be 3.5% faster than the forecast in the “Most Probable” case. But for other commodities, such as electronics, the price hike from the “Most Probable” forecast could be less than 1.5%, due to weak demand.

Additional Assumptions in the **Worst Case**:

- A) Consumers are pessimistic about economic conditions.
- B) Governments react slowly to accelerate growth.
- C) Investment slows inline with decreasing investor confidence and other macroeconomic conditions.
- D) International trade moves in line with slower economic conditions globally.
- E) Total factor productivity grows slowly.

Best Case Scenario

Though the US is the origin of this economic shock, it is also the largest locomotive for the world economic recovery. In the **Best Case**, we assume that the antiterrorist war is effective, and US public confidence on economic recovery is fully resumed. This will allow economic structural adjustments to complete their own course by the beginning of 2003, and the US economy will gradually resume its normal growth momentum under a balanced economic structure. The magnitude of this momentum transmitted from the US to other country/regions also will follow the strength of these country/regions' international trade and industry linkage with the US. In 2002, US real GDP growth is higher by 0.63% compared with its forecasts in the Most Probable case, Japan by 0.61%, and for Russia it will be 0.4% higher.

When the economy resumes its momentum, there is no pressure for further interest cuts to stimulate it. The inflation risk becomes lower. When the antiterrorist war is effective and the Arab world is more stabilized, there will be no panic in oil supply and we do not expect international energy prices to change much from the baseline forecast. For manufactured products, especially high-tech products, we expect that investment in R&D will resume its normal share after the completion of economic structural adjustments. This will result in higher productivity and we can expect that the growth of international prices of these commodities will decrease by about 0.5% from the baseline forecast.

Additional Assumptions in the **Best Case** scenario:

- A) Consumers are optimistic about economic conditions.
- B) Governments react positively and promptly to accelerate growth.
- C) Investment continues to be funneled into the economy with increasing confidence.
- D) International trade moves in line with rising economic conditions globally.
- E) Total factor productivity advances slightly faster so incomes grow more quickly, *ceteris paribus*.
- F) Energy prices move along the forecasted path.

Long Term (2006 and Beyond)

From 2006 to 2025 the immediate impact of economic recession and terrorist destruction will gradually fade away. Starting in 2006, the global economy will resume its long-term development path. For the long term, the "Most Probable" case scenario forecast a country's

economic growth based on the development of its normal economic and demographic conditions. For the alternative global trade scenarios, we assume that the development of the country's demographic conditions are the same as in the "Most Probable" case scenario, and focus on the alternative forecasting of economic development. When demographic conditions and labor force conditions are given, productivity becomes the key factor in determining economic and in turn international trade growth. Our macro economic assumptions for alternative global trade forecasting are based on our alternative assumptions of productivity evolutions across countries and commodities.

For the long term we rank the countries from high to low ability in technology R&D and its adoption. This ranks the US among the highest and regions in Africa among the lowest. We expect that, for the "Worst Case" scenario, the productivity drop from the baseline for country with higher ability will be smaller than for a country with lower ability. For the best scenario, the productivity rise from the baseline for a country with higher ability will be greater than country with lower ability. Therefore, in the worst scenario, real GDP growth in the US could drop by 0.5% from the forecast in the "Most Probable Case", but for regions in the backward Africa regions it could drop by as much as 1%. Conversely, in the "Best Case" scenario, real GDP growth in the US could rise by 1% from the baseline forecast, but for Africa regions it could only rise by 0.5%.

Productivity also affects commodity prices. Since the beginning of the 1990s, the growth of international prices for manufacturing goods has been slowing substantially. For some high-tech goods, the price has been declining. These effects are mainly due to high productivity growth in these industries. But we also realize that, in the 1990s, high-tech firms used investors' money to subsidize their price competition, which later became investors' big losses, as we have seen. Having learned this lesson, we do not expect that investors will continue to provide that kind of subsidy, and we expect that the growth of manufactured goods prices will not decline as fast as in the 1990s. For the "Best Case" scenario, we assume that international commodity prices will grow at a rate that is still slower than it was before the 1990s, but faster than in the 1990s and the "Most Probable" forecast. For the "Worst Case" scenario, we assume that the growth of international commodity prices is slower than the "Most Probable" forecast, but is not as slow as in the 1990s. This is the assumption for manufactured goods. Over all, we group the 77 commodities in the order from more natural-resource-constrained and less natural-resource-renewable to less natural-resource-constrained and more natural-resource-renewable, and from low tech to high tech. Along this order, their prices vary from growing the fastest to the slowest for both the "Worst Case" and "Best Case" scenarios. It should be mentioned that international energy prices are frequently affected by both economic and political struggles in the international arena. In turn, energy prices are a major source of risk for the forecast.

To sum up, comparing with the most probable case scenario, in the "Worst Case" scenario we assume a lower real GDP growth and higher commodity price growth, while in the "Best Case" scenario we assume a higher real GDP growth and lower commodity price growth. Because import elasticity is positive with respect to real GDP and negative with respect to commodity price, we can expect that in the "Worst Case" scenario international trade will grow slower than in the "Most Probable Case" scenario, and in the "Best Case" scenario, trade will grow faster. However, this strictly refers to international trade as measured in real commodity terms. (If measured in nominal value, the volume of international trade in the

“Worst Case” scenario would be larger than that in the “Most Probable” case and “Best Case” scenarios because it is measured in higher prices. However, we always look into the real value to see the real development.)

For the international trade scenarios, no changes were made in drivers at the trade level. It should be noted that it was assumed that there are no constraints on the future levels of economic-derived international trade – in effect, the trade projections represent the demands for each commodity group, and this demand will be satisfied from supplier nations without any outside-imposed restrictions.

Probabilities

Assigning probabilities to the economic and trade results of a set of assumptions is more an art than a science, even when the results are derived from a set of rigorously estimated, proven econometric models. Many events cannot be captured statistically in such models. Indeed, the terrorist attacks in the U.S. in September 2001 are a good and poignant example of this fact of economic forecasting. Also, the historical variation in any particular economic variable, such as labor productivity or commodity prices, is not necessarily a good guide to future variation and, therefore, may not be usable to estimate future probabilities within some predefined range.

The probability of a particular scenario occurring is an estimate of the likelihood that the general economic picture portrayed in the model output will come true. Of course, the likelihood that every variable in the model will assume the precise value displayed in the output files, for every year of this 25-year forecast, is almost zero. Therefore, it must be realized that the probabilities assigned to the scenarios for this study are used more as *ordinal rankings* of the scenarios than as exact probabilistic estimates. The probabilities were set based on the considered opinion and experience of the economists who compile the economic data, review each country's economic and political landscape, and run the models by making critical assumptions about key economic drivers.

Also, we must constrain the sum of the probabilities to be 100% since we are examining three outcomes that are mutually exclusive.

The scenarios developed for this project for the Panama Canal have the probabilities shown:

Scenario	Description	Probability
Most Probable Case	A long-term forecast of the major economies and key variables under the assumptions	60%
Worst Case	A long-term forecast using assumptions of weaker growth in key economic areas, such as productivity	25%
Best Case	A long-term forecast using higher growth assumptions for key areas of each economy	15%

As a result, the study provides a comprehensive set of expected macroeconomic conditions for each country along with plausible alternatives that serve as the upper and lower bound for a particular point forecast. The resulting trade scenarios have the same probabilities by default since no changes in the assumptions were made at the level of international commodity trade.

Selected Results

The study provides us with a way to evaluate the possible growth trends for a particular country or region, and to visualize the possible trade opportunities existing along these macroeconomic paths. For example, between 2000 and 2025, we expect compound annual growth for GDP in the U.S to escalate annually by 3.1% in the “Most Probable Case”, by 2.5% in the “Worst Case” and by 4.0% in the “Best Case.” By the same token, Japan’s GDP is expected to grow by 1.8% per year in the “Most Probable Case” by 1.3% in the “Worst Case” and by 2.7% per year in the “Best Case”. In the “Most Probable Case”, the fastest growing economy in real 1995 dollars is expected to be China, which will grow by 7.3% per year between 2000 and 2025, followed by Chile and Taiwan, which will expand annually by 5.6%, and 5.5% respectively. The slowest growing economy in the “Most Probable Case” will be Japan, which shows an overall annual growth rate of 1.8% between 2000 and 2025, followed by Italy and the UK, which are expected to grow annually by 2.2% and 2.3% respectively during the same period.

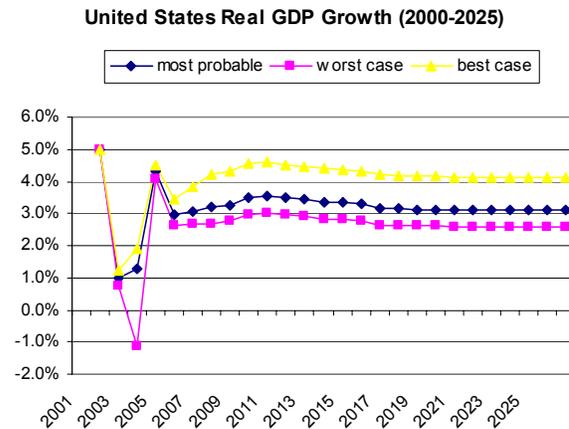
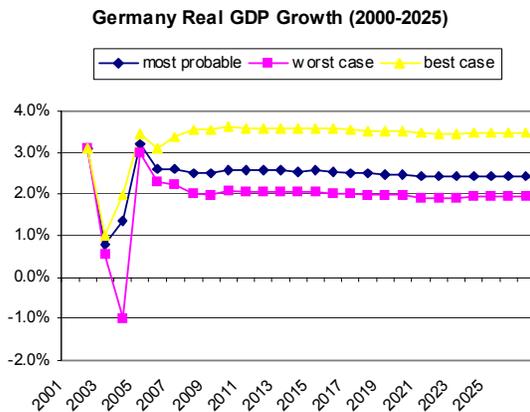
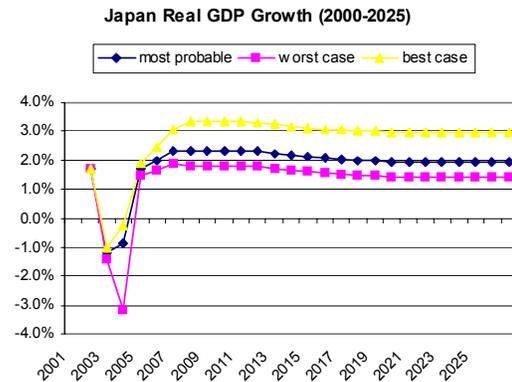
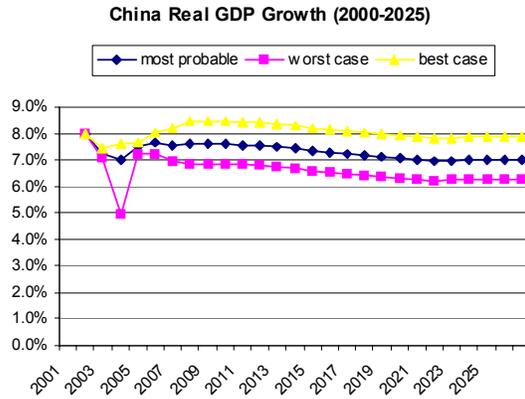
In the “Best Case” forecast, the fastest growing economies between 2000 and 2025 will be China, Taiwan, and Ecuador, which will be expanding annually by 8.0%, 6.2%, and 6.1% respectively. At the same time in the “Best Case” the three slowest growing economies will be Japan, Italy, and the UK, which will expand annually by 2.7%, 3.0%, and 3.2% in the same period respectively .

REAL GDP GROWTH			
Compound Annual Growth Rate 2000-2025			
Scenario			
Country	Most Probable	Worst	Best
US	3.1%	2.5%	4.0%
Japan	1.8%	1.3%	2.7%
China	7.3%	6.5%	8.0%
Germany	2.4%	1.9%	3.3%

Source: DRI-WEFA Inc.

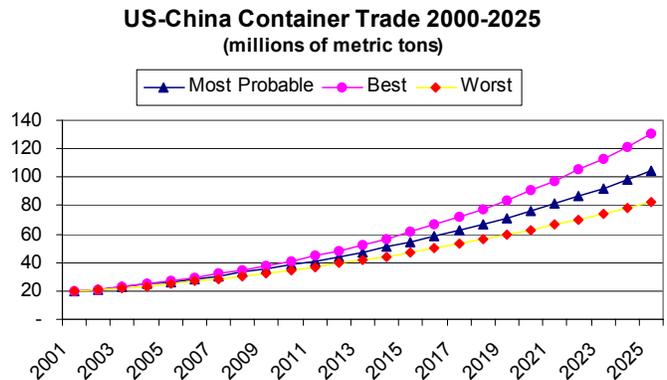
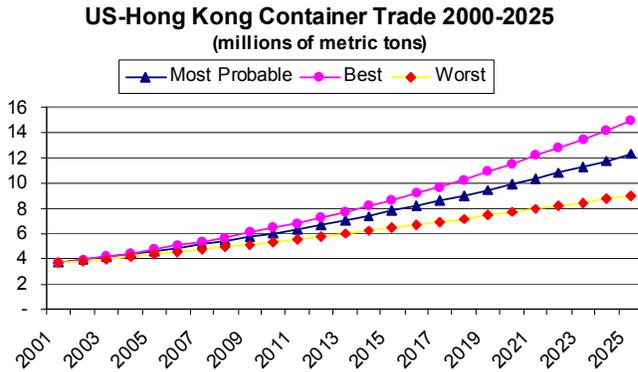
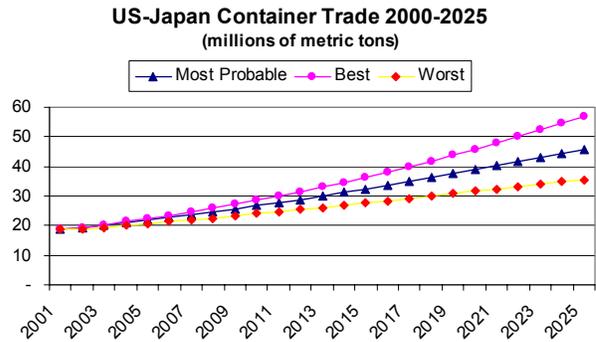
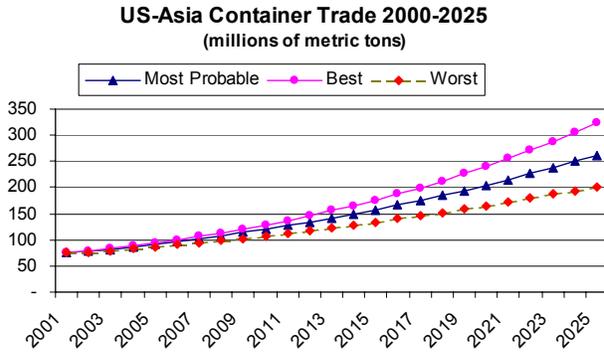
In the “Worst Case” forecast, the fastest growing economies will be China, Taiwan, and Chile, which will expand annually by 6.5%, 4.7%, and 4.6% per year respectively. On the other hand, the slowest growing economies will be Japan, Italy, and the UK, which will grow between 2000 and 2025 by 1.3%, 1.6%, and 1.8% respectively.

From these scenarios, DRI•WEFA ran its world trade model to obtain the possible scenarios for trade in commodities. One important commodity that has important implication for the canal is containerized cargo. Looking at total trade in containerized cargo between 2000 and 2025 in the “Most Probable Case” we expect that total trade (in metric tons) between the U.S. and Asia will expand by 5.2% per year and reach 261.6 million metric tons by 2025. In the same period, total trade between the U.S and China will rise annually by 7.0% and reach 104.1 million metric tons. Between 2000 and 2025, total trade between the U.S and Hong Kong will escalate by 4.9% per year and reach 12.3 million metric tons, while that between U.S. and Japan will advance by 3.7% per year and reach 46.0 million metric tons in 2025.

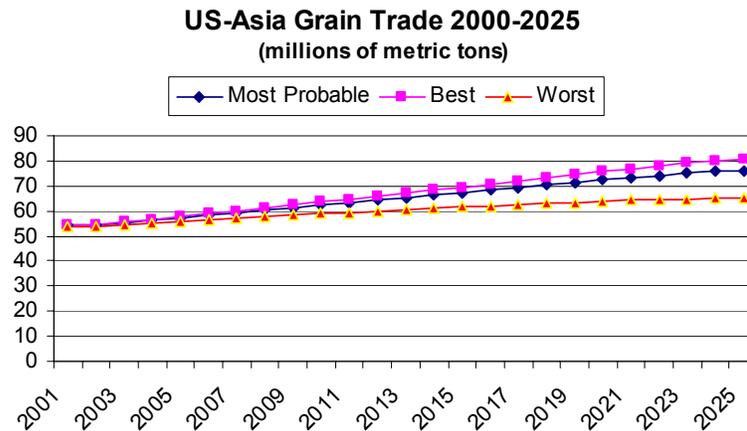


Containerized Trade		Annual Average Growth			
Total Trade	Scenario	2001-05	2005-2010	2010-25	2000-25
US-ASIA	Most Probable	5.1%	5.6%	5.3%	5.2%
US-ASIA	Best	5.7%	6.5%	6.4%	6.1%
US-ASIA	Worst	3.8%	4.5%	4.3%	4.1%
US-CHINA	Most Probable	7.4%	7.6%	6.9%	7.0%
US-CHINA	Best	8.0%	8.7%	8.0%	8.0%
US-CHINA	Worst	6.1%	6.6%	5.9%	6.0%
US-HONG KONG	Most Probable	5.4%	5.6%	4.8%	4.9%
US-HONG KONG	Best	5.9%	6.4%	5.8%	5.7%
US-HONG KONG	Worst	3.9%	4.2%	3.5%	3.6%
US-JAPAN	Most Probable	3.7%	4.1%	3.7%	3.7%
US-JAPAN	Best	4.2%	5.0%	4.7%	4.6%
US-JAPAN	Worst	2.4%	3.0%	2.6%	2.6%

Source: DRI-WEFA

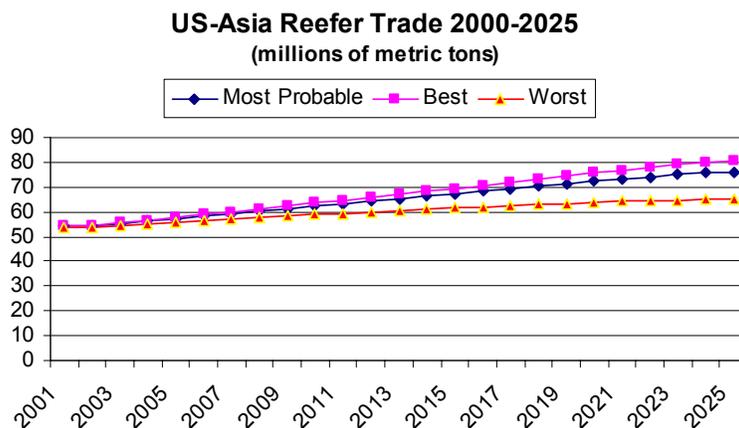


Another commodity that is also important for the Panama Canal is Grain. One trade route that impacts the canal is that between the U.S. and Asia. In the “Most Probable Case”, total trade in grain between the U.S and Asia will grow annually by 1.4% per year and will reach 76.2 million metric tons in 2025, while in the “Best Case” total trade will expand annually by 1.6% per year and reach 80.8 million metric tons. In the Worst Case, total trade between U.S and



Asia will expand by 0.7% per year and will reach 65 million metric tons by 2025.

Finally, another significant commodity for the canal is refrigerated goods (reefer), which include fruits and other perishable goods. One particular trade route affecting the canal is that between Ecuador and the U.S. Most of this trade is bananas, but there are other agricultural products as well. In the “Most probable Case”, total trade between the U.S and Ecuador in refrigerated goods between 2000 and 2025 will expand by 3.7% per year and will reach 3.5 million metric tons. In the “Best Case” it will rise by 4.1% per year during the same time period and will reach 3.6 million metric tons in 2025. Finally, in the “Worst Case”, total trade between Ecuador and the U.S. will expand by 2.7% per year and will reach 2.6 million tons in 2025.



Section V Includes the individual executive summaries from the three scenarios. These are repeated in each of the more detailed expositions of the “Most Probable”, “Worst Case”, and “Best Case” scenarios.

Most Probable Case

World Macroeconomic Outlook

The **most probable case**, which is presented in this Volume I of the report, is built on the following assumptions:

- The existing (November 2001) DRI•WEFA short-term most probable case forecast is assumed to hold through 2006;
- Any cyclical or other patterns seen in the short-term forecast (2006) are not assumed to continue in the longer term;
- Each of the economies trends toward its natural state of equilibrium, in which supply is sufficient to meet demand in the real sector;
- Fiscal policy is accommodative and does not impose pinch points, such as credit crunches;
- The world moves more toward open trade, as barriers are reduced over time;
- Exchange rates move to their natural free-market levels based on economic growth, inflation, and relative interest rates.

The last two decades of the 20th century witnessed vast changes in political structures and economic institutions across the globe. Political challenges to post-World War II policies and policy mechanisms resulted in a redefinition of social agendas, a redistribution of political power, and a reorganization of economic institutions. In the dawn of the new century, momentum continues to drive the world towards fundamental social and economic change. Europe is proceeding towards full union and will welcome Eastern European members over the next decade. Russia continues to struggle, but, nonetheless, treads the path of economic liberalization. Asia appears to be recovering from a period of structural weakness and speculative excess and is climbing back to its pre-crash growth path. Latin America, still working through political reform and currency distress, is committed to liberalization. Africa, under the guide of the IMF, is gradually implementing structural reforms, while the Middle East is just beginning to see pockets of change.

Increasingly, governments have moved to decentralize political power and budgets, to privatize state assets, and to open borders to trade in goods, services, and capital. Stimulated by liberalization, old industries have restructured, and new industries have begun to develop. Both have boosted economic growth and personal wealth. Yet, in the aftermath of this rebirth, the new century poses new difficulties, due also to these structural realignments. Political and economic change has engendered a good deal more economic uncertainty. The struggle for freedom and more democracy has led to armed struggles in many less developed regions. Increased trade liberalization has brought much growth to the economies of developed countries in the West, just as it has provided a new source of economic well being in less developed countries. Yet, legitimate concerns for the environment, equity in labor markets, and improved corporate governance have found alliance with the protectionist bogeyman. The

huge technological advances that have fueled so much of the world's growth have raised concerns about increasing distribution problems across nations and income groups within nations. Indeed, parts of Africa, the Middle East, the Balkans, and south Asia are riddled with political, religious, and ethnic conflicts. In parts of Africa and Latin America, the high debt burden is a major problem that continues to frustrate the reform effort. Debate among developed countries continues on which economic model is optimal—the Anglo-Saxon free-market approach, or the continental European model. So, as we survey prospects over the first two decades of the new century, we recognize that the broad movement towards the dominance of capitalism, liberalized markets, democratic institutions, and expanded trade will not be without difficulties.

From an economic forecasting perspective, there are three major global trends that relate the experience of the last two decades to the next two decades: globalization, economic and political convergence, and falling population growth rates. Globalization is a much-discussed term, but in the context of a long-run projection, it refers to increased trade and, hence, increased interrelations between the economies of the world. The increased number of trade alliances, the rising volume of trade, the lowering of tariffs and non-tariff barriers, the growth of international capital flows, and the increased size and global perspective of multinational corporations are all manifestations of globalization. As technology and transportation services improve, the process of globalization will only accelerate.

One consequence of globalization is the convergence of economic and political systems. The process of convergence has begun and is likely to accelerate along with globalization over the next two decades. On the economic side, income levels are beginning to converge. Since labor is not as mobile as equipment, investment is flowing into those areas of the world that are poor in capital, but rich in labor, and offer a stable economic environment. The capital and technology flows into these poorer regions of the world stimulate economic growth in the near term with expectations of further economic development. Growth in total output of goods and services has been faster in Latin America and Asia over the past ten years than in the industrialized world. This trend is expected to continue over the next 25 years, with growth in real gross domestic product (GDP) averaging 4.0% in Latin America and 5.7% in Asia outside of Japan, but only 2.4% in Europe, 2.7% in the United States, and 2.1% in Japan. Although population and labor force growth is more rapid in these regions than in the industrialized nations, real GDP per worker is still expected to grow more quickly in the developing countries. Thus, levels of productivity will converge across countries, and it is this that drives the income convergence.

From a political standpoint, monetary and fiscal policies and, to some extent, political systems are converging. As a consequence of the increasing globalization of financial markets, more countries are establishing independent monetary authorities whose primary goals are to control inflation. Even China is adopting a central banking system modeled on the Federal Reserve in the United States. Mainstream approaches argue that international capital tends to flow into countries that have stable and independent monetary systems. On the other hand, hyperinflation tends to push capital out of a country. Fiscal policies are converging towards more conservative spending and taxing policies with a low deficit-to-GDP ratio, driven by institutional arrangements in Europe (through EMU's growth and stability pact) and the IMF, as a condition for structural adjustment loans. Whereas the punishment for rising inflation from international capital flowing out of a country can be quite swift, the penalty for a lack of

fiscal discipline is not so clear. Excessive government borrowing—which usually stimulates growth in the short run—often leads to extreme asset valuations, high inflation, and/or inordinate external borrowing. Ultimately, the economy must slow, often abruptly and for a prolonged period, to adjust and restructure for growth. The benefits of prudent fiscal policy are becoming more widely learned, reinforcing the tendency in other countries. Global competition ensures that countries with immoderate fiscal policies are eventually punished.

As we have seen in recent years, economic interdependence, and financial integration in particular, is not necessarily a win-win situation. This has been most acutely so in developing countries in which there are newly created, but thinly traded, capital markets. Capital movements, large in relative size and swift in response to real-time news, have created a substantial degree of currency instability in world markets. Indeed, the economies of Southeast Asia nearly collapsed during the financial crisis of 1997–98, and if not for fast global intervention, U.S. and European financial markets would have been endangered. More recently, Turkey faced a similar financial crisis in December of 2000 and had to be rescued by the IMF. The crises in Southeast Asia and Turkey have demonstrated that investors will punish those economies that fail to reform and create more transparent and less corrupt political institutions. As a result, both developed and developing nations have been forced to adjust their monetary policies in response to global financial crises created in the wake of free and fast moving capital flows. Hence, as the world’s political and economic institutions evolve in this new era, they will need to address how global imbalances can be adjusted with a minimum of financial instability.

Labor force growth rates are also declining, but not as rapidly as population growth. As the labor market tightens with the slowing rate of labor supply, wages are bid upward. (This is true in developed countries, but not in developing countries. In developing countries, there is still a large surplus of labor. The tight labor market in developed countries does not necessarily lead to higher wages because the governments often remedy the problem by importing migrant workers.) Rising real wages bring more workers into the labor force, pushing up the participation rate—the percentage of people in the labor force relative to the working-age population. Rising real wages must be paid for with gains in productivity if the country is to remain competitive. Companies worldwide are continually making decisions on the trade-off between capital equipment and labor. Rising real wages push them towards more capital-intensive production techniques and, hence, higher output per employee.

This volume provides details of DRI•WEFA’s latest long-term projection for the world economy, which is an extension of our medium-term forecast through 2006. The medium-term forecast is from our January 2001 edition of the *World Economic Outlook*. The forecast is essentially a trend growth scenario containing no business cycles other than those that were incorporated into the medium-term forecast. For the period from 2007 to 2020, the forecast does not explicitly account for supply or demand shocks, such as wars, commodity price hikes, or abrupt policy adjustments, which traditionally have been prime causes of business cycles. The projections are based on certain core assumptions about demographic trends, productivity growth, economic policy, exchange rates, and commodity prices. These assumptions are discussed in detail in the text that follows.

Demographic Developments

World population growth is forecast to slow to 1.1% per year over the period 2000–25, from 1.5% per year over the last ten years. Africa and South Asia are expected to continue to show the highest rates of growth, averaging 2.4% and 1.5% per year, respectively, while population growth in the OECD area is forecast to subside to only 0.5% per year. Within the OECD area, Europe will experience the slowest rate of expansion, with three countries—namely Germany, Greece, and Italy—are expected to register an absolute decline in population.

Rising participation rates, particularly among women, will partly offset the impact of slower population growth on labor supply in the European economies. Male participation rates have declined over the past decade in most OECD countries, mainly due to the withdrawal from the labor market of elderly workers, induced by relatively high unemployment and an expansion of early retirement schemes. However, female participation rates have continued to rise. There is still considerable scope for further increases in female participation rates in most European countries. With the exception of the Scandinavian countries, the female participation rate in Europe is presently below the North American countries. For the male population, there is less disparity in the participation rate between countries, with virtually all groups from ages 25 to 54 registering close to 90% participation. The following table, **Labor Force Participation Rates**, shows the rise of labor force participation across the forecast horizon.

Labor Force Participation Rates

Country	2000	2010	2025
United States	67.1	68.8	71.5
Canada	65.9	66.1	67.4
Japan	62.3	62.1	61.0
Germany	75.4	76.2	77.7
France	67.9	73.9	87.1
Italy	59.2	63.2	67.7
United Kingdom	79.5	78.5	77.8
Australia	72.2	73.0	74.5
Austria	70.4	72.3	74.5
Belgium	63.4	65.1	68.9
Denmark	81.3	82.0	84.3
Finland	74.8	79.6	88.1
Greece	62.0	64.0	68.0
Netherlands	67.0	72.4	78.0
New Zealand	76.1	81.7	85.9
Norway	81.5	82.1	83.6
Portugal	70.1	73.5	78.3
South Africa	35.1	36.4	39.9
Spain	51.1	53.0	56.3
Sweden	75.9	77.4	80.4
Switzerland	73.4	75.0	78.2
Turkey	52.4	57.1	70.5

Source: DRI•WEFA, government data from the individual countries, OECD

In addition to the impact on labor force growth, the projected demographic changes will also influence other aspects of economic performance. Lower population growth in many of the industrial economies will be accompanied by an aging of the population. The share of the population aged 65 and over will rise in all countries, but Japan will experience the largest increase—from 14% of the total in 1997 to more than 24% by 2025. Most European economies will have a higher proportion of elderly in the population in 2025 compared to the present. Close to 20% of the population in Italy, Germany, Denmark, Sweden, and Switzerland will be over 65 years of age by the end of the forecast period. By contrast, the proportion of elderly in North America will be 15% by 2025.

The increase in the share of the elderly in these countries may lead to a decline in private savings rates, since the elderly tend to spend a larger proportion of disposable income and exert upward pressure on real interest rates. The relatively high reliance of the elderly on publicly provided social expenditures, especially pensions and health, will also tend to boost government spending in most OECD countries. The additional resources required by older citizens will, in some cases, be offset by a decline in the requirements of young dependents. For example, the total dependency ratio (i.e., the population under age 15 and over 64 as a proportion of the population aged 15 to 64) is expected to rise for most industrialized countries during the forecast period. The exceptions, where the rate is stable or even falling, are the United States (falls from 53% in 1997 to 50% in 2019), New Zealand (unchanged at 52%), and the United Kingdom (falls from 55% to 54%). France and Norway will see small increases, from 53% to 54% and 55% to 56%, respectively. The ratio is projected to rise quite sharply in the other G7 economies, with Japan (from 44% to 65%) expecting the steepest rise.

Productivity

Growth in economic activity can be attributed to two factors: an increase in total hours of employment and a rise in the productivity of each worker. Productivity, which is measured as total output divided by total number of hours of work for the entire labor force, is an important indicator of the health of a national economy. In advanced economies, growth of the labor force has slowed significantly in recent years as a result of declining population growth and retirement of older workers. Consequently, improved productivity through innovation and technological advances was the key contributor to economic growth.

The main sources of labor productivity growth are capital deepening and increases in multi-factor productivity. Capital deepening simply means an increase in the quantity of capital per unit of labor. Multi-factor productivity (MFP) captures the disembodied technological and organizational improvements that increase output for a given amount of various inputs. Recent technological innovations in the field of information technology, such as access to the Internet and more efficient database management systems, are two good examples of improvements in MFP during the 1990s. For most of the OECD countries, the advances in information technology (IT) were the most important source of productivity growth in the second half of 1990s.

In the United States, the productivity growth rate increased by 1% in the second half of the 1990s compared to the first. Economists have tried to determine the source of this higher productivity, and there are strong indications that information technology (IT) and related innovations have played a key role in explaining this extra 1%. Most studies attribute between one-half and three-quarters of a percentage point to IT. Some studies have also shown that multi-factor productivity growth, which captures some aspects of IT, technology plus many other factors, accounts for between 25% and 100% of this additional 1%. Between 1999 and 2000, labor productivity in the United States grew by 4.2% and 7.1% in the business and manufacturing sectors, respectively. Within the manufacturing sector, productivity grew fastest in the durable goods sector, which includes the IT equipment. The durable goods sector enjoyed a 10.5% increase in productivity, while the growth in the non-durable goods sector was only 3.2%.

During the last quarter of 2000, as the U.S. economy slowed, there was a visible decline in the rate of growth of productivity. On a quarter-over-quarter annualized basis, productivity in the last quarter was 3.1% and 5.3% in the business and manufacturing sectors, respectively. Furthermore, most of these positive growth rates were due to a decline in hours of work rather than an increase in output, as hours of work declined by 2.2% and 6.7% in the business and manufacturing sectors, respectively.

The higher productivity growth rates in the second half of the 1990s in the United States have also been registered in other OECD members. The most recent comparative OECD data on productivity show that during 1996–99 Ireland, Finland, Australia, and the United States enjoyed the highest rates of productivity growth (as well as output growth) among OECD members. Furthermore, in these countries, multi-factor productivity growth accounted for a much larger share of total productivity growth as compared to capital deepening. This provides further evidence of the sizable contribution of information technology to productivity.

Increased use of computers, telecommunication devices, and the internet has increased labor productivity through three channels. First, rapid increases in productivity of industries that produce IT products led to a sharp decline in their market price and added to economy-wide productivity. Second, strong investment in IT increased capital deepening, which resulted in a higher capital/labor ratio in OECD countries. Third, the widespread use of IT led to positive spillover effects (i.e., returns on investment in IT for each firm have been higher because a large number of other firms have made similar investments). For example, as the Internet expands and more resources become available on the Web, return on Internet-related investment increases.

In 1997, expenditure on information and telecommunication technology exceeded 5% of GDP in every advanced OECD country other than Italy and Spain. During the 1990s, for G7 countries as a group, the share of IT investment in total investment rose steadily. The share of IT in non-residential gross fixed capital formation in the United States rose from 8.7% in 1990 to 13.4% in 1996. Comparable figures for (Western) Germany were 3.5% and 6.1%, respectively. The United States remained the leader in IT investment during the 1990s. Furthermore, due to rapid productivity growth in the IT sectors, the price of IT equipment declined steadily over the last two decades. During the 1990–96 period, the comparable IT equipment price index dropped by an average of 10% per year in the G7 countries.

As mentioned earlier, multi-factor productivity (MFP) has been an important contributor to overall productivity growth in OECD countries. In the United States, MFP growth has been on a rising trend since 1979, and remained above 1% per year throughout the 1990s. For other advanced economies, MFP growth rates rose by at least 0.5% in Australia, Canada, Denmark, Finland, Norway, and Sweden during the same decade.

Economists in recent years have tried to identify the factors that lead to higher MFP growth. Evidence from the OECD nations has identified several important causal links. One of the most important factors is research and development (R&D). OECD data show a positive correlation between business R&D intensity and MFP growth. Furthermore, the statistical correlation between these two variables increased from 0.3 in the 1980s to 0.79 in 1990–98 period, indicating that R&D has become a more important factor.

Another important factor that influences MFP is the burden of administrative regulation. Evidence for OECD countries shows that the increase in productivity growth during 1990–98 compared to 1980–90 was larger in countries that had less administrative regulations. For instance, in the United States and the United Kingdom, it takes one to two working weeks to complete the administrative work for setting up a new business. The same process might take months in Spain and Italy. An important area shown to have a strong impact is employment protection regulations. In countries where the labor market is highly flexible and firms can adjust their labor force without restriction, such as the United States, Canada, Australia, and New Zealand, the increase in MFP growth has been greater than other OECD economies.

In the long run, productivity growth is expected to increase, but there is concern that in the short run poor equity market performance in the United States could adversely affect investment in new equipment and R&D. This is particularly relevant to “New Economy” activities related to information technology. Strong interest worldwide in IT firms led to the rapid rise of equity stock prices between July 1999 and January 2000, which changed the pricing behavior of IT and non-IT stocks. The current decline in the prices of IT stocks has had a negative wealth effect at the global level. Investor interest has declined, and many IT

firms, particularly Internet start-ups, have faced financial difficulties. This investor pessimism will make it more difficult for firms to finance new IT investments.

Other factors have also been put forward to explain the rise in productivity growth over the past decade, which went beyond the technology transfer model. Proponents of the new growth theory suggest that more emphasis should be given to knowledge accumulation and learning rather than merely to capital accumulation. Indeed human capital, not just physical capital, is a critical element to contemporary thinking. This is an important idea in that even if a technology is transferable, it may not be appropriate to a country until a certain level of development has been achieved. That is, unless the skills in the workforce are sufficiently matched to the technique, it may be difficult to achieve an increase in productivity. Finally, there may be a variety of institutional impediments to raising productivity, including a lack of openness in trade, poor governance, or an inadequate social infrastructure.

GDP Per Employee (% Growth at Annual Rates)

	1961-70	1971-80	1981-90	1991-00	2001-10	2011-25
US	2.3	0.8	1.4	2.1	1.8	1.7
Canada	2.7	1.0	1.0	1.4	1.4	1.3
Japan	8.7	3.8	2.9	1.1	2.3	1.5
Germany	4.3	2.6	1.7	-0.1	2.2	2.4
France	4.9	2.8	2.0	0.9	3.6	1.7
Italy	6.3	3.0	1.8	1.6	1.5	1.9
UK	2.6	1.8	2.0	2.2	2.2	1.5

Economic Policy

In our simulation, fiscal and monetary policy instruments have been set on paths that are broadly compatible with a gradual correction of internal and external imbalances, enabling economies to generally expand in line with potential growth over the long term. The 1980s saw a shift in the focus of fiscal policy in many industrial economies away from short-term demand management toward longer-term goals of reducing fiscal imbalance and the public sector's share of the economy, thereby releasing resources to the private sector. A key assumption here is that those countries with large budget deficits or high public-sector debt-to-GDP ratios will continue to take steps to try to improve their fiscal position, primarily by reining back the growth of public expenditure.

Monetary policy is expected to remain the key to controlling inflation, and policy assumptions are set to generate success to one degree or another. Hence, there is a general tendency for inflation to moderate in all the countries, particularly the industrial economies. The following countries are currently in the European Monetary Union (EMU): Austria, Belgium, Finland, France, Germany, Greece, Ireland, Italy, Netherlands, Portugal, and Spain. We anticipate that the United Kingdom, Sweden, and Denmark will join the club over the next ten years, and we may well see some of the new East European countries join EMU as well over the same period.

Coordination of economic policies among the governments of the G7 remains only moderately successful. The completion of the Single Market in the European Union; the Free Trade Agreement between the United States, Canada, and Mexico; and the strengthening of cooperation within the ASEAN bloc will reinforce regional links at the expense of non-participants. However, the GATT accord has reduced the risk that regional integration could pave the way for the creation of tightly closed and antagonistic blocs. Despite the emergence of trading blocs, the general trend in government policy is toward the reinforcement of market forces and a reduction in government intervention in the economy. This trend is obviously apparent in the former communist countries of Eastern Europe, which have gradually moved to a free market economy in preparation for potential EU membership. In the United States, the business sector, under pressure from Japan and the dynamic ASEAN economies, will again demonstrate that its great strength lies in the free market. The Southeast Asian Pacific region is also expected to open up, particularly with respect to liberalization of trade in merchandise and services, and capital transactions.

Exchange Rates

Contrary to everybody's expectations, the euro has been a major disappointment to date. Since February 2000, the euro broke through the parity against the dollar—a degree of weakness not seen (if measured in DM terms) for the past ten years. Euro weakness reflected dollar strength—the combined effect of a booming economy, moderate inflation, and an exorbitant rise in equity valuation—and even now with the U.S. economy slowing significantly, investors still expect the strong growth of recent years to return. The euro/dollar rate is not being driven by economic fundamentals at the moment, with economic growth and interest rate differentials weighing heavily in the euro's favor, Eurozone fiscal deficits shrinking, unemployment falling, and the U.S. current account balance still ballooning. When markets return to economic fundamentals, we expect to see the euro regain parity and strengthen further.

The euro was introduced at the start of 1999, and with it, in accordance with EMU agreements, a common monetary policy implemented by the newly established European Central Bank. The Eurozone countries form an economy that is larger than Japan's and only 20% smaller than the U.S. economy. As a major world currency, the euro stands to compete with the U.S. dollar and the yen for portfolio holdings and as a reserve currency as well. In any case, the long-term view of exchange rates takes explicit account of the dollar/euro relationship in which, over time, the euro appreciates against the dollar back towards its opening rate on January 1, 1999.

The yen is also expected to gradually strengthen in the future. This partly stems from the lower rate of inflation in Japan. But most of the expected appreciation arises from the gradual reduction in net capital outflows as Japan's savings rate declines in lockstep with the aging of its population.

Commodity Prices

Oil

Crude oil had enjoyed its longest price boom in more than two decades. Strong global demand and successful output control by OPEC helped push the price of oil to over \$30 per barrel in 2000. The demand was so strong that OPEC had to increase output in the second half in order to prevent the average price of the OPEC basket of crude from rising above \$28 per barrel—the target upper limit. However, as the U.S. economy slowed in the final months of last year, demand softened, and the price of oil has been on a downward trend ever since.

In response to softening global demand for oil, OPEC has reduced its output twice in 2001. This could result in a loss of market share for OPEC and make it more difficult for the cartel to reduce output further in the future. While the risk of a sharp price increase is remote, the global slowdown might become more severe and lead to a further drop in demand for oil. Under such a scenario, the downward risk to oil prices will be high.

In the medium run (2003–06), demand is expected to increase as the global slowdown comes to an end in 2002. Supply is also expected to increase as a result of the large investment in new oil fields that is currently underway. The recent price boom and OPEC's announced strategy of maintaining the price above \$22 per barrel have created a strong incentive for new investment in the oil industry. As a result, the global supply of oil will be adequate to meet the growing demand without any danger of a sharp price rise. We expect oil prices to fluctuate in the \$20 to \$30 per barrel range over the 2002–06 period. OPEC's stabilizing role will continue; although, because of its shrinking share of global output, it will be more successful in preventing sharp price increases. In the long run, we expect the growth in demand to exceed supply and lead to a gradual increase in the price of oil.

Metals

The price of most metal commodities is expected to enjoy a moderate upward trend during the next five years. In the short run, aluminum demand is expected to be lackluster, given poor market conditions in the United States and Japan. As a result, prices will remain stagnant before they begin to move up again during the second half of this year. In the long run, aluminum price growth is estimated to average between 2.0% and 2.5% per year. The market for copper and zinc has followed a path similar to that of aluminum. Copper demand was especially strong in the United States in 1999 and the first half of 2000, buoyed by a surge in construction activities. Zinc also benefited from a record increase in automobile production in the United States. The short-term outlook for those two metals is rather bearish. Like aluminum, they will begin to improve during the second half of this year. Copper and zinc prices should register growth rates similar to those for aluminum in the long run.

Agricultural Commodities

Although demand growth should be robust, global agricultural commodity prices are expected to remain weak in the short term because of large stocks, continued strong yields, and production gains in exporting countries. Supply and demand balances, in the absence of a production shortfall in a major producing area, will correct slowly. Prices and export revenues

are expected to strengthen by the end of the forecast period, due to steady growth in import demand, coupled with a reduction of global stocks. Our assumption of normal weather and yields means that prices will return to more moderate levels than the highs seen during the period 1995–97.

Due to large stocks and increasing world demand, strong growth is forecast for world agricultural trade. Despite the fact that commodity stocks diminished slightly this year, large global supplies remain. Due to excess stocks, combined with increases in world demand, strong growth is projected for world agricultural trade. Healthy economic growth rates forecast for most of Asia, Latin America, North Africa, and the Middle East support our expectation of increased world demand. Although moderate gains are expected in developed countries, strong trade growth should be supported by the relaxation of trade restrictions through ongoing unilateral policy reforms and existing multilateral agreements.

The five-year decline in cultivated crop area is expected to come to an end and increase over the long term, although about two-thirds of the area decline since 1996–97 has taken place in the former Soviet Union. Cultivated areas of the world's major crops (wheat, rice, coarse grains, soybeans, rapeseed, and cotton) have fallen steadily from their highs of 1996–97. However, declines over the 2000–2001 growing season were not as large as in preceding years. Low prices for agricultural commodities persist and have continued to take their toll, which resulted in a 5.1-million-hectare fall in major crop area in 2000. Advances in plant and farm equipment technologies will hold down the expansion of cultivated areas over the longer term.

Long-term Outlook for Agricultural Commodities

Rising demand is expected to continue over the long term, with excess supplies falling and prices recovering. Over the longer term, agricultural commodity prices are expected to recover significantly for two reasons. First, population growth will moderate only marginally; and second, GDP growth is expected to be robust in major population centers, such as China and India. Although demand for food does not grow at the same rate as income, population growth will more than compensate for the disparity in growth rates. Rising incomes will lead to an increase in consumption of meat and other protein-based products, including wheat, in China and India, as the population substitutes these products for their staple food source (rice). The resulting decline in rice consumption in these areas will, however, be met by increasing rice consumption in the West due to immigration and changing preferences. Shifting preference patterns will maintain price stability for rice. Demand for higher quality and more processed foodstuffs will rise as world GDP increases. After recovering from the livestock epidemics in Europe, rising demand for meat will drive demand for soy products and feed grains, maintaining price growth of those commodities.

Worst Case Scenario

DRI•WEFA’s “Worst Case” scenario is a comprehensive and consistent pessimistic simulation for the economies of the world. The simulation furthers the assumptions embraced in the most probable case scenario by assuming less and slower recovery cycles and lower multiplier effects of government spending throughout the economy.

Simulations of this kind, usually consist of individual changes in growth rates in the economy focusing on one economic sector or aspect. These simulations tend to lack consistency in terms of providing a full view of an impact throughout the economy. In addition, they lack robustness since these usually create imbalances in an economy and the sum of the various economic sectors would not add to the total economic effect. Our model incorporates our assumptions at the individual country level and follows the impact on each economic sector. The result is a fully comprehensive scenario that shows the various effects on each economic sector. It is measurable, and comprehensive in scope in that the model provides a full scale view of an economy with complete additive balances at each level internally within the economy and externally within major trading partners and foreign investors. These country level results are then aggregated at the regional level to provide regional estimates, and ultimately provide a full macroeconomic scenario for the world.

In providing the “Worst Case” scenario, we assume a slower recovery cycle for the driving economies of the world. Lower rates of productivity and capacity utilization along with slower fiscal adjustments and a stable natural rate of unemployment will provide an environment for relatively slow private consumption and investment. In turn, GDP should rise relatively slower in the major economies.

Slow growth rates in the major economies provide slower markets for smaller economies and provide relatively lower levels of consumption, investment, and government spending in the smaller economies. In other terms, we assume that wealth will spread from stronger economies to emerging economies at a slower rate. Since the model works one country at a time, it is able to measure directly the economic impacts on countries and their effects on their GDP and GNP. From these results, we aggregate these effects to obtain regional and world estimates.

This simulation provides a lower bound for the possible economic impacts on countries, regions, and world scenarios. This scenario should be used in conjunction with the “Best Case” scenario and the “Most Probable” case in order to obtain an appropriate range from which to gauge economic opportunities in the world. This scenario has been assigned an expected value of 25%.

Best Case Scenario

DRI•WEFA's "Best Case" scenario is a comprehensive and consistent optimistic simulation for the economies of the world. The simulation furthers the assumptions embraced in the most probable case scenario by assuming greater and faster recovery cycles and higher multiplier effects of government spending throughout the economy.

Simulations of this kind usually consist of individual changes in growth rates in the economy, focusing on one economic sector or aspect. These simulations tend to lack consistency in terms of providing a full view of an impact throughout the economy. In addition, they lack robustness since they usually create imbalances in an economy, and the sum of the various economic sectors would not add to the total economic effect. Our model incorporates our assumptions at the individual country level and follows the impact on each economic sector. The result is a fully comprehensive scenario that shows the various effects on each economic sector. It is measurable and comprehensive in scope in that the model provides a full-scale view of an economy, with complete additive balances at each level internally within the economy and externally within major trading partners and foreign investors. These country-level results are then aggregated at the regional level to provide regional estimates, and ultimately provide a full macroeconomic scenario for the world.

In providing the optimistic scenario, we assume a faster recovery cycle for the driving economies of the world. Positive rates of productivity and capacity utilization, along with prudent fiscal policies and a stable natural rate of unemployment, will provide a nurturing environment for private consumption and investment to flourish. In turn, GDP should rise fast in the major economies. Stable exchange rates and inflation differential will also encourage foreign investment and provide a healthy increase in the external sector of the economy via imports and exports. Moreover, country risk differentials and country-based comparative advantages will continue to provide opportunities to further international capital flows by encouraging foreign investment. A healthy external sector will help foreigners buy domestic commodities from abroad, preventing disruptions in exchange rates and preventing balance of payments problems.

Stronger and faster growth rates in the major economies provide greater markets for smaller economies and nurture consumption, investment, and government spending in the smaller economies. In other terms, we assume that wealth will spread from stronger economies to emerging economies as the latter improve their external sector. Stable exchange rates and inflation differentials, improved consumer empowerment and investment, along with fiscal stability, will translate into healthier growth rates for smaller economies. Since the model works one country at a time, it is able to directly measure the economic impacts on countries and their effects on their GDP and GNP. From these results, we aggregate these effects to obtain regional and world estimates.

This simulation provides an upper boundary for the possible economic impacts on countries, regions, and world scenarios. This scenario should be used in conjunction with the low growth scenario and a baseline scenario in order to obtain an appropriate range from which to gauge economic opportunities in the world. The expected value assigned to this scenario is 15%.

Executive Summary --Most Probable Scenario

World Macroeconomic Outlook

The **most probable case**, which is presented in this Volume I of the report, is built on the following assumptions:

- The existing (November 2001) DRI•WEFA short-term most probable case forecast is assumed to hold through 2006;
- Any cyclical or other patterns seen in the short-term forecast (2006) are not assumed to continue in the longer term;
- Each of the economies trends toward its natural state of equilibrium, in which supply is sufficient to meet demand in the real sector;
- Fiscal policy is accommodative and does not impose pinch points, such as credit crunches;
- The world moves more toward open trade, as barriers are reduced over time;
- Exchange rates move to their natural free-market levels based on economic growth, inflation, and relative interest rates.

The last two decades of the 20th century witnessed vast changes in political structures and economic institutions across the globe. Political challenges to post-World War II policies and policy mechanisms resulted in a redefinition of social agendas, a redistribution of political power, and a reorganization of economic institutions. In the dawn of the new century, momentum continues to drive the world towards fundamental social and economic change. Europe is proceeding towards full union and will welcome Eastern European members over the next decade. Russia continues to struggle, but, nonetheless, treads the path of economic liberalization. Asia appears to be recovering from a period of structural weakness and speculative excess and is climbing back to its pre-crash growth path. Latin America, still working through political reform and currency distress, is committed to liberalization. Africa, under the guide of the IMF, is gradually implementing structural reforms, while the Middle East is just beginning to see pockets of change.

Increasingly, governments have moved to decentralize political power and budgets, to privatize state assets, and to open borders to trade in goods, services, and capital. Stimulated by liberalization, old industries have restructured, and new industries have begun to develop. Both have boosted economic growth and personal wealth. Yet, in the aftermath of this rebirth, the new century poses new difficulties, due also to these structural realignments. Political and economic change has engendered a good deal more economic uncertainty. The struggle for freedom and more democracy has led to armed struggles in many less developed regions. Increased trade liberalization has brought much growth to the economies of developed countries in the West, just as it has provided a new source of economic well being in less developed countries. Yet, legitimate concerns for the environment, equity in labor markets, and improved corporate governance have found alliance with the protectionist bogeyman. The huge technological advances that have fueled so much of the world's growth have raised concerns about increasing distribution problems across nations and income groups within

nations. Indeed, parts of Africa, the Middle East, the Balkans, and south Asia are riddled with political, religious, and ethnic conflicts. In parts of Africa and Latin America, the high debt burden is a major problem that continues to frustrate the reform effort. Debate among developed countries continues on which economic model is optimal—the Anglo-Saxon free-market approach, or the continental European model. So, as we survey prospects over the first two decades of the new century, we recognize that the broad movement towards the dominance of capitalism, liberalized markets, democratic institutions, and expanded trade will not be without difficulties.

From an economic forecasting perspective, there are three major global trends that relate the experience of the last two decades to the next two decades: globalization, economic and political convergence, and falling population growth rates. Globalization is a much-discussed term, but in the context of a long-run projection, it refers to increased trade and, hence, increased interrelations between the economies of the world. The increased number of trade alliances, the rising volume of trade, the lowering of tariffs and non-tariff barriers, the growth of international capital flows, and the increased size and global perspective of multinational corporations are all manifestations of globalization. As technology and transportation services improve, the process of globalization will only accelerate.

One consequence of globalization is the convergence of economic and political systems. The process of convergence has begun and is likely to accelerate along with globalization over the next two decades. On the economic side, income levels are beginning to converge. Since labor is not as mobile as equipment, investment is flowing into those areas of the world that are poor in capital, but rich in labor, and offer a stable economic environment. The capital and technology flows into these poorer regions of the world stimulate economic growth in the near term with expectations of further economic development. Growth in total output of goods and services has been faster in Latin America and Asia over the past ten years than in the industrialized world. This trend is expected to continue over the next 25 years, with growth in real gross domestic product (GDP) averaging 4.0% in Latin America and 5.7% in Asia outside of Japan, but only 2.4% in Europe, 2.7% in the United States, and 2.1% in Japan. Although population and labor force growth is more rapid in these regions than in the industrialized nations, real GDP per worker is still expected to grow more quickly in the developing countries. Thus, levels of productivity will converge across countries, and it is this that drives the income convergence.

From a political standpoint, monetary and fiscal policies and, to some extent, political systems are converging. As a consequence of the increasing globalization of financial markets, more countries are establishing independent monetary authorities whose primary goals are to control inflation. Even China is adopting a central banking system modeled on the Federal Reserve in the United States. Mainstream approaches argue that international capital tends to flow into countries that have stable and independent monetary systems. On the other hand, hyperinflation tends to push capital out of a country. Fiscal policies are converging towards more conservative spending and taxing policies with a low deficit-to-GDP ratio, driven by institutional arrangements in Europe (through EMU's growth and stability pact) and the IMF, as a condition for structural adjustment loans. Whereas the punishment for rising inflation from international capital flowing out of a country can be quite swift, the penalty for a lack of fiscal discipline is not so clear. Excessive government borrowing—which usually stimulates growth in the short run—often leads to extreme asset valuations, high inflation, and/or

inordinate external borrowing. Ultimately, the economy must slow, often abruptly and for a prolonged period, to adjust and restructure for growth. The benefits of prudent fiscal policy are becoming more widely learned, reinforcing the tendency in other countries. Global competition ensures that countries with immoderate fiscal policies are eventually punished.

As we have seen in recent years, economic interdependence, and financial integration in particular, is not necessarily a win-win situation. This has been most acutely so in developing countries in which there are newly created, but thinly traded, capital markets. Capital movements, large in relative size and swift in response to real-time news, have created a substantial degree of currency instability in world markets. Indeed, the economies of Southeast Asia nearly collapsed during the financial crisis of 1997–98, and if not for fast global intervention, U.S. and European financial markets would have been endangered. More recently, Turkey faced a similar financial crisis in December of 2000 and had to be rescued by the IMF. The crises in Southeast Asia and Turkey have demonstrated that investors will punish those economies that fail to reform and create more transparent and less corrupt political institutions. As a result, both developed and developing nations have been forced to adjust their monetary policies in response to global financial crises created in the wake of free and fast moving capital flows. Hence, as the world's political and economic institutions evolve in this new era, they will need to address how global imbalances can be adjusted with a minimum of financial instability.

Labor force growth rates are also declining, but not as rapidly as population growth. As the labor market tightens with the slowing rate of labor supply, wages are bid upward. (This is true in developed countries, but not in developing countries. In developing countries, there is still a large surplus of labor. The tight labor market in developed countries does not necessarily lead to higher wages because the governments often remedy the problem by importing migrant workers.) Rising real wages bring more workers into the labor force, pushing up the participation rate—the percentage of people in the labor force relative to the working-age population. Rising real wages must be paid for with gains in productivity if the country is to remain competitive. Companies worldwide are continually making decisions on the trade-off between capital equipment and labor. Rising real wages push them towards more capital-intensive production techniques and, hence, higher output per employee.

This volume provides details of DRI•WEFA's latest long-term projection for the world economy, which is an extension of our medium-term forecast through 2006. The medium-term forecast is from our January 2001 edition of the *World Economic Outlook*. The forecast is essentially a trend growth scenario containing no business cycles other than those that were incorporated into the medium-term forecast. For the period from 2007 to 2020, the forecast does not explicitly account for supply or demand shocks, such as wars, commodity price hikes, or abrupt policy adjustments, which traditionally have been prime causes of business cycles. The projections are based on certain core assumptions about demographic trends, productivity growth, economic policy, exchange rates, and commodity prices. These assumptions are discussed in detail in the text that follows.

Demographic Developments

World population growth is forecast to slow to 1.1% per year over the period 2000–25, from 1.5% per year over the last ten years. Africa and South Asia are expected to continue to show the highest rates of growth, averaging 2.4% and 1.5% per year, respectively, while population growth in the OECD area is forecast to subside to only 0.5% per year. Within the OECD area, Europe will experience the slowest rate of expansion, with three countries—namely Germany, Greece, and Italy—are expected to register an absolute decline in population.

Rising participation rates, particularly among women, will partly offset the impact of slower population growth on labor supply in the European economies. Male participation rates have declined over the past decade in most OECD countries, mainly due to the withdrawal from the labor market of elderly workers, induced by relatively high unemployment and an expansion of early retirement schemes. However, female participation rates have continued to rise. There is still considerable scope for further increases in female participation rates in most European countries. With the exception of the Scandinavian countries, the female participation rate in Europe is presently below the North American countries. For the male population, there is less disparity in the participation rate between countries, with virtually all groups from ages 25 to 54 registering close to 90% participation. The following table, **Labor Force Participation Rates**, shows the rise of labor force participation across the forecast horizon.

Labor Force Participation Rates

Country	2000	2010	2025
United States	67.1	68.8	71.5
Canada	65.9	66.1	67.4
Japan	62.3	62.1	61.0
Germany	75.4	76.2	77.7
France	67.9	73.9	87.1
Italy	59.2	63.2	67.7
United Kingdom	79.5	78.5	77.8
Australia	72.2	73.0	74.5
Austria	70.4	72.3	74.5
Belgium	63.4	65.1	68.9
Denmark	81.3	82.0	84.3
Finland	74.8	79.6	88.1
Greece	62.0	64.0	68.0
Netherlands	67.0	72.4	78.0
New Zealand	76.1	81.7	85.9
Norway	81.5	82.1	83.6
Portugal	70.1	73.5	78.3
South Africa	35.1	36.4	39.9
Spain	51.1	53.0	56.3
Sweden	75.9	77.4	80.4
Switzerland	73.4	75.0	78.2
Turkey	52.4	57.1	70.5

Source: DRI•WEFA, government data from the individual countries, OECD

In addition to the impact on labor force growth, the projected demographic changes will also influence other aspects of economic performance. Lower population growth in many of the industrial economies will be accompanied by an aging of the population. The share of the population aged 65 and over will rise in all countries, but Japan will experience the largest increase—from 14% of the total in 1997 to more than 24% by 2025. Most European economies will have a higher proportion of elderly in the population in 2025 compared to the present. Close to 20% of the population in Italy, Germany, Denmark, Sweden, and Switzerland will be over 65 years of age by the end of the forecast period. By contrast, the proportion of elderly in North America will be 15% by 2025.

The increase in the share of the elderly in these countries may lead to a decline in private savings rates, since the elderly tend to spend a larger proportion of disposable income and exert upward pressure on real interest rates. The relatively high reliance of the elderly on publicly provided social expenditures, especially pensions and health, will also tend to boost government spending in most OECD countries. The additional resources required by older citizens will, in some cases, be offset by a decline in the requirements of young dependents. For example, the total dependency ratio (i.e., the population under age 15 and over 64 as a proportion of the population aged 15 to 64) is expected to rise for most industrialized countries during the forecast period. The exceptions, where the rate is stable or even falling, are the United States (falls from 53% in 1997 to 50% in 2019), New Zealand (unchanged at 52%), and the United Kingdom (falls from 55% to 54%). France and Norway will see small increases, from 53% to 54% and 55% to 56%, respectively. The ratio is projected to rise quite sharply in the other G7 economies, with Japan (from 44% to 65%) expecting the steepest rise.

Productivity

Growth in economic activity can be attributed to two factors: an increase in total hours of employment and a rise in the productivity of each worker. Productivity, which is measured as total output divided by total number of hours of work for the entire labor force, is an important indicator of the health of a national economy. In advanced economies, growth of the labor force has slowed significantly in recent years as a result of declining population growth and retirement of older workers. Consequently, improved productivity through innovation and technological advances was the key contributor to economic growth.

The main sources of labor productivity growth are capital deepening and increases in multi-factor productivity. Capital deepening simply means an increase in the quantity of capital per unit of labor. Multi-factor productivity (MFP) captures the disembodied technological and organizational improvements that increase output for a given amount of various inputs. Recent technological innovations in the field of information technology, such as access to the Internet and more efficient database management systems, are two good examples of improvements in MFP during the 1990s. For most of the OECD countries, the advances in information technology (IT) were the most important source of productivity growth in the second half of 1990s.

In the United States, the productivity growth rate increased by 1% in the second half of the 1990s compared to the first. Economists have tried to determine the source of this higher productivity, and there are strong indications that information technology (IT) and related innovations have played a key role in explaining this extra 1%. Most studies attribute between one-half and three-quarters of a percentage point to IT. Some studies have also shown that multi-factor productivity growth, which captures some aspects of IT, technology plus many other factors, accounts for between 25% and 100% of this additional 1%. Between 1999 and 2000, labor productivity in the United States grew by 4.2% and 7.1% in the business and manufacturing sectors, respectively. Within the manufacturing sector, productivity grew fastest in the durable goods sector, which includes the IT equipment. The durable goods sector enjoyed a 10.5% increase in productivity, while the growth in the non-durable goods sector was only 3.2%.

During the last quarter of 2000, as the U.S. economy slowed, there was a visible decline in the rate of growth of productivity. On a quarter-over-quarter annualized basis, productivity in the last quarter was 3.1% and 5.3% in the business and manufacturing sectors, respectively. Furthermore, most of these positive growth rates were due to a decline in hours of work rather than an increase in output, as hours of work declined by 2.2% and 6.7% in the business and manufacturing sectors, respectively.

The higher productivity growth rates in the second half of the 1990s in the United States have also been registered in other OECD members. The most recent comparative OECD data on productivity show that during 1996–99 Ireland, Finland, Australia, and the United States enjoyed the highest rates of productivity growth (as well as output growth) among OECD members. Furthermore, in these countries, multi-factor productivity growth accounted for a much larger share of total productivity growth as compared to capital deepening. This provides further evidence of the sizable contribution of information technology to productivity.

Increased use of computers, telecommunication devices, and the internet has increased labor productivity through three channels. First, rapid increases in productivity of industries that produce IT products led to a sharp decline in their market price and added to economy-wide productivity. Second, strong investment in IT increased capital deepening, which resulted in a higher capital/labor ratio in OECD countries. Third, the widespread use of IT led to positive spillover effects (i.e., returns on investment in IT for each firm have been higher because a large number of other firms have made similar investments). For example, as the Internet expands and more resources become available on the Web, return on Internet-related investment increases.

In 1997, expenditure on information and telecommunication technology exceeded 5% of GDP in every advanced OECD country other than Italy and Spain. During the 1990s, for G7 countries as a group, the share of IT investment in total investment rose steadily. The share of IT in non-residential gross fixed capital formation in the United States rose from 8.7% in 1990 to 13.4% in 1996. Comparable figures for (Western) Germany were 3.5% and 6.1%, respectively. The United States remained the leader in IT investment during the 1990s. Furthermore, due to rapid productivity growth in the IT sectors, the price of IT equipment declined steadily over the last two decades. During the 1990–96 period, the comparable IT equipment price index dropped by an average of 10% per year in the G7 countries.

As mentioned earlier, multi-factor productivity (MFP) has been an important contributor to overall productivity growth in OECD countries. In the United States, MFP growth has been on a rising trend since 1979, and remained above 1% per year throughout the 1990s. For other advanced economies, MFP growth rates rose by at least 0.5% in Australia, Canada, Denmark, Finland, Norway, and Sweden during the same decade.

Economists in recent years have tried to identify the factors that lead to higher MFP growth. Evidence from the OECD nations has identified several important causal links. One of the most important factors is research and development (R&D). OECD data show a positive correlation between business R&D intensity and MFP growth. Furthermore, the statistical correlation between these two variables increased from 0.3 in the 1980s to 0.79 in 1990–98 period, indicating that R&D has become a more important factor.

Another important factor that influences MFP is the burden of administrative regulation. Evidence for OECD countries shows that the increase in productivity growth during 1990–98 compared to 1980–90 was larger in countries that had less administrative regulations. For instance, in the United States and the United Kingdom, it takes one to two working weeks to complete the administrative work for setting up a new business. The same process might take months in Spain and Italy. An important area shown to have a strong impact is employment protection regulations. In countries where the labor market is highly flexible and firms can adjust their labor force without restriction, such as the United States, Canada, Australia, and New Zealand, the increase in MFP growth has been greater than other OECD economies.

In the long run, productivity growth is expected to increase, but there is concern that in the short run poor equity market performance in the United States could adversely affect investment in new equipment and R&D. This is particularly relevant to “New Economy” activities related to information technology. Strong interest worldwide in IT firms led to the rapid rise of equity stock prices between July 1999 and January 2000, which changed the pricing behavior of IT and non-IT stocks. The current decline in the prices of IT stocks has had a negative wealth effect at the global level. Investor interest has declined, and many IT

firms, particularly Internet start-ups, have faced financial difficulties. This investor pessimism will make it more difficult for firms to finance new IT investments.

Other factors have also been put forward to explain the rise in productivity growth over the past decade, which went beyond the technology transfer model. Proponents of the new growth theory suggest that more emphasis should be given to knowledge accumulation and learning rather than merely to capital accumulation. Indeed human capital, not just physical capital, is a critical element to contemporary thinking. This is an important idea in that even if a technology is transferable, it may not be appropriate to a country until a certain level of development has been achieved. That is, unless the skills in the workforce are sufficiently matched to the technique, it may be difficult to achieve an increase in productivity. Finally, there may be a variety of institutional impediments to raising productivity, including a lack of openness in trade, poor governance, or an inadequate social infrastructure.

GDP Per Employee (% Growth at Annual Rates)

	1961-70	1971-80	1981-90	1991-00	2001-10	2011-25
US	2.3	0.8	1.4	2.1	1.8	1.7
Canada	2.7	1.0	1.0	1.4	1.4	1.3
Japan	8.7	3.8	2.9	1.1	2.3	1.5
Germany	4.3	2.6	1.7	-0.1	2.2	2.4
France	4.9	2.8	2.0	0.9	3.6	1.7
Italy	6.3	3.0	1.8	1.6	1.5	1.9
UK	2.6	1.8	2.0	2.2	2.2	1.5

Economic Policy

In our simulation, fiscal and monetary policy instruments have been set on paths that are broadly compatible with a gradual correction of internal and external imbalances, enabling economies to generally expand in line with potential growth over the long term. The 1980s saw a shift in the focus of fiscal policy in many industrial economies away from short-term demand management toward longer-term goals of reducing fiscal imbalance and the public sector's share of the economy, thereby releasing resources to the private sector. A key assumption here is that those countries with large budget deficits or high public-sector debt-to-GDP ratios will continue to take steps to try to improve their fiscal position, primarily by reining back the growth of public expenditure.

Monetary policy is expected to remain the key to controlling inflation, and policy assumptions are set to generate success to one degree or another. Hence, there is a general tendency for inflation to moderate in all the countries, particularly the industrial economies. The following countries are currently in the European Monetary Union (EMU): Austria, Belgium, Finland, France, Germany, Greece, Ireland, Italy, Netherlands, Portugal, and Spain. We anticipate that the United Kingdom, Sweden, and Denmark will join the club over the next ten years, and we may well see some of the new East European countries join EMU as well over the same period.

Coordination of economic policies among the governments of the G7 remains only moderately successful. The completion of the Single Market in the European Union; the Free Trade Agreement between the United States, Canada, and Mexico; and the strengthening of cooperation within the ASEAN bloc will reinforce regional links at the expense of non-participants. However, the GATT accord has reduced the risk that regional integration could pave the way for the creation of tightly closed and antagonistic blocs. Despite the emergence of trading blocs, the general trend in government policy is toward the reinforcement of market forces and a reduction in government intervention in the economy. This trend is obviously apparent in the former communist countries of Eastern Europe, which have gradually moved to a free market economy in preparation for potential EU membership. In the United States, the business sector, under pressure from Japan and the dynamic ASEAN economies, will again demonstrate that its great strength lies in the free market. The Southeast Asian Pacific region is also expected to open up, particularly with respect to liberalization of trade in merchandise and services, and capital transactions.

Exchange Rates

Contrary to everybody's expectations, the euro has been a major disappointment to date. Since February 2000, the euro broke through the parity against the dollar—a degree of weakness not seen (if measured in DM terms) for the past ten years. Euro weakness reflected dollar strength—the combined effect of a booming economy, moderate inflation, and an exorbitant rise in equity valuation—and even now with the U.S. economy slowing significantly, investors still expect the strong growth of recent years to return. The euro/dollar rate is not being driven by economic fundamentals at the moment, with economic growth and interest rate differentials weighing heavily in the euro's favor, Eurozone fiscal deficits shrinking, unemployment falling, and the U.S. current account balance still ballooning. When markets return to economic fundamentals, we expect to see the euro regain parity and strengthen further.

The euro was introduced at the start of 1999, and with it, in accordance with EMU agreements, a common monetary policy implemented by the newly established European Central Bank. The Eurozone countries form an economy that is larger than Japan's and only 20% smaller than the U.S. economy. As a major world currency, the euro stands to compete with the U.S. dollar and the yen for portfolio holdings and as a reserve currency as well. In any case, the long-term view of exchange rates takes explicit account of the dollar/euro relationship in which, over time, the euro appreciates against the dollar back towards its opening rate on January 1, 1999.

The yen is also expected to gradually strengthen in the future. This partly stems from the lower rate of inflation in Japan. But most of the expected appreciation arises from the gradual reduction in net capital outflows as Japan's savings rate declines in lockstep with the aging of its population.

Commodity Prices

Oil

Crude oil had enjoyed its longest price boom in more than two decades. Strong global demand and successful output control by OPEC helped push the price of oil to over \$30 per barrel in 2000. The demand was so strong that OPEC had to increase output in the second half in order to prevent the average price of the OPEC basket of crude from rising above \$28 per barrel—the target upper limit. However, as the U.S. economy slowed in the final months of last year, demand softened, and the price of oil has been on a downward trend ever since.

In response to softening global demand for oil, OPEC has reduced its output twice in 2001. This could result in a loss of market share for OPEC and make it more difficult for the cartel to reduce output further in the future. While the risk of a sharp price increase is remote, the global slowdown might become more severe and lead to a further drop in demand for oil. Under such a scenario, the downward risk to oil prices will be high.

In the medium run (2003–06), demand is expected to increase as the global slowdown comes to an end in 2002. Supply is also expected to increase as a result of the large investment in new oil fields that is currently underway. The recent price boom and OPEC's announced strategy of maintaining the price above \$22 per barrel have created a strong incentive for new investment in the oil industry. As a result, the global supply of oil will be adequate to meet the growing demand without any danger of a sharp price rise. We expect oil prices to fluctuate in the \$20 to \$30 per barrel range over the 2002–06 period. OPEC's stabilizing role will continue; although, because of its shrinking share of global output, it will be more successful in preventing sharp price increases. In the long run, we expect the growth in demand to exceed supply and lead to a gradual increase in the price of oil.

Metals

The price of most metal commodities is expected to enjoy a moderate upward trend during the next five years. In the short run, aluminum demand is expected to be lackluster, given poor market conditions in the United States and Japan. As a result, prices will remain stagnant before they begin to move up again during the second half of this year. In the long run, aluminum price growth is estimated to average between 2.0% and 2.5% per year. The market for copper and zinc has followed a path similar to that of aluminum. Copper demand was especially strong in the United States in 1999 and the first half of 2000, buoyed by a surge in construction activities. Zinc also benefited from a record increase in automobile production in the United States. The short-term outlook for those two metals is rather bearish. Like aluminum, they will begin to improve during the second half of this year. Copper and zinc prices should register growth rates similar to those for aluminum in the long run.

Agricultural Commodities

Although demand growth should be robust, global agricultural commodity prices are expected to remain weak in the short term because of large stocks, continued strong yields, and production gains in exporting countries. Supply and demand balances, in the absence of a production shortfall in a major producing area, will correct slowly. Prices and export revenues

are expected to strengthen by the end of the forecast period, due to steady growth in import demand, coupled with a reduction of global stocks. Our assumption of normal weather and yields means that prices will return to more moderate levels than the highs seen during the period 1995–97.

Due to large stocks and increasing world demand, strong growth is forecast for world agricultural trade. Despite the fact that commodity stocks diminished slightly this year, large global supplies remain. Due to excess stocks, combined with increases in world demand, strong growth is projected for world agricultural trade. Healthy economic growth rates forecast for most of Asia, Latin America, North Africa, and the Middle East support our expectation of increased world demand. Although moderate gains are expected in developed countries, strong trade growth should be supported by the relaxation of trade restrictions through ongoing unilateral policy reforms and existing multilateral agreements.

The five-year decline in cultivated crop area is expected to come to an end and increase over the long term, although about two-thirds of the area decline since 1996–97 has taken place in the former Soviet Union. Cultivated areas of the world's major crops (wheat, rice, coarse grains, soybeans, rapeseed, and cotton) have fallen steadily from their highs of 1996–97. However, declines over the 2000–2001 growing season were not as large as in preceding years. Low prices for agricultural commodities persist and have continued to take their toll, which resulted in a 5.1-million-hectare fall in major crop area in 2000. Advances in plant and farm equipment technologies will hold down the expansion of cultivated areas over the longer term.

Long-term Outlook for Agricultural Commodities

Rising demand is expected to continue over the long term, with excess supplies falling and prices recovering. Over the longer term, agricultural commodity prices are expected to recover significantly for two reasons. First, population growth will moderate only marginally; and second, GDP growth is expected to be robust in major population centers, such as China and India. Although demand for food does not grow at the same rate as income, population growth will more than compensate for the disparity in growth rates. Rising incomes will lead to an increase in consumption of meat and other protein-based products, including wheat, in China and India, as the population substitutes these products for their staple food source (rice). The resulting decline in rice consumption in these areas will, however, be met by increasing rice consumption in the West due to immigration and changing preferences. Shifting preference patterns will maintain price stability for rice. Demand for higher quality and more processed foodstuffs will rise as world GDP increases. After recovering from the livestock epidemics in Europe, rising demand for meat will drive demand for soy products and feed grains, maintaining price growth of those commodities.

I. North America

United States

Recent Developments

Technically, the U.S. economy continued to expand in the second quarter, but for all practical purposes, activity stagnated. According to the final revision, real GDP increased less than \$8 billion over the quarter (0.3% at an annual rate), which is essentially nothing in a nearly \$10 trillion economy. Final demand grew at a stronger 0.6% annual rate, but some of the demand was supplied from inventories, which businesses are still trying to work down.

The Federal Reserve is doing all it can to provide support to the markets. It reduced the federal funds rate target by 50 basis points, to 3.00%, the day the stock market reopened, and by another 50 basis points, to 2.50%, at the October 2 FOMC meeting.

Industrial production fell 1.0%. Last month's dismal report, down 0.7% upon revision, shows that the manufacturing sector has not found the bottom yet. On a year-ago basis, the industrial index fell 5.8% from the August report, was down 4.8% year over year (y/y).

The drop in August was the 12th consecutive decline in the industrial production index, the first time this has happened since 1945. The severity of this report was considerable, but the downturn was widespread, as nearly every headline category fell. Consumer goods posted another significant drop, down 0.7%, as both durable and non-durable consumer goods fell. Business equipment fell 2.3% and is down 9.5% from a year ago. Construction supplies fell, as did business supplies. Only defense and space equipment eked out a small 0.2% gain for the month, and they will likely continue to be a source of strength in the future, owing to recent tragic events. Materials were down 0.9%, and both durable and non-durable materials fell.

So far, the manufacturing sector has lost over 1.1 million jobs over the last year, and it could lose nearly that number again before recovering. During the 1982 recession, manufacturing declined 11%, while in 1991 it declined 7%. To date, manufacturing has shrunk 6%, and we believe the recession in this sector will more closely resemble the 1982 recession.

Outlook

Consumer Markets

Except for light-vehicle purchases, DRI•WEFA expects consumer spending to be essentially flat in the fourth quarter. Consumer confidence remains relatively high, but it has fallen sharply and aggregate income probably fell in the fourth quarter, with any

gains in pay rates offset by losses from layoffs. Moreover, with year-end bonuses down and many companies considering salary freezes, wage cuts, and higher employee contributions to health insurance, Americans are bound to be more cautious with their outlays.

Going forward, we expect the impact of September 11 to fade. Nevertheless, the weaker labor market, combined with slower appreciation in home prices and a sobered stock market, will keep spending growth closer to income gains. The saving rate, hovering around 1% after adjusting for the impact of the tax rebates, is expected to increase to 2% over the next several quarters.

Investment

As in 1960, the story in 2001 has been one of collapsing investment and inventory liquidation. During the first quarter of 2002, the American consumer will join the fray. Three months of 0% financing on new vehicles kept consumers spending in the fourth quarter even as incomes stagnated. The end of these incentives will bring a payback in the first quarter, when a slump in automotive sales combines with ongoing consumer caution. But the impact of the dramatic swing in consumer spending on vehicles will be muted in the overall GDP statistics by largely offsetting shifts in inventory. Auto manufacturers did not intentionally make cars to sell with 0% financing rates. Rather, they used the incentives to clear vehicles clogging dealer lots. Production will therefore be far less volatile than sales this quarter and next, with only small follow-through to employment and incomes.

Business investment is still falling, both in the United States and overseas. As the effects of the U.S. slowdown accumulate abroad, trade should replace investment as the weakest sector in the near term. Since we expect the U.S. economy to rebound before the economies of our trading partners, imports will begin to rise before there is any recovery in exports. Only late in 2002, with a slightly lower dollar and a gathering foreign recovery, will we see a vigorous upturn in exports.

Foreign Trade

The trade outlook has turned cloudy. Near term, the slowdown in the rest of the world should be more severe than in the United States, causing exports to slide further. Meanwhile, imports are likely to fall much less, given the likely shallowness of the U.S. recession. In addition, the positive balance on tourism has shrunk. Although both incoming and outgoing tourism have fallen by the same proportion in the wake of the September 11 attacks, exports of tourism exceed imports, yielding a net dollar loss. Medium term, because of the fiscal and monetary stimulus, the United States is now expected to have a stronger recovery than the rest of the world. This better relative growth outlook may also support the dollar for a while. Both considerations push the trade outlook in an unfavorable direction. We now project the external current account deficit at about a half trillion dollars or more during the next five years, which raises the eventual risk of a market-forced dollar correction.

Until recently, the U.S. slowdown had produced even larger declines in imports than expected, helping to stave off a U.S. recession. The United States might have fallen into recession (on a real GDP basis) as early as the first quarter of 2001, if declining domestic demand had not been offset by plunging imports. But now, and into 2002, the tables are

turning, as exports plummet. Real fourth-quarter exports are projected to tumble at a 22% annual rate. The trade drag in the fourth quarter is roughly twice the expected 0.9% real GDP decline. This pattern extends into next year. Real exports fall 9.0% on an annual average basis in 2002, while imports fall only 1.2%. The resulting \$76 billion real trade drag slows the year's entire real GDP growth by 0.8 percentage point. The current account deficit, which narrowed slightly to \$423 billion this year, widens to \$450 billion next year.

The recent U.S. fiscal stimulus and interest rate cuts have not been matched by most of the world, so the U.S. recovery will be relatively stronger into 2003. This, plus rising debt service, worsens the current account deficit, which reaches almost \$600 billion by 2006. Deficits pushed to this level are likely to eventually put pressure on the dollar.

Policy

Fiscal Policy

For all the talk of the need for fiscal stimulus and increased funding for defense, intelligence, and security, Congress has done very little. Both the House and Senate have passed 8 of the 13 regular appropriations bills, but conference committees have to resolve the differences before sending them on to the White House. Defense, the most important one (this year, anyway), has not been passed by either chamber. Meanwhile, when business resumes, the debate over fiscal stimulus will continue. DRI•WEFA is assuming that there will be at least \$50 billion of stimulus, divided between tax rebates for low-income individuals (\$16 billion), rescission of the corporate alternative minimum tax (\$4 billion), investment incentives (\$20 billion), and extended/expanded unemployment benefits (\$10 billion).

Monetary Policy

As the market expected, the Federal Open Market Committee (FOMC) lowered interest rates by another 50 basis points on its scheduled meeting on October 2. Such a swift move took the target federal funds rate to 2.50% and the discount rate to 2.00%, the lowest in 40 years. Although it was not entirely unforeseeable, markets welcomed the decision. The Federal Reserve has made clear its intent to pump additional liquidity to facilitate the post-attack increase in demand for funds. During the first week the stock market resumed trading activities, the Federal Reserve lent generously. Despite the target federal funds rate being at 3.00% at that time, the funds rate actually traded as low as 0.25% in the market.

Criticism regarding the effectiveness of such low-level interest rates amid pessimistic consumers and businesses becomes more of a secondary issue. At present, DRI•WEFA forecasts that the central bank will likely lower interest rates by another quarter point in November, in anticipation of the poor economic performance ahead.

Inflation

Consumer prices popped in September, but they are only up 2.6% from a year ago. The large rise in the report was led by energy prices. The fear resulting from the September 11 attacks prompted many gasoline outlets to raise their prices, some as high as \$4 a gallon. As nationwide retail gasoline prices have dropped in the last few weeks, energy

prices will likely fall in the October report. Food prices rose 0.2%, led by a 1.3% increase in fruits and vegetables. Excluding the energy spike and the relatively tame overall food prices, core CPI rose 0.2% month over month. Tobacco rose 4.6% and is up 8.8% y/y. As their consumers are highly price inelastic, Manufacturers can, and will, pass along much of the cost of the settlement. Medical prices were up 0.3%. Medical care prices are the only consistent source of rising inflation. With the sole exception of medical care, inflation is well contained. As the nation is confronted with an impending recession, inflation is of little concern to the nation's policy makers.

Employment

In the fall of 2001, post-September 11th, headline establishment employment plunged 199,000 and is down 488,000 jobs since its peak in mid-year. The dismal showing was undoubtedly influenced by the terrorist attacks, as the survey was completed the week of September 10–14. Obviously, firms' employment survey response was their last priority. The September report did not include the massive layoffs in the travel and tourism industries, as reflected in the initial unemployment claims hitting above 500,000.

Unemployment did not budge this month, which is surprising, but not a unique event. We now assume a massive increase in the unemployment rate to 5.5%, certainly by 2002, and perhaps in the very next report. As expected in a recession, the percentage of part-time workers to full-time workers has begun to rise, after dramatically falling throughout the 1990s expansion.

Exchange Rate

The U.S. dollar ended December and 2001 with strong upward momentum. Based on the Federal Reserve Board index against seven industrial currencies, the dollar gained about 2% in December, rising from the 105 level to above 107. The euro gained some favor at the beginning of January, but the U.S. dollar continued to climb higher for the first week of January.

Throughout 2001, the U.S. dollar rose 8.0%, comparing year-end levels. The downturn in the U.S. economy did not stop the strength of the currency. The strong demand at first came from investors' beliefs that the U.S. dollar is the most liquid and safest currency among others. At the same time, while investors retreated from the U.S. stock markets, some have actually moved their funds into U.S. treasuries. Following the terrorist attacks, the dollar received some disturbances, which proved to be temporary. The dollar once again picked up its strength despite the recession in the U.S. economy and various political concerns. By the end of the year, investors were increasingly optimistic about the future outlook. More importantly, investors believe that the U.S. rebound will lift the global economy from recession; thus, the U.S. economy will have the advantage of being the first to move back into positive territory. Such enthusiasm continues to boost the value of the U.S. dollar.

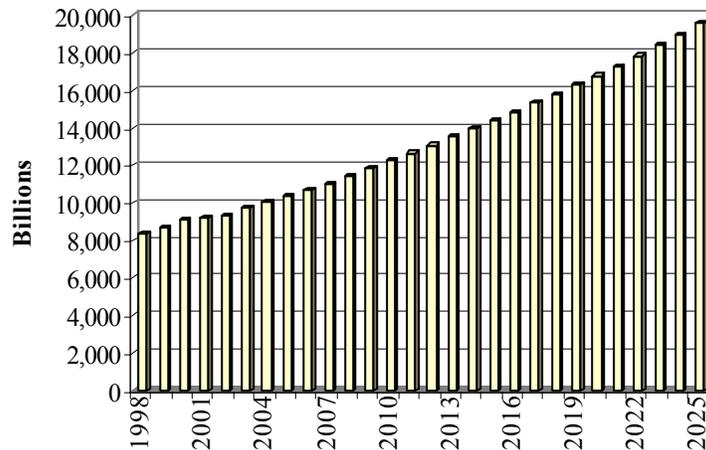
Our outlook for the U.S. dollar has not dramatically changed. While we expect a turnaround in the economy, we believe that the recovery will be slow off the mark. Therefore, it will take quite some time for the global economy to fully regain its strength. As a result, demand for the U.S. dollar will persist in the short run. As for the long-term outlook, we still expect a correction for the U.S. dollar in which it depreciates gradually.

Political Developments

The Bush administration is confident about the ability of the United States to quick recover from the economic recession. In his State of the Union address, President Bush assured the American people that the economy was already experiencing positive GDP growth. However, the lack of any further fiscal stimulus will dampen the strength of the 2002 recovery. Partisan politics eventually scuttled the stimulus package. The resumption of partisanship in Washington has only reinforced the view that—at least in practice—fiscal policy is not an effective counter-cyclical tool. Fortunately, the tax cuts passed midyear and the post-attack reconstruction, security, and defense spending have helped to prevent a deeper recession. Unfortunately, though, the modest fiscal stimulus from these federal actions is being partially offset by fiscal tightening at the state and local level, as these governments face falling revenues and rising security and health-care costs.

The baseline forecast anticipates gradual erosion of the federal budget surplus. A deeper recession and weaker stock market than is currently anticipated, however, could send the budget into deficit by next summer. There is no escaping a shrinking surplus. However, if the economy perks up in the fourth quarter and fiscal stimulus comes on stream as expected, the unified budget could remain in surplus. The on-budget balance will still turn negative however; meaning the Social Security surplus will be financing deficit spending in the rest of the government.

Real GDP, 1995 U.S. \$



Forecast

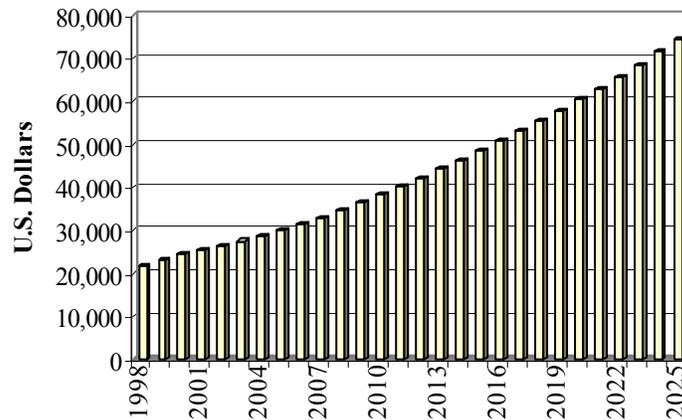
Short Term

The worst of the recession is already past. Although we are still treating the fourth quarter as forecast, it is history. Looking ahead, DRI•WEFA expects the first quarter of 2002 will see the bottom of the recession. The rest of the year will bring gradually accelerating growth. Overall, this recession is likely to be about as mild as any on record, with a peak-

to-trough decline in real GDP of less than 1%. DRI•WEFA is actually projecting a 0.6% drop, the same decline registered during the 1960 recession.

Between falling investment and sluggish consumer spending, manufacturing activity continues to weaken. The protracted decline in factory output—falling in 15 of the past 17 months—is the steepest since the 1982 recession. Inventories have been shrinking

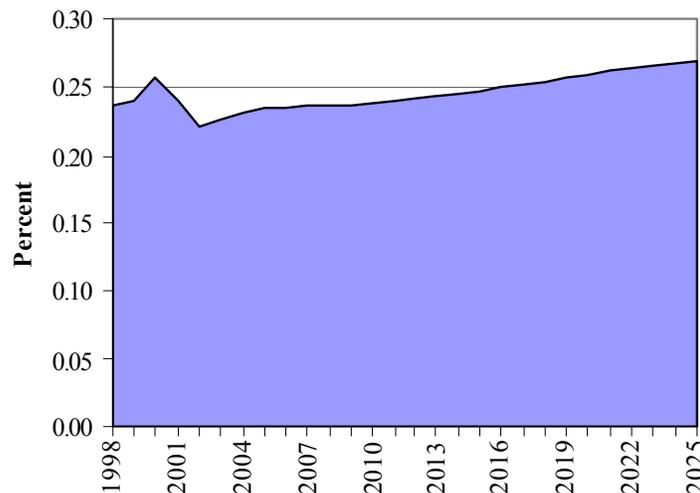
Consumption Per Capita (U.S. Dollars per Person)



since February, and the runoff should continue into the first quarter. Early next year, however, production will need to be stepped up, even to meet a sluggish order flow.

We expect the federal government to give the recovery a boost. Although the ramp-up in spending is taking time, the now-completed fiscal 2002 budget contains a huge amount of fiscal stimulus.

Total Trade share of GDP



Long Term

Meanwhile, per capita consumption is expected to increase smoothly as well, reaching levels that seem high in today's terms. Nominal consumption will grow faster than real GDP, of course, averaging 4.6% for the first ten years of this century, followed by 4.5% thereafter. In the final year of the forecast, per capita consumption is predicted to reach US\$74,500. This growth is shown in the above chart, titled "Consumption per Capita".

With respect to trade's share of nominal GDP, we see a return to the long-term trend in which trade slowly progresses is an important part of economic output. While there have been ups and downs in the past, we foresee a steady growth from the 22% range in 2001 to 27% by the end of the forecast period. One of the reasons for the lack of high growth in this measure is the strong expected growth in the denominator, the economy itself.

United States	2001	2005	2010	2025	Avg. Annual Compound Growth		
					2001-05	2005-10	2010-25
Real GDP, 1995 Billion \$US	9,233.53	10,349.56	12,231.49	19,554.97	2.9%	3.4%	3.2%
GDP, Billion \$US	10,290.89	12,580.70	16,730.19	36,233.93	5.2%	5.9%	5.3%
Real GDP, Percent Change	1.00	3.08	3.48	3.10	32.6%	2.5%	-0.8%
GDP Deflator, \$ based, 1995=100	1.11	1.22	1.37	1.85	2.2%	2.4%	2.0%
Consumption per Capita	25,456.94	30,061.50	38,363.77	74,584.70	4.2%	5.0%	4.5%
Consumption share of GDP	0.68	0.68	0.68	0.69	-0.1%	0.0%	0.1%
Government Spending share of GDP	0.15	0.14	0.14	0.14	-0.3%	-0.5%	-0.3%
GDP per Capita	37,178.19	44,007.92	56,200.89	108,023.54	4.3%	5.0%	4.5%
Investment share of GDP	0.20	0.19	0.19	0.18	-1.0%	-0.2%	-0.1%
GDP by Sector, Agriculture, \$bn	139.86	170.97	227.37	492.43	5.2%	5.9%	5.3%
GDP by Sector, Mining \$bn	173.55	212.16	282.14	611.05	5.2%	5.9%	5.3%
GDP by Sector, Manufacturing \$bn	1,736.68	2,123.10	2,823.37	6,114.80	5.2%	5.9%	5.3%
GDP by Sector, Utilities \$bn	270.07	330.17	439.07	950.93	5.2%	5.9%	5.3%
GDP by Sector, Construction \$bn	471.61	576.55	766.71	1,660.53	5.2%	5.9%	5.3%
GDP by Sector, W&R Trade \$bn	2,015.85	2,464.39	3,277.22	7,097.74	5.2%	5.9%	5.3%
GDP by Sector, Transport and Comm. \$bn	674.99	825.18	1,097.35	2,376.63	5.2%	5.9%	5.3%
GDP by Sector, FIRE \$bn	3,211.57	3,926.18	5,221.14	11,307.86	5.2%	5.9%	5.3%
GDP by Sector, Community and Social Svcs. \$bn	1,572.51	1,922.41	2,556.47	5,536.76	5.2%	5.9%	5.3%
Private Consumption, \$bn	7,046.46	8,593.79	11,420.34	25,017.67	5.1%	5.9%	5.4%
Government Consumption, \$bn	1,501.19	1,817.08	2,357.63	4,917.16	4.9%	5.3%	5.0%
Investment, \$bn	2,027.37	2,381.01	3,132.61	6,633.60	4.1%	5.6%	5.1%
Exports of Goods and Services, \$bn	1,058.08	1,276.97	1,760.17	4,300.22	4.8%	6.6%	6.1%
Imports of Goods and Services, \$bn	1,409.32	1,667.59	2,240.04	5,472.55	4.3%	6.1%	6.1%
Total Trade, \$bn	2,467.40	2,944.57	4,000.21	9,772.78	4.5%	6.3%	6.1%

Canada

Recent Developments

GDP fell 0.8% on an annualized basis between the second and the third quarters of 2001, slightly more than we anticipated. Partly accounting for the surprise was a bigger-than-expected drop in business inventories. Negative effects of the September 11 attacks were evident in a 0.8% monthly decline in September 2001 GDP at basic prices. Reduced confidence about personal safety depressed the air transportation and hospitality industries. Retailers also saw lower activity as shoppers opted to delay purchases in a time of heightened economic uncertainty. Meanwhile, slower commercial traffic through the Canada-U.S. border disrupted production at factories dependent on just-in-time inventories, most notably automotive and auto parts assemblies. More recent data suggest a muted rebound in activity through the fourth quarter. This points to a second consecutive decline in quarterly GDP, although a return to a positive territory is likely in the first quarter of 2002. This implies that as of December 2001, Canada is close to the end of a technical recession.

In October 2001, retail sales surged 1.7% after the 1.5% drop in September. While consumer confidence has remained depressed judging from rising unemployment rates, low financing rates on cars and minivans and other price discounts attracted people back to shopping outlets. Industry data suggest a strong rise in motor vehicle sales in November 2001. This indicates an upside risk to our forecast of a slight decline in consumer spending in the fourth quarter of 2001.

The year-over-year pace in the consumer price index continued to decline in the fourth quarter of 2001, with inflation moving to a lower-than-anticipated 0.7% in November—below the Bank of Canada's target range of 1-3%. Falling energy prices, more-aggressive-than-usual price discounts by hotels and motels, and the lack of pricing power generally have contributed to lower inflation. The recent numbers suggest CPI inflation over the next few months will be lower than currently assumed in our forecast.

Despite employment having consistently beaten expectations and rising through September-November, the unemployment rate climbed from 7.2% in August 2001 to 7.5% in November. The rise was the result of higher labor-force participation. In turn, this likely resulted from the need to offset income that was lost as many well-paid, full-time jobs disappeared. Indeed, on a net basis, all new employment has been part-time since August, with an overwhelming majority of those jobs taken up by females.

Economic developments, geopolitical risks related to the terrorist attacks on the United States, and concerns about Argentina's financial crisis have buffeted the Canadian dollar. After stabilizing at around 63.69 U.S. cents between the second half of September and late October, the Canadian dollar depreciated quickly to around 62.50 cents through early November. It reached a new record low of 62.30 on November 9. The sentiment about the currency improved by early December as a result of both Canadian data that showed that the economy's weakness is not extreme and signs of stabilization on the geopolitical

front. A financial crisis in Argentina, however, caused a flight to safety into U.S.-dollar assets, driving the Canadian dollar to a new record low of 62.29 cents on December 24.

The Bank of Canada cut the overnight rate by 50 basis points at a policy-setting meeting on November 27 2001, citing weak aggregate demand and low price pressures. Our outlook for a decline in GDP in the fourth quarter and sluggish growth in the first quarter of 2002 suggests two quarter-point rate cuts in January and March, taking the bank rate to 1.75%. While the market consensus currently anticipates only one more quarter-point rate cut next year, the weaker-than-expected November CPI could shift the market view closer to our own

Outlook

Consumer Markets

Following the terrorist attacks of September 11, consumer confidence has taken a beating. This has been an unpleasant turn of events from the strength of earlier this year. Consumer confidence in Canada began to weaken before September 11, and it is currently at its lowest point in ten years. The major weakness in consumer spending over the past month has been in the airline and hospitality sector, but the repeated layoff announcements are quickly putting a more general malaise into spending. Since the consumer was a major source of strength to the Canadian economy earlier this year, consumer spending is still expected to outpace overall growth for the year. Lower interest rates have been a spur to consumer durables. The strong housing-start performance has also been a source of strength to purchases of furniture and fixtures. Auto dealers have provided still further incentives, propping up sales through September, but they are living on borrowed time.

Investment

Housing starts have been the major good news story on the investment side, largely due to attractive interest rates. Machinery and equipment investment, particularly in the IT sector, has been the major source of investment weakness.

While auto inventories are getting into line, it will be some time before investment in IT turns around. There is some hope for infrastructure investment, particularly if the provincial (roads) and federal (information highway) plans move ahead. These plans, however, have become threatened by the worsening fiscal picture of the past month.

Foreign Trade

Both exports and imports will fall this year, responding to weaker growth in Canada and the United States. This year will be the first year in more than a decade to see the volume of trade actually decline. Auto trade, specifically both imports and exports from the United States, will be well down this year. However, Canada's trade surplus is expected to be maintained. Currently the trade surplus is very strong, boosted by high energy volumes and prices earlier in the year. Softwood lumber exports to the United States have fallen in recent months in response to a 20% duty. Inventories of natural gas and home

heating fuel are in good supply, and prices have fallen from earlier in the year, so these energy exports will be weaker this winter than last.

Policy

Fiscal Policy

These are very trying times for finance ministers. Economic growth forecasts for this year and the next have been revised down significantly, with the attendant implications for government revenues. At the federal level, Finance Minister Martin is preparing an Economic Statement/Budget. While it appears that a small surplus will remain this year, rising military and security expenditures and declining revenues spell possible deficits in the outer years unless spending is tamed. The federal finance minister faces a dilemma. The economy is forecast to be near flat for several more quarters, while a fiscal surplus is forecast. Thus, the pressure is for some counter-cyclical tax reductions. At the same time, a deficit could well be in store for the outer years, when economic growth is forecast to be robust due to tax reductions scheduled for the outer years.

Some provinces will suffer more than others. Ontario, with 95% of its trade with the United States, will be the hardest hit. Ontario may squeeze by this year, but significant deficits seem in store beyond that unless spending is curtailed sharply. British Columbia will not be as negatively impacted by the economic downturn in the United States. However, it will continue to be plagued by other negatives. The B.C. government has announced plans for significant reductions outside the health and education portfolios. This may allow them to balance the budget in several years, but in the meantime, large deficits are likely to continue. Quebec, likewise, will likely have continuing deficits. Unlike the other provincial governments, there does not seem to be the appetite to reduce spending to avoid deficits. A weaker energy sector could bring a deficit to Alberta this year if spending is not reduced, but over the medium term, Alberta is likely to continue in surplus territory.

Monetary Policy

The Bank of Canada followed the U.S. Federal Reserve's 50-basis-points reduction on September 17. Since that time, the Fed has made an additional 50-basis-points reduction. The next announcement date for the Bank is October 23. At this point, interest rate reductions by the Bank of Canada since the beginning of the year continue to track about half those of the Fed. It is expected (and recommended) that the Bank of Canada will again reduce rates by 50 basis points. A significant output gap has now opened in the Canadian economy that is unlikely to be closed before 2005. Inflationary pressures are on the wane. The exchange rate has been in the 64-cent range over the past few weeks and is likely to remain there for a few more months. Thus, no demand stimulus can be expected from that source. As noted previously, the government does not have much fiscal room to provide stimulus without threatening a return to deficit.

Interest rate spreads are now positive across the spectrum. In fact, they are in the 70-basis-points range at the short end. This is likely to be typical of the medium term.

Inflation

After peaking at 3.9% in May, overall CPI inflation has now cooled down to the 2.5% level and is expected to cool further to the 2.0% level by year-end. Energy prices, moving through to the retail level, have been the major source of inflationary pressure this year. The core CPI has been much better behaved, keeping in the 2.0% range. While there are some wage pressures, particularly in the public sector, in this steadily weakening economic environment, inflationary expectations are not a problem.

Employment

News on the employment front has been very discouraging in recent months. After being about flat over mid year, there have been a series of layoff announcements, particularly since the September 11 terrorist attacks. The IT sector is obviously months from revival, and NORTEL has been losing its share of a weak market. Consequently, layoffs in the order of 20,000 are planned over the upcoming months. Other high-tech companies, particularly JDS, have also announced layoff plans. These layoffs are the result of the weakening IT sector, well entrenched before the September 11 terrorist attacks.

The September terrorist attacks have hit the airline and hospitality sector particularly hard. Air Canada plans to layoff 4,000, its regional carriers are to cut staff by 20%, and Air Transat is struggling for its survival. The fall in the demand for air travel is not considered to be short term and, as a result, layoffs have extended to the aircraft manufactures Pratt and Whiney, Boeing, and Bombardier. While few specific layoffs have been announced in the hotel, resort, and rental car business, they are inevitable. Finance and retail sectors can be expected to follow.

Employment growth is not expected to pick up until the end of next year, and the unemployment rate will have resumed its former downward trend in 2003. However, given the significant labor immobility in Canada, it is doubtful that the unemployment rate will move below 6% even over the medium term.

Exchange Rate

The Canadian dollar has been weak since the terrorist attacks of September 11. The principal reason is that fears of a global recession have dampened commodity prices, specifically pulp newsprint and oil. The U.S. duty on softwood lumber has weakened both prices and volumes for these exports. While the terrorist attacks have hit the United States directly and Canada indirectly, this has not been an occasion for international investors to be attracted to the Canadian dollar. In fact, quite the opposite is true. There is a strong recognition that the United States—politically, militarily, and economically—will show leadership in these trying times. International investors have shown their continued faith in the United States and the U.S. economy. These post-attack pressures can be expected to keep the Canadian dollar from gaining too much on the U.S. dollar over the next year.

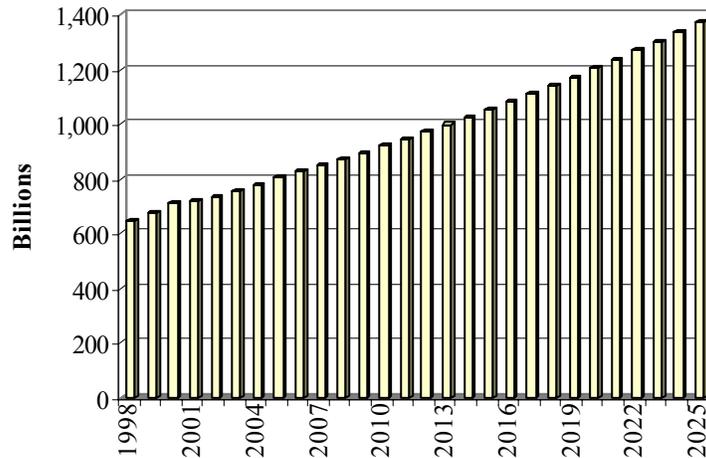
Political Developments

In the wake of the September 11 terrorist attacks, Canada has mobilized its military, making a significant commitment to assisting the United States in its assault on the terrorists. This mobilization has, however, brought to even greater public attention the recent downsizing of our military, as well as the state of disrepair and dilapidation of some of our military hardware. This has set off the expected political disputes regarding our spending priorities. The military action, however, has received unusually strong support across the political spectrum. Significantly enhanced security provisions have been instituted at airports and many public and private buildings. This has ignited some discussion of infringements of civil liberties in the name of enhanced security.

There has been significant pressure, some of it from the United States, to tighten the border against both immigrants and visitors. This has raised the issue of Canada's need for sovereignty in setting an immigration policy that is more liberal than the U.S. policy.

Canada's recognition by the United States has reached new lows. In his historic war announcement speech, President Bush mentioned many of those countries upon which the United States was depending for political, moral, and military support. There was no mention of Canada in that speech. On the occasions of their respective visits, President Bush has indicated that the United States has no more important friend than Mexico and no greater friend than the British. Where does that leave Canada? This does raise a political problem. When recognition of and respect for Canada is on the wane, so too is respect for our political leaders.

Real GDP, 1995 U.S. \$

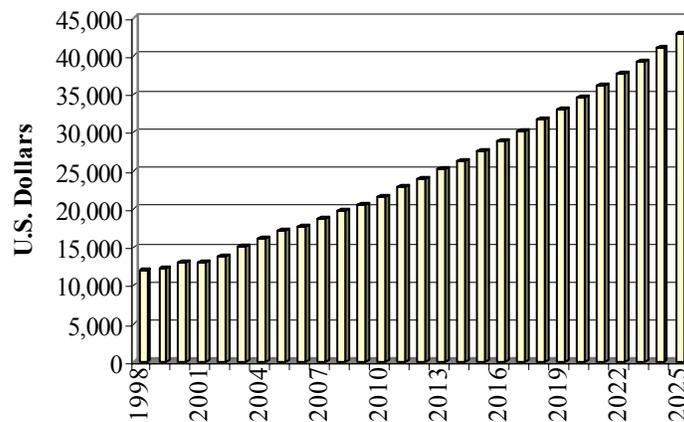


Forecast

Short Term

DRI•WEFA now forecasts expansion of only 1.1% for 2002, as growth barely in positive territory in the first quarter climbs to around 5% by the fourth. The recovery in Canada will be driven by recovery in the United States. The aggregate demand put into the economy by fiscal and monetary policy in Canada and the United States will be the most important drivers of recovery. The restoration of inventories and the recovery of the auto sector will supplement these policy actions. Growth during 2003-06 is expected to fall from the strong 2002 performance, down to a more sustainable 3.1% pace by 2006. This medium-term forecast reflects the expectation that investment in information technology, and the productivity embodied in it, will have a positive, but modest, impact on

Consumption Per Capita
(U.S. Dollars per Person)



productivity and economic growth over the medium term.

Canada remains very well positioned for solid non-inflationary growth over the medium term. Note that the level of real GDP forecasted for 2005 is one where growth will take a significant pause for the next several months, opening up an output gap. However, with strong recovery in the United States, accommodative monetary policy, continued tax cuts, and an inventory rebound, a process of recovery will bring the economy back close to where it otherwise would have been in the aggregate by 2005. Budget 2001, delivered on December 10, confirmed that the days of big federal government are upon us again. Budget 2001 plans for federal spending to increase more than 9% this year. In fact, unless there is an impending deficit, federal spending will increase by about 11% this year.

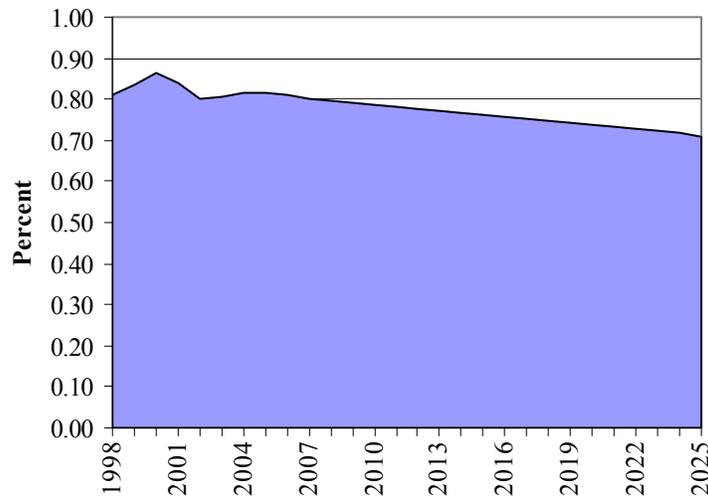
Not all of this can be attributed to the unanticipated demands of military and security, however. Spending plans go far beyond the high priorities of security and health care. As long as deficits can be avoided over the next few years, spending will increase at the expense of debt reduction. It was clear from the budget that, in the future, GDP can be expected to contain a significantly higher component of security and military goods and

services at the expense of consumer goods and services. Security restrictions may raise the cost of doing business, and introduce inconveniences and infringements on privacy, undetected by even detailed economic data.

Long Term

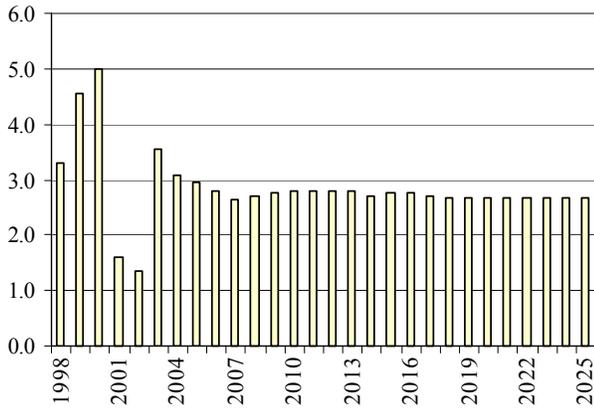
In assessing the economic prospects for a country over the longer term, the supply-side issues are fundamental. Demographics, investment, productivity, and technological change are the drivers of long-term growth. These supply-side factors determine the long-term potential rate of growth of the economy. In a long-term analysis we assume the Bank of Canada will conduct monetary policy in a fashion that will, in a typical year, move the economy along at its potential rate of growth. While we know there will be cyclical ups and downs along the way, their timing is impossible to forecast, so we do not introduce cyclical behavior in this particular "base" long-term forecast. Introducing cycles is an obvious alternative scenario, however.

Total Trade Share of GDP

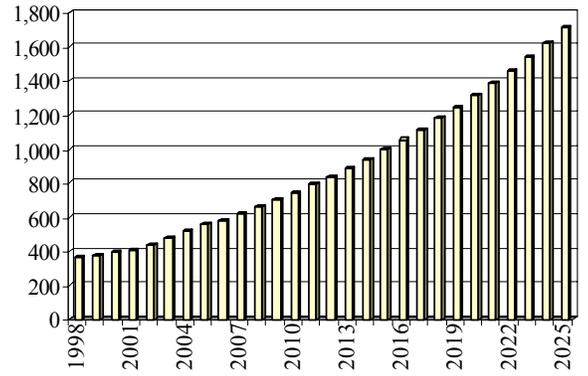


Canada's economic fundamentals remain sound, despite the probability that we are currently in a recession. We have a well-educated labor force and training is improving as we face a decade where a country's ability to master the "knowledge-based economy" will determine its ability to succeed. Canada has a solid infrastructure, even relative to the United States, and a stronger public infrastructure of information technology in schools and hospitals. We are reducing the burden of our public debt and becoming more tax competitive. These things were true last spring, and in spite of the current recession, they are still true.

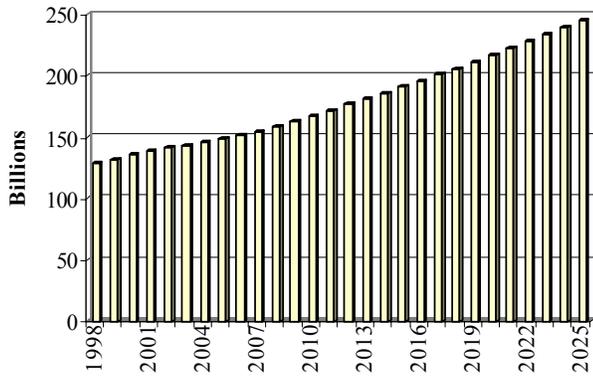
Real GDP Growth (%)



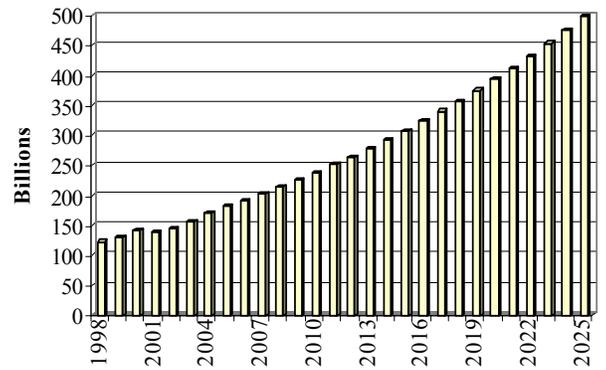
**Private Consumption
(Billion U.S. Dollars)**



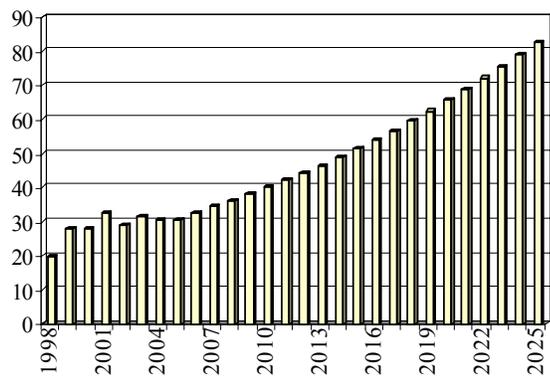
**Government Consumption
(Billion U.S. Dollars)**



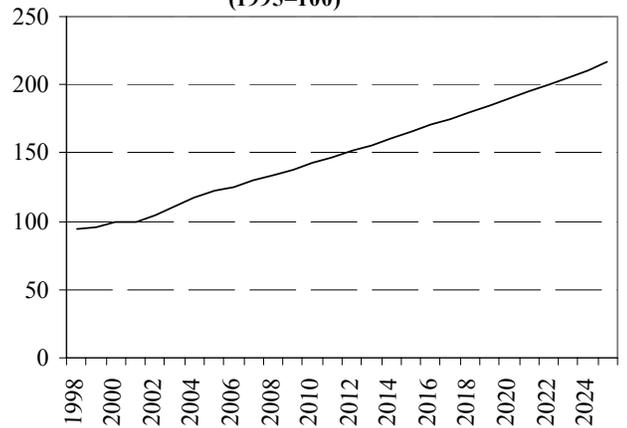
**Investment
(Billion U.S. Dollars)**



**Total Trade Balance
(Billion U.S. Dollars)**



**GDP Deflator
(1995=100)**



CANADA	2001	2005	2010	2025	Avg. Annual Compound Growth		
					2001-05	2005-10	2010-25
Real GDP, 1995 Billion \$US	720.49	802.34	918.62	1,373.29	2.7%	2.7%	2.7%
GDP, Billion \$US	712.90	980.72	1,308.78	2,972.43	8.3%	5.9%	5.6%
Real GDP, Percent Change	1.62	2.94	2.80	2.68	16.1%	-0.9%	-0.3%
GDP Deflator, \$ based, 1995=100	0.99	1.22	1.42	2.16	5.4%	3.1%	2.8%
Consumption per Capita	13,001.01	17,103.01	21,709.90	42,840.48	7.1%	4.9%	4.6%
Consumption share of GDP	0.57	0.57	0.57	0.58	-0.1%	0.0%	0.1%
Government Spending share of GDP	0.18	0.17	0.16	0.15	-2.4%	-0.9%	-0.3%
GDP per Capita	22,847.81	30,153.41	38,204.33	74,440.13	7.2%	4.8%	4.5%
Investment share of GDP	0.20	0.19	0.18	0.18	-1.3%	-0.2%	-0.2%
GDP by Sector, Agriculture, \$bn	17.19	23.64	31.55	71.66	8.3%	5.9%	5.6%
GDP by Sector, Mining \$bn	39.18	53.90	71.94	163.38	8.3%	5.9%	5.6%
GDP by Sector, Manufacturing \$bn	143.80	197.83	264.00	599.59	8.3%	5.9%	5.6%
GDP by Sector, Utilities \$bn	24.62	33.87	45.20	102.65	8.3%	5.9%	5.6%
GDP by Sector, Construction \$bn	39.21	53.95	71.99	163.50	8.3%	5.9%	5.6%
GDP by Sector, W&R Trade \$bn	107.00	147.19	196.43	446.12	8.3%	5.9%	5.6%
GDP by Sector, Transport and Comm. \$bn	53.35	73.40	97.95	222.46	8.3%	5.9%	5.6%
GDP by Sector, FIRE \$bn	179.38	246.77	329.32	747.94	8.3%	5.9%	5.6%
GDP by Sector, Community and Social Svcs. \$bn	94.71	130.30	173.88	394.91	8.3%	5.9%	5.6%
Private Consumption, \$bn	405.66	556.27	743.73	1,710.64	8.2%	6.0%	5.7%
Government Consumption, \$bn	130.08	162.38	206.93	451.54	5.7%	5.0%	5.3%
Investment, \$bn	139.66	182.54	241.48	535.81	6.9%	5.8%	5.5%
Exports of Goods and Services, \$bn	322.28	441.88	576.42	1,184.06	8.2%	5.5%	4.9%
Imports of Goods and Services, \$bn	277.56	356.68	452.30	929.09	6.5%	4.9%	4.9%
Total Trade share of GDP	0.84	0.81	0.79	0.71	-0.8%	-0.7%	-0.7%

II. Asia

Japan

Recent Developments

At the beginning of 2000, it appeared that Japan might finally escape from its prolonged slump, as GDP grew at an annual rate of 10%, led by surging exports. This proved to be a temporary boom, however, partly as a recovery from the recession of late 1999 and partly due to the strong U.S. and world economies. Output decelerated rapidly in mid-2000, so overall GDP growth last year was only 1.5%, which includes a downward revision from an earlier estimate of 1.7%. In the first quarter of this year, revised GDP increased slightly an annual rate of 0.5%, with an increase in consumption offsetting the rapid fall in exports caused by the slowing global economy.

The Japanese economy has been flat or falling for months. There is little doubt the country is in recession—GDP fell in the second quarter and likely fell again in the third quarter—and there are no obvious signs yet that the slide is ending. However, despite the possibility of a major Depression-style collapse, the most likely scenario is that the economy will bottom out at year-end and begin recovering next year.

GDP in the second quarter fell at a 3.2% annualized rate from the previous quarter. This sharp fall was led by a decline in investment: fixed capital expenditure decreased at a 15% rate quarter over quarter (q/q). In addition, the external surplus decreased: real exports were down over 5% year over year (y/y), while real imports actually rose over 1%, cutting the trade surplus by a third. In nominal terms the external balance dropped even more, due to import prices rising much faster than export prices.

Deflation has been a problem for several quarters, but prices fell especially fast in the second quarter. The GDP deflator decreased dramatically from the first quarter to the second, falling at a 7% rate, largely due to decreasing prices for consumption goods and rising prices for imports. Other price indexes, the CPI and the WPI, also accelerated downward in the second quarter.

The global slump resulting from the terrorist attacks have begun to hurt the economy. In September, industrial production fell after having shown an uptick in the previous month, and the unemployment rate soared to a record high of 5.3%.

On the plus side, the September 11 terrorist attacks have created a sense of crisis that could allow the politicians to exceed the 30-trillion-yen borrowing limit they had pledged themselves to. The attacks also resulted in a dramatic monetary easing by the Bank of Japan (BOJ), both by flooding the money markets with liquidity and via unsterilized intervention in the forex market.

The forecast calls for moderate economic restructuring and partial write-offs of bad loans by banks and continued monetary expansion by the central bank. The economic

slowdown should decelerate, with output flattening at year-end and the economy returning to growth in the first quarter of 2002. Annual GDP growth rates are expected to be -1.2% this year and -0.9% next year.

Outlook

Consumer Markets

Fourth-quarter data will likely show a slight worsening of conditions as falling incomes hit consumption and fixed capital investment spending declines. Consumers are placing a greater emphasis on lower prices, even if the goods are imported. Net external demand will also be weak in the near term. Also, deflation continues to be a problem, raising the real cost of debt while encouraging consumers to postpone spending.

Investment

Investment in Japan has continued to diminish as a result of the persistent economic slump. Domestic banks, undercapitalized and saddled with bad loans, are reluctant to lend. Meanwhile, companies, expecting little or no growth in the future, are hesitant to borrow.

In addition, Japanese firms are beginning to shift production to low-cost countries, not just to sell to third countries, but to “reverse import” the goods back to Japan. The United States went through this transition decades ago, but Japan is just now starting the process. After several quarters, it is possible that the national accounts data could show Japan with a trade deficit. But note that, in real terms, Japan’s trade surplus is expected to continue indefinitely; a trade deficit in nominal terms develops due to export prices falling relative to import prices

Foreign Trade

Japan is well known for its trade surpluses. For nearly two generations, its economy has been oriented toward export-led growth, with imports receiving little attention unless they were used to promote exports. This has resulted in consistently large current account balances, recently running around \$100 billion on a balance-of-payments basis (the national accounts data show a somewhat smaller surplus). In late 2000, though, the slowing of the world economy caused Japan’s exports to flatten and then fall in the first quarter of 2001; imports also flattened, but only after growing quickly for the past year. Consequently, the trade surplus has narrowed: net exports of goods and non-factor services were 2.0 trillion yen in the second quarter, one-fourth their value of a year earlier.

Exports appeared to flatten in June, July, and August, but they are still down roughly 10% from their highs at the turn of the year; preliminary data in September indicate a further decline due to the terrorist attacks. Imports, which had been surprisingly strong for many months, fell in August, leaving them roughly even with a year earlier. This puts the monthly trade balance at roughly a half-trillion yen, its lowest value in 15 years.

The external balance should stabilize in the coming months: the weak yen will eventually assist exports, although the exact timing depends on the speed of recovery of the U.S. and world economies. But future surpluses are expected to remain small, reflecting an

ongoing structural change in the Japanese economy as firms finally begin to shift production to low-cost countries and as consumers place greater emphasis on lower prices. After several quarters, it is possible that the national accounts data could show Japan with a trade deficit. But note that, in real terms, Japan's trade surplus is expected to continue indefinitely; a trade deficit in nominal terms could develop due to export prices falling relative to import prices.

Policy

Fiscal Policy

For the past several years, Japan's fiscal policy has focused on public works spending to stimulate the economy. In fact, much of these monies was spent on unnecessary projects and mostly reflected the close relationship between the ruling Liberal Democratic Party (LDP) and the construction industry. Although the money did provide income to thousands of workers, it had no apparent stimulus effect on the economy. It did, however, result in huge budget deficits that have pushed the national debt well above 100% of GDP.

The April election of Junichiro Koizumi as head of the LDP, an event which also made him the prime minister, has the potential to change government policy dramatically. He has promised to stop wasteful public works spending, limit government borrowing, and require banks to declare their bad loans, even if it causes an increase in bankruptcies and unemployment. However, many observers question whether or not his proposals are strong enough to fix the economy; the stock market trended downward in mid-year over worries that he was not being sufficiently aggressive in dealing with the bad loan problem. Although Koizumi did lead his party to a strong showing in the Upper House election in July, this will not necessarily help his cause, since many of the re-elected politicians oppose his reform agenda.

More in his favor, his cabinet submitted the budget proposal for FY2002, and it adheres to many of his promises: in particular, it keeps borrowing below 30 trillion yen and it cuts public works spending by 10%. His cabinet also maintains that the supplementary budget, projected at 2.7 trillion yen, will not be spent on public works. Lastly, if the opposition tries to stall or water down his reforms, he has the ability to call a snap election of the Lower House of the Diet.

Great uncertainty surrounds Koizumi's reform attempt. The most likely scenario, though, is that he will make some headway in pushing banks to declare bad loans. In fact, many banks were already doing so, partly to prepare for new accounting regulations that took effect in September, which forced banks to price their stockholdings at market value. In addition, the Resolution and Collection Corp. is being given more authority to buy up bad loans, even though any losses will have to be made up by the government. Koizumi's budget, which limits public works spending, will be a difficult sell to the LDP; he may have to compromise and settle for smaller cuts. Bureaucrats at several ministries are already lining up against his proposals, claiming they need increased funding, with a similar response coming from the public corporations that Koizumi wants to privatize. Finally, his proposal to keep government borrowing below 30 trillion yen will be difficult

to adhere to; however, few people would object to higher spending this year if it was seen as a step toward permanent economic reforms.

Monetary Policy

The Bank of Japan has taken a large share of the blame for the slow economy. In particular, the falling price level of the past two years is generally seen as a failure to increase the money supply. Finally acknowledging the slow economy and deflation last March, BOJ Governor Masaru Hayami officially shifted policy in favor of “quantitative easing,” with a target of increasing bank reserves by 25%. This proved to be a mild policy change and had little effect on the economy. But in August, after the Koizumi cabinet submitted a pro-reform budget proposal, the BOJ responded by announcing another increase in targeted reserves and an increase in purchases of Japanese government bonds from 400 billion yen per month to 600 billion yen. Following the terrorist attacks in mid-September, the BOJ joined with other central banks in increasing liquidity by lowering the discount rate to a record 0.1%; the BOJ also performed several billion dollars worth of unsterilized intervention, leaving much of the additional yen circulating in the money markets.

The Bank of Japan will continue to proceed slowly, since many on the policy board are concerned that a too-aggressive policy of quantitative easing could quickly shift the economy from deflation to inflation. Governor Hayami continues to insist that much of the deflation is caused by improved efficiency and increased competition, and he resists the government’s calls for “inflation targeting,” a euphemism for faster monetary expansion. But, as the government makes headway in implementing structural reforms, the BOJ is expected to respond with further monetary easing. Whether this stimulus will be sufficient to encourage growth, or whether the financial sector will simply sit on the higher reserves, remains to be seen.

Inflation

Japan has been dogged by deflation for over five years. Although falling prices for individual commodities is not necessarily a problem, and in fact can be a sign of improving productivity, at the aggregate level it has serious disadvantages. It depresses domestic demand, since consumers and firms may postpone purchases to wait for lower prices. It also raises the real cost of debt, which is a major problem for banks saddled with bad loans and for the government, which has borrowed to fund deficit spending for the past several years. Deflation also prevents the real interest rate from dropping: even though the nominal interest rate is essentially zero, the real interest rate (nominal rate – inflation rate) is positive. Therefore, stimulating the economy by lowering the real interest rate becomes impossible. For Japan, the past two years have been the worst, with deflation becoming a serious problem in 1999, then worsening in 2000. Specifically, the GDP deflator fell 1.4% in 1999 then dropped by 1.7% in 2000; the consumer price index showed a similar pattern.

In late 2000 and early 2001, there were a few months of mildly rising prices. Thus, first-quarter GDP data showed increases in the GDP deflator and other price indexes. But the slowing economy put an end to this trend. Recent monthly data confirm that prices are again falling, and quickly. The consumer price index has been dropping at a 1% rate in

recent months, and the wholesale price index, which until recently had been rising, is falling at a 2%-plus rate. Most remarkably, the GDP deflator fell at a 7.4% rate from the first to the second quarter; thus, not only did real GDP decline in the second quarter, but nominal GDP fell at an astounding 10% rate.

Prices should continue to decrease this year due to the slow economy and lack of aggressive monetary expansion, but the overall deflation rate for the year will be muted due to the price rise in the first quarter. Into 2002, deflation should ease as the Japanese economy recovers and the BOJ expands liquidity, but prices are not expected to actually increase until late in the year. Even in 2003, the overall inflation rate is forecast at roughly 0.5%; inflation rates above 1% are not expected for several years.

Employment

Historically, Japan has had little unemployment. Throughout the 1980s and early 1990s, its jobless rate averaged less than 3%. Indeed, most countries envied Japan's "lifetime" employment system and its emphasis on worker training. Largely unnoticed at the time, though, was the lack of labor mobility. After the economic "bubble" burst in 1990 and firms found themselves with a surplus of workers, the reluctance to lay them off and the inability to move workers out of declining industries and into services became a serious drag on the Japanese economy. By the late 1990s, slow growth and the changing structure of the economy began to push the unemployment rate up, which by year-end 2000 reached 4.9%; it remained at that level in first-quarter 2001.

In July, the unemployment rate reached a then record high of 5.0% and remained there in August. But the jobless rate worsened in September, jumping 0.3 percentage point to 5.3%; not only did the number of unemployed increase nearly 200,000 from the previous month, but the labor force continued to shrink. Although indicative of the slowing economy, these developments also show that firms are becoming more willing to lay off unnecessary workers, which should help the economy in the long run. The job-offer-to-applicant ratio also dropped sharply, falling to 0.57, compared to 0.61 just three months earlier.

Sectional labor adjustment—workers shifting out of older, inefficient sectors and into new jobs—will be an ongoing process in the next several years. It is not expected to be a smooth process, though, and, therefore, the relatively high unemployment of recent years should actually worsen in the short term. The unemployment rate is forecast to rise for several quarters, peaking in the mid-5% range by the end of 2002. It should then begin to trend downward slowly, but it is unlikely that Japan will ever again see ultra-low unemployment rates. Assuming its labor market becomes more flexible, the country should eventually experience unemployment rates similar those in more-successful, mature economies, in the mid-4% range.

Exchange Rate

The yen has undergone some major swings in recent years. This is important not just to Japan and its trading partners, but to other countries, especially in Asia, that compete with Japan in selling exports to the United States and Europe. In 1999, the yen appreciated, as growth overseas led to increased demand for Japanese exports, putting the

exchange rate around 100 per dollar. It remained near that level in 2000 as export demand continued, then began to weaken late in the year as the rest of the world slowed and exports flattened. Early this year, the yen stabilized at around 116, but further bad economic news regarding Japan and diminished growth prospects for foreign countries sent the yen down into the 120s.

In mid-2001, there was a short yen rally that strengthened the currency to 119, but pessimism quickly returned and sent the currency back to 125/dollar. This was followed by fluctuations in the low 120s, generally in response to shifts in confidence. Another round of strengthening was seen in August and September, as financial firms cashed in overseas assets and repatriated them back to Japan, to strengthen their balance sheets prior to new accounting rules that went into effect on October 1. The general weakening of the dollar following the terrorist attacks was also a factor. But unsterilized intervention by the BOJ soon reversed the trend and weakened the yen past 120. Moreover, fundamental issues—flat exports, the weak banking sector, and government inaction—continue to point to a weak currency.

The Japanese economy is expected to remain weak for several quarters. With gradual economic restructuring in the near future, which in the short term will tend to reduce output, and increased monetary expansion from the BOJ, the yen should weaken further and reach the high 120s in the coming months. Thereafter, as firms and resources gradually adapt to the new economic environment, a slow appreciation should take place. Our forecast anticipates the yen near 127 by year-end 2002, and strengthening by approximately 2.5% per year thereafter.

Political Developments

The ruling coalition headed by the Liberal Democratic Party (LDP) has been unpopular for years—and for obvious reasons. The economy has been virtually stagnant for a decade, yet the LDP has done little to improve it. In fact, when the LDP does act, such as with tax increases, bank bailouts, or construction projects, it is usually seen as doing more harm than good. Numerous scandals have damaged the party's reputation, and former Prime Minister Mori earned widespread criticism when he continued playing golf after being informed of the sinking of the Ehime Maru.

All of this makes the election of reformist politician Junichiro Koizumi in April so striking. By gaining the support of local precincts, he became LDP president with 298 out of 487 votes; in contrast, Ryutaro Hashimoto, a traditional politician who had been considered the front-runner, got only 155 votes. Koizumi's message of economic reform and cleaning up the LDP clearly resonated with voters; he even did well in rural, agriculture areas normally expected to support traditional pro-subsidy politicians. After the election, Koizumi appointed a non-factional cabinet, with prominent positions going to women and the private sector. In recent months, he has continued to promote economic reform. Although he acknowledges these reforms will cause short-term pain, his message has been well received, putting his popularity rating at an extraordinary 80%. Koizumi went on to lead the LDP to a strong showing in the Upper House election in July, capturing 64 of 121 seats and strengthening the coalition. In his initial budget proposal, presented in August, he kept his promise to limit government borrowing to 30 trillion yen by cutting public works projects. Similarly, the proposed supplementary budget in

October keeps borrowing below 30 trillion yen for this fiscal year, although another supplementary budget later in the year could push borrowing above that limit.

Recent foreign policy initiatives include Koizumi's trips to China and Korea, where he apologized for Japanese atrocities during World War II, and passing a bill allowing the Self-Defense Force to assist the United States in its war against terrorism.

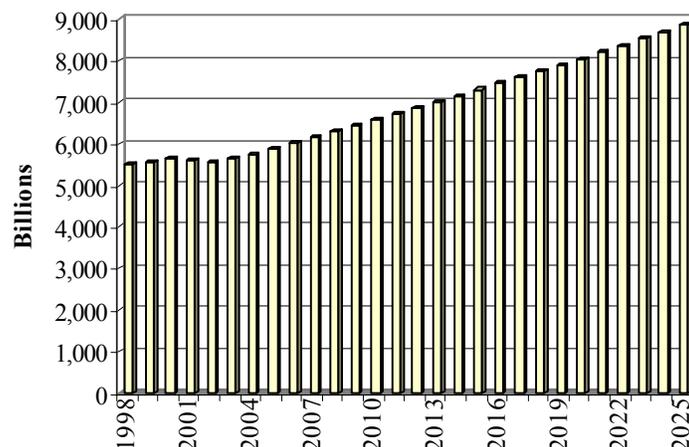
Koizumi was automatically reinstated as president of the LDP since no contenders challenged him by the August 9 deadline. This was not surprising given his current popularity. But the situation could change in the months ahead; if the economic reforms prove more painful than the voters had anticipated, their attitude toward the prime minister could change. This is especially true among the LDP strongholds—rural areas and construction workers—who may favor Koizumi not for his economic plans but to clean up the scandal-ridden LDP. If the public turns against him, his party may demand that he step down and allow other candidates to run. He is already facing resistance from bureaucrats in various ministries who dislike his proposed budget cuts and his plans to privatize public corporations. On the other hand, if he maintains his popularity, it might allow Koizumi to end the system of factions within the LDP, although the existing faction leaders are expected to fight him.

Forecast

Short Term

In the medium term, Japan will gradually recover from its current slump, assuming a moderate restructuring of its financial sector gets underway this year. The resulting bankruptcies and increase in unemployment, though, coupled with Japan's relatively inflexible labor and capital markets, will keep the economy slow for the next several quarters. Although the financial markets will take this as a positive sign and should put the yen on a course of gradual appreciation, the real economy will see only marginal growth in the near future. A return to previously normal growth rates of 2+% or more is not expected for three years.

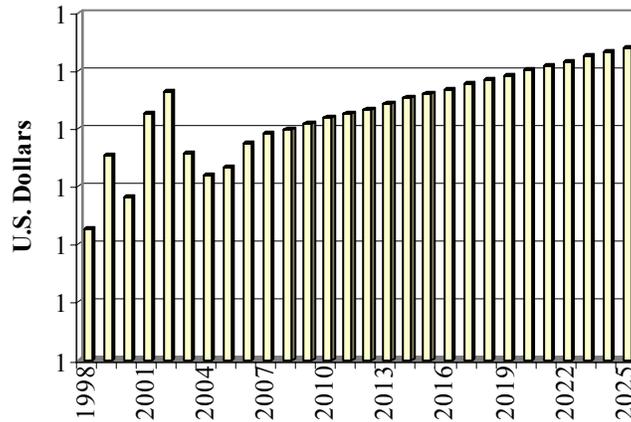
Real GDP, 1995 U.S. \$



Long Term

Real GDP in Japan has seen a slowdown, but following the recession in 2002, DRI•WEFA expects the economy to resume positive growth in light of the policy responses outlined above. But by world standards, the long-term growth will be anemic, coming in at only 1.5% per year over the 2000–10 period, followed by 2.0% annual growth thereafter until 2025.

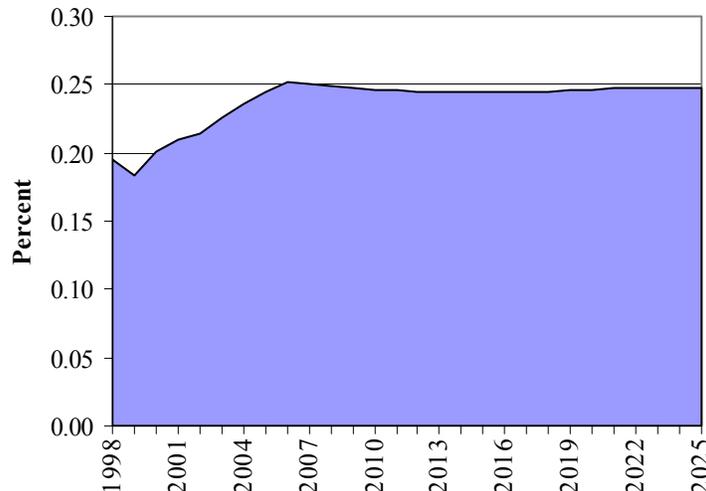
Consumption Per Capita
 (U.S. Dollars per Person)



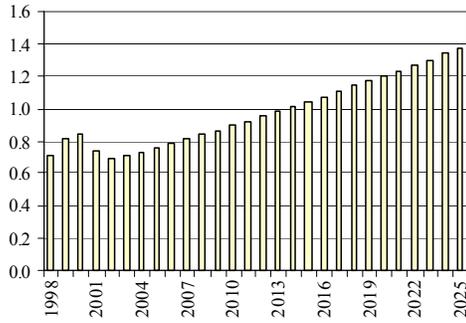
Meanwhile, consumption per capita is expected to grow from about US\$21,000 in 2000 to US\$25,860 in 2010, and then to US\$55,200 in 2025 as consumption per capita averages 5.2% per year.

Finally, the trade share of GDP is expected to increase through 2006 as deflation makes Japanese products more affordable abroad. But there is a saturation limit for this ratio, and it appears to be around 25%. This still implies strong trade, given the overall magnitude of the Japanese economy, especially in the outer years of the forecast.

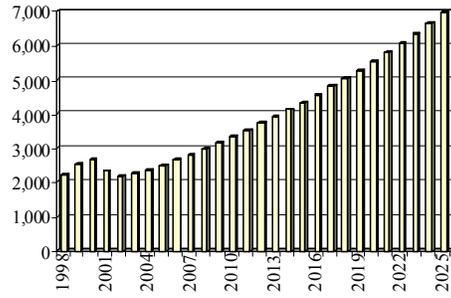
Total Trade share of GDP



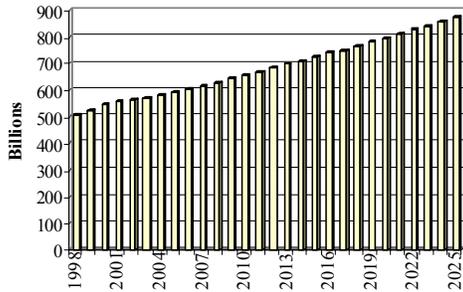
Real GDP Growth (%)



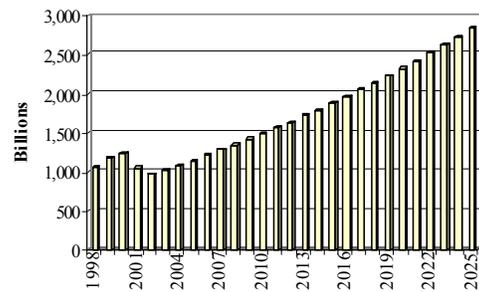
**Private Consumption
 (Billion U.S. Dollars)**



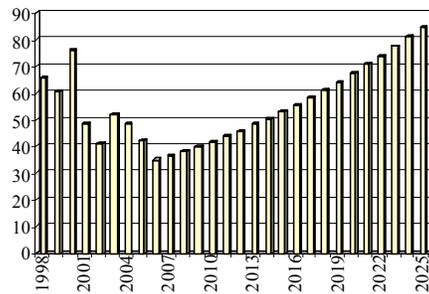
**Government Consumption
 (Billion U.S. Dollars)**



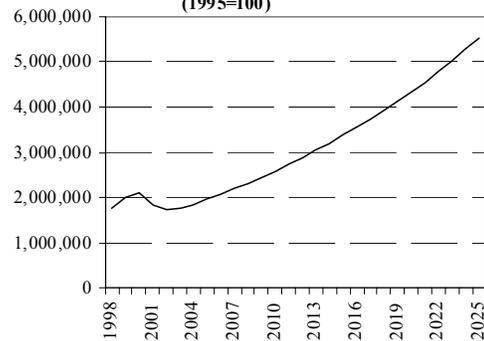
**Investment
 (Billion U.S. Dollars)**



**Total Trade Balance
 (Billion U.S. Dollars)**



**GDP Deflator
 (1995=100)**



Japan	2001	2005	2010	2025	Avg. Annual Compound Growth		
					2001-05	2005-10	2010-25
Real GDP, 1995 Billion \$US	5,582.88	5,870.46	6,579.54	8,861.60	1.3%	2.3%	2.0%
GDP, Billion \$US	4,098.61	4,441.81	5,879.80	12,149.43	2.0%	5.8%	5.0%
Real GDP, Percent Change	(1.20)	2.31	2.29	1.94	nc	-0.1%	-1.1%
GDP Deflator, \$ based, 1995=100	0.73	0.76	0.89	1.37	0.8%	3.4%	2.9%
Consumption per Capita	18,259.27	19,483.28	25,862.86	55,208.90	1.6%	5.8%	5.2%
Consumption share of GDP	0.57	0.56	0.57	0.57	-0.2%	0.1%	0.1%
Government Spending share of GDP	0.17	0.17	0.17	0.17	0.2%	-0.4%	-0.2%
GDP per Capita	32,243.08	34,688.20	45,704.98	96,525.17	1.8%	5.7%	5.1%
Investment share of GDP	0.26	0.26	0.26	0.25	0.2%	-0.1%	-0.1%
GDP by Sector, Agriculture, \$bn							
GDP by Sector, Mining \$bn							
GDP by Sector, Manufacturing \$bn							
GDP by Sector, Utilities \$bn							
GDP by Sector, Construction \$bn							
GDP by Sector, W&R Trade \$bn							
GDP by Sector, Transport and Comm. \$bn							
GDP by Sector, FIRE \$bn							
GDP by Sector, Community and Social Svcs. \$bn							
Private Consumption, \$bn	2,321.05	2,494.82	3,327.18	6,949.03	1.8%	5.9%	5.0%
Government Consumption, \$bn	711.20	775.54	1,005.48	2,005.24	2.2%	5.3%	4.7%
Investment, \$bn	1,047.13	1,145.12	1,509.17	3,053.07	2.3%	5.7%	4.8%
Exports of Goods and Services, \$bn	438.7967	552.0282	733.19	1524.92	5.9%	5.8%	5.0%
Imports of Goods and Services, \$bn	419.7053	534.2935	714.24	1485.51	6.2%	6.0%	5.0%
Total Trade, \$bn	858.502	1086.3217	1447.43	3010.43	6.1%	5.9%	5.0%

China

Recent Developments

Real GDP in the first half grew 7.9% from a year earlier, but growth in the second quarter was 7.8%, slower than the 8.1% expansion in the first quarter.

Despite retrenching global demand, China was able to achieve this high growth because of rapid investment expansion and stable private consumption growth. Overall fixed capital formation in the first half rose 15.1%, but capital formation by collective and private enterprises only expanded 7.5%, which implies high state investment. Meanwhile, private consumption growth remained stable, as retail sales grew 10.3%, compared with 10.1% in the same period last year. Export gains, as a result of a weakening global economy, slowed sharply to 8.8%, compared with the 38.3% increase registered in the same period a year earlier.

Consumer price inflation remained in positive territory in the first half, at 1.1%. Prices of foodstuffs, clothing, transportation, and communications equipment, however, continued to suffer deflation.

Foreign direct investment in the first half surged 20.5% from a year earlier to \$20.7 billion as a consequence of China's impending entry into the World Trade Organization. We expect China's economy to grow by 7.4% this year and slow to 7.2% in 2002.

Pressure on the Chinese exchange rate has risen, as other Asian currencies have continued to weaken. We do not expect the government to adjust its stable exchange rate policy in the immediate future, but after China joins the WTO, we believe Beijing will devalue the renminbi to soften the accompanied negative shocks.

Outlook

Consumer Markets

Private consumption has been able to sustain a moderate recovery so far this year. But private consumption could take another hit from the country's expected WTO entry, since it would speed up the pace of reforms and, hence, increase unemployment. We do not expect private consumption growth to suffer any substantial slump, however, because the government is likely to moderate the pace of reform if its negative impact appears to be too severe. In addition, the government will continue its countercyclical fiscal and monetary policies. As a result, China's growth will slow in 2001, but not significantly, to around 7.2%. We expect growth to slow to 7.0% in 2002 and bounce back to 7.5% in 2003.

Investment

The government has indicated that it intends to continue using state-funded infrastructure investment to support growth. In fact, Beijing hinted that it will issue another 150 billion

yuan of special bonds next year to sponsor the investment program. Moreover, the government has indicated that it will boost private investment by clearing all obstacles that block the private sector from raising funds in the capital markets. If the government can carry out this promise, a no-longer-suppressed private sector could provide the Chinese economy a much-needed boost.

Foreign Trade

The combined effect of China's stable exchange rate policy and a U.S. slowdown will slow exports, causing the current account surplus to narrow from 2001 to 2004 and turn into a small deficit in 2005. Over the longer term, we expect the current account to remain in deficit as service-trade deficits outweigh the merchandise trade surplus. The current account will begin posting surpluses in 2014 when the balance with service and merchandise trade begins to reverse.

Policy

Fiscal Policy

Potential macro-level problems are deep seated. The key issues involve an immense and highly inefficient state-owned sector, an ineffective tax collection system, and a banking sector that is plagued by a multitude of bad loans. To make matters worse, these problems are tightly entangled, reinforcing each other and acting like a straightjacket on the economy.

The inefficiency in tax collection prevents the government from taking over the SOEs' responsibility in providing their workers with benefits, such as healthcare and pensions. Because the SOEs' responsibility to provide social services is a significant contributor to their unprofitability, the tax-collection problem makes reform much more difficult. In addition, to keep the unprofitable SOEs alive, banks have been ordered to issue loans that are unlikely to be paid back. As a result, state banks are overburdened with non-performing loans, mostly to state-owned firms. Such use of financial resources is not only inefficient, but it is also dangerous for the country's overall financial stability.

To reform the SOEs without risking social instability caused by high unemployment, the economy must grow rapidly to absorb laid-off workers. Until 2000, however, growth had been decelerating for seven consecutive years. To spur growth, the government has invested heavily in infrastructure and has cut interest rates four times since 1998 (not counting the tax on interest income introduced in 1999). Neither deficit spending nor monetary easing, though, has yet to generate any self-sustained growth in the domestic economy. Realizing this, the government has announced that it will continue the state-sponsored investment program. In addition, the government will attempt to boost private investment by removing all the discriminatory measures that prevent private enterprises from raising money from banks and equity market.

Monetary Policy

The near term should see a continued fiscal deficit. Improvements in fiscal revenue are likely to be limited, given the still-struggling domestic economy. In addition, the

government's tax collection system is unlikely to improve dramatically in the short run. Expenditures should increase as the state infrastructure investment program continues.

Inflation

China's persistent deflation is apparently over. Consumer price inflation has been in positive territory since May 2000 after nearly two years of declines. Inflation actually accelerated in recent months, from 0.8% in March to 1.7% in May. The government had taken various measures to curb deflation in the past two years, including introducing price controls and interest rate cuts, as well as stopping state-sector projects in industries where there is excess supply. The government has indicated that it will continue to ease monetary policy.

We expect consumer prices to experience some gains this year as excess supply continues to shrink and the government maintains a looser monetary policy and aggressive fiscal spending. Still, inflationary pressure is unlikely to pick up any steam in the near term, since excess supply and weak consumer demand, although improving, will continue to keep prices in check. In addition, the government is unlikely to ease money supply sharply given its bad experiences with past episodes of high inflation.

Employment

According to the Chinese government, urban unemployment was 3.3% at the end of June, up from 3.1% at the end of 2000. The total number of unemployed in China's urban areas was 6.19 million at the end of June. These figures exclude the so-called "*xiagang*" workers, i.e., workers who were effectively laid off but kept on company payrolls at extremely low salaries. According to the government, China had 7.69 million *xiagang* workers in the first half of this year, with only 790,000 finding jobs during the period. These figures, however, understate the country's current labor-market situation. More reliable estimates have China's urban unemployment rate at about 8%, or 16 million unemployed persons. This, coupled with another 17 million unemployed township enterprise workers, puts the unemployment figure at about 33 million. Moreover, according to the Chinese government's own estimate, the number of excess rural workers has exceeded 150 million and is expected grow 5 to 6 million annually.

We expect the unemployment situation to worsen in the short run. The Chinese economy is still struggling as it continues to undergo a painful restructuring. The government has used the country's expected WTO entry to prod the SOEs to speed up reform. To make matters worse, in the near term, China's exports, which provided strong support for overall economic growth, have cooled substantially as a result of the global economic slowdown. Consequently, domestic unemployment will rise further in the near term.

Exchange Rate

With the onset of the Asian crisis in 1997, there was much speculation on a possible Chinese currency devaluation. This speculation intensified when once-vibrant Chinese exports began to contract in 1998. Since the second half of 1999, however, pressure on the Chinese fixed exchange rate has moderated, as the country's exports have surged and foreign exchange reserves have grown. More importantly, China's real effective exchange rate fell substantially from its Asian crisis peak. These developments have

substantially reduced the likelihood that Beijing will implement a significant devaluation to stimulate export growth.

Increasingly, the concern for the exchange rate policy has shifted to the impact of China's expected WTO entry on the country's economy. Several prominent economists in China called on the government to relax the existing rigid exchange rate regime to prepare for a much more open economy resulting from the WTO entry. China's central bank governor also indicated earlier this year that Beijing intends to adopt a more flexible exchange rate regime after entering the WTO to accommodate the entry's impact on China's balance of payments. Since late April 2000, the central bank has allowed the renminbi to float outside the usual narrow trading band (8.277 to 8.280 to the U.S. dollar) many times.

The recent depreciation of the other Asian currencies, especially the Japanese yen, and the return of inflation in China have once again raised the Chinese real effective exchange rate. As of May, the real effective exchange rate was around 9% above its 2000 low but still 9% below its Asian crisis peak.

With depreciation pressures dissipating, the Chinese renminbi should remain relatively stable in the near term. It is possible that Beijing would slowly, and very narrowly, widen the thin renminbi trading band in preparation for the more liberalized and open economic conditions accompanying the country's WTO entry. The recent weakness of the Japanese yen has exerted pressure on the Chinese renminbi again, but this should be offset by the surging foreign direct investment (FDI) resulting from the WTO entry. Moreover, since the tariff reductions that the WTO agreement calls for are mostly gradual, the resulting import surges should lag export and FDI spurts. Hence, the renminbi will likely remain stable until the WTO impact on imports begins to kick in (we assume October 2002). Thereafter, we expect the Chinese central bank to intervene and redirect the renminbi to a depreciating path in order to cushion the WTO impact.

Political Developments

China's leadership has consolidated into an alliance of President Jiang Zemin, National People's Congress (NPC) Chairman Li Peng, and Premier Zhu Rongji. The alliance was the result of the 15th Congress of the Chinese Communist Party (CCP) and the 9th NPC, and it has allayed fears that the post-Deng Xiaoping transition might lead to serious political instability.

By holding the head posts of the state (the presidency), the CCP (the general secretary), and the military (chairmanship of the Central Military Commission), Jiang has been able to gradually and consistently shore up his political control. A good example of Jiang's increasing power is his crackdown on the People's Liberation Army's (PLA) vast business empire. Ironically, though, just as the 74-year old has consolidated his power, one of the key challenges that he must tackle now is his succession. China's constitution has a limit of two terms (ten years) on the presidential office, which means that Jiang needs to step down from the post in 2003. But the real dilemma concerns what to do with the other two key posts from which his power is derived. Jiang has to decide whether to continue holding on to them to ensure a strong political leadership through the difficult period of economic reform, or to pass on one or both posts to the younger leadership soon to make the transition of power smoother. Already, it has been reported that Jiang has

hinted that at the 16th Party Congress in 2002 he will pass on CCP's general secretary post to Vice President Hu Jintao and remain chairman of the Central Military Commission.

We do not expect any major changes in China's power structure over the next few years. The core leadership, with Jiang Zemin at the helm, is likely to stay intact over the medium term. Even if Jiang retires from the post of general secretary of the CCP at the next party congress, he is very likely to hold on to the chairmanship of the Central Military Commission, the position from which his real political power comes.

Forecast

Short Term

China's economy maintained relatively high and stable growth in the first half of this year at 7.9% (growth in the first and second quarters was 8.1% and 7.8%, respectively.). Amid retrenching global demand, China was able to achieve this rate of expansion because of high state-sector investment expansion and stable private consumption growth. Overall investment in the first half rose 15.1%, much higher than the 11.0% increase in the first half of 2000; but investment by collective and private enterprises only expanded 7.5%, implying a high rate of state investment. Meanwhile, private consumption growth remained stable, as retail sales grew 10.3%, compared with 10.1% in the same period last year. As a result of a weakening global economy, export growth slowed sharply to 8.8%, compared with the 38.3% increase registered in the same period a year earlier.

Despite this strong growth, the government remains concerned about the economy's short-term prospects. The global economic slowdown—particularly the cooling U.S. economy—should continue to hamper China's exports. The recovery of private consumption has failed to gather momentum despite the bullish stock markets and various government measures to stimulate consumption. The government has indicated that it intends to continue using state-funded infrastructure investment to support growth. In fact, Beijing will issue another 150 billion yuan of special bonds to sponsor the investment program. Moreover, the government has indicated that it will boost private investment by clearing all obstacles that block the private sector from raising funds in the capital markets. If the government can carry out this promise, a no-longer-suppressed private sector could provide the Chinese economy a much-needed boost.

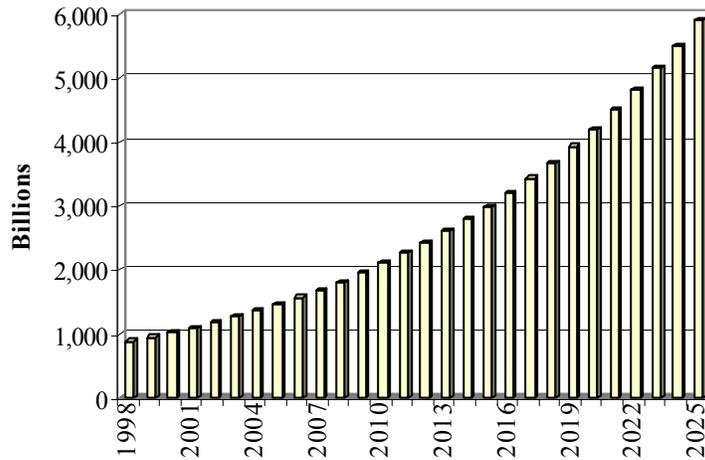
All these positive factors notwithstanding, China's economic outlook has worsened. Cooling global demand has dimmed export growth prospects. The impact on the Chinese economy should be limited, however, since exports account for only about one-fifth of GDP. Without support from exports, economic growth in the near term would have to rely on domestic demand. But the momentum in private consumption recovery has been weak. Moreover, private consumption could take another hit from the country's expected WTO entry if it speeds up the pace of reforms and, hence, increases unemployment. We do not expect private consumption growth to suffer any substantial slump, however, since the government is likely to moderate the pace of reform if its negative impact appears to

be too severe. In addition, the government will continue its countercyclical fiscal and monetary policies. As a result, China's growth will slow in 2001, but not significantly.

Long Term

When the above considerations are extended into the final year 2025, we have a picture of a large market, huge population, and steadily rising income levels. China's real GDP is projected to average 7.5% per year growth through 2010 and then 7.1% thereafter until 2025. This phenomenal growth can be sustained if there are no disruptions from poor

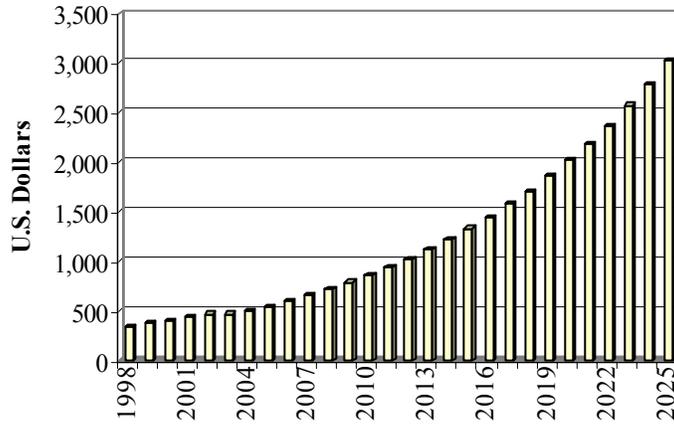
Real GDP, 1995 U.S. \$



policy decisions, natural disasters, or world slowdowns. By the end of the forecast period, China's economy will be on a par with that of Japan, measured in constant U.S. dollars.

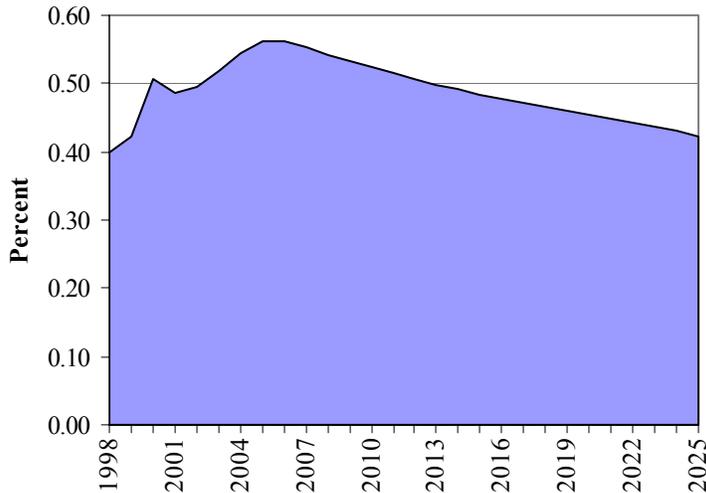
Concerning per capita consumption, we are expecting strong growth in line with the expanding economy in China, except for some small ups and downs, such as in 2003 when the full effect of the earlier global recession will trickle down to the Chinese consumer. But overall, as seen in the chart below, DRI•WEFA is expecting an average annual growth in this key measure of 8.8 percent over the 2000-2010 period, followed by an equally impressive but slower 8.1 percent thereafter to 2025.

Consumption Per Capita (U.S. Dollars per Person)

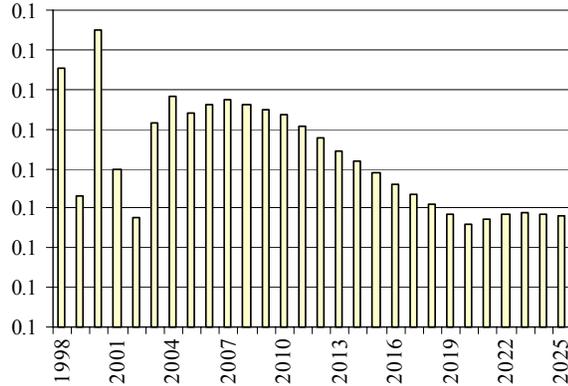


Trade has been critical to China's economic growth in the past. Indeed, we expect it to remain an important part of the nation's development through 2025, but its importance is expected to slide as China moves toward internal sufficiency, higher production levels, and less dependence on exports as a source of revenue. The declining importance of trade as a percentage of nominal GDP is expected to occur around 2006-2008.

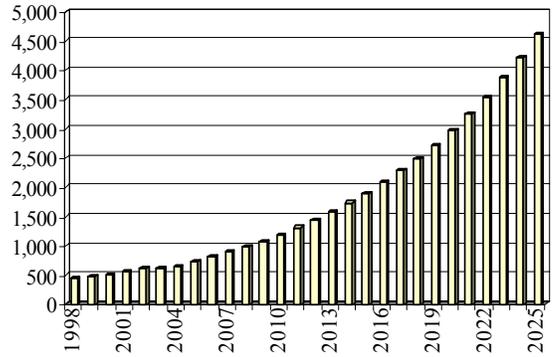
Total Trade share of GDP



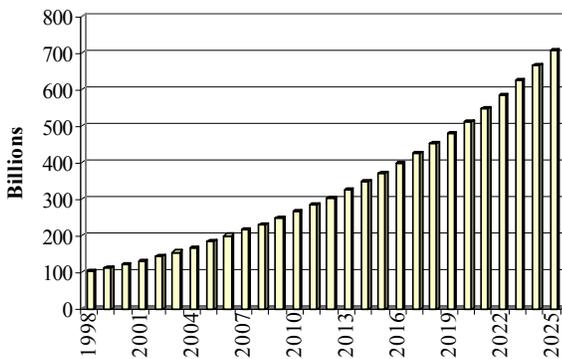
Real GDP Growth (%)



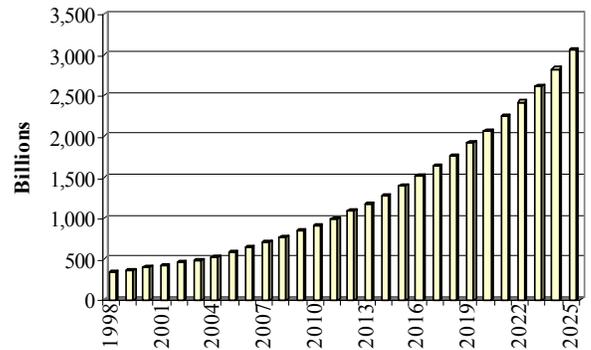
**Private Consumption
(Billion U.S. Dollars)**



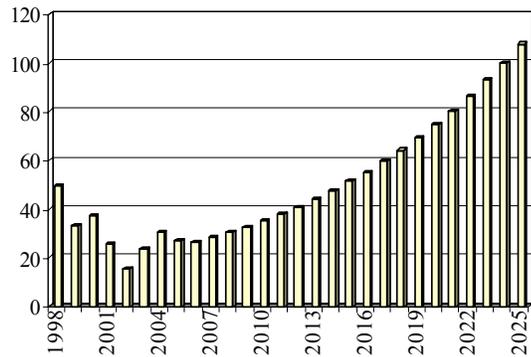
**Government Consumption
(Billion U.S. Dollars)**



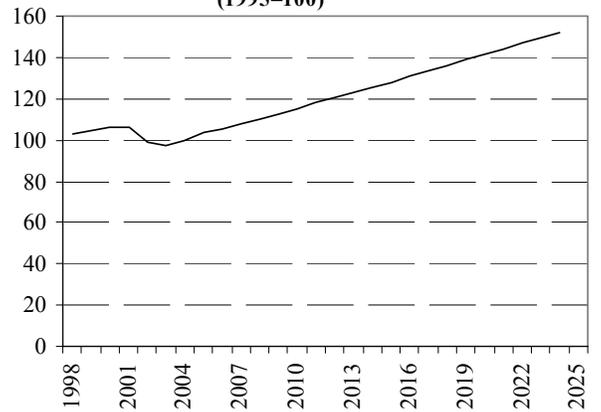
**Investment
(Billion U.S. Dollars)**



**Total Trade Balance
(Billion U.S. Dollars)**



**GDP Deflator
(1995=100)**



CHINA	2001	2005	2010	2025	Avg. Annual Compound Growth		
					2001-05	2005-10	2010-25
Real GDP, 1995 Billion \$US	1,093.67	1,456.26	2,099.14	5,902.85	7.4%	7.6%	7.1%
GDP, Billion \$US	1,156.77	1,455.31	2,365.27	8,986.26	5.9%	10.2%	9.3%
Real GDP, Percent Change	6.99	7.28	7.27	6.76	1.0%	0.0%	-0.5%
GDP Deflator, \$ based, 1995=100	1.06	1.00	1.13	1.52	-1.8%	2.6%	2.0%
Consumption per Capita	427.79	541.74	859.09	3,025.99	5.5%	10.0%	8.8%
Consumption share of GDP	0.48	0.50	0.50	0.51	0.9%	0.4%	0.1%
Government Spending share of GDP	0.16	0.14	0.14	0.13	-1.2%	-0.5%	-0.4%
GDP per Capita	896.97	1,091.28	1,709.07	5,899.77	4.5%	9.6%	8.7%
Investment share of GDP	0.37	0.40	0.40	0.38	1.7%	0.2%	-0.3%
GDP by Sector, Agriculture, \$bn							
GDP by Sector, Mining \$bn							
GDP by Sector, Manufacturing \$bn							
GDP by Sector, Utilities \$bn							
GDP by Sector, Construction \$bn							
GDP by Sector, W&R Trade \$bn							
GDP by Sector, Transport and Comm. \$bn							
GDP by Sector, FIRE \$bn							
GDP by Sector, Community and Social Svcs. \$bn							
Private Consumption, \$bn	551.70	722.45	1,188.94	4,609.04	7.0%	10.5%	9.5%
Government Consumption, \$bn	179.57	204.41	325.53	1,160.12	3.3%	9.8%	8.8%
Investment, \$bn	425.14	582.23	938.21	3,433.80	8.2%	10.0%	9.0%
Exports of Goods and Services, \$bn	288.69	397.39	605.16	1,855.71	8.3%	8.8%	7.8%
Imports of Goods and Services, \$bn	275.46	418.80	634.25	1,944.91	11.0%	8.7%	7.8%
Private Consumption, bn 1995 \$	523.63	702.00	1,017.93	2,907.88	7.6%	7.7%	7.2%
Government Consumption, bn 1995 \$	131.30	183.39	264.71	708.05	8.7%	7.6%	6.8%
Investment, bn 1995 \$	413.40	561.99	812.70	2,197.39	8.0%	7.7%	6.9%
Exports of Goods and Services, bn 1995 \$	339.45	468.14	688.74	2,111.58	8.4%	8.0%	7.8%
Imports of Goods and Services, bn 1995 \$	314.12	440.99	653.63	2,003.94	8.9%	8.2%	7.8%
Total Trade share of GDP	0.49	0.56	0.52	0.42	3.6%	-1.3%	-1.4%
Total Trade, \$bn	564.15	816.19	1,239.41	3,800.62	9.7%	8.7%	7.8%

Hong Kong

Recent Developments

Hong Kong has recovered phenomenally from the Asian-crisis-induced recession since the first quarter of 1999, when real GDP contracted 3%. Hampered by the deteriorating external environment, though, the territory's recovery has started to cool since late last year. Along with other regional countries' exports, weakening global demand, caused by the slowdowns in the U.S. and Japanese economies, has pinched Hong Kong's export growth and, in turn, has weighted heavily on its export-driven economy. As a result, real GDP rose just 2.5% in the first quarter of this year, down from gains of 10.8% in the third quarter and 6.9% in the fourth quarter of last year

The first-quarter slowdown was mainly due to weakening exports, caused by the slowing U.S. and global economies, and moderate private consumption. However, increasing government consumption and domestic investment have offset some of the negative effect and helped halt the economy's further slowing.

Although the consumer price index (CPI) growth rate is still in negative territory, deflation has eased considerably since last year. The CPI contracted by an average 2.0% in the first quarter and 1.3% in the second quarter of this year. Although loosening monetary policy is likely to relieve some deflationary pressure, the economic slowdown could depress consumer spending and hence add the downward pressure to the CPI.

Total exports, including re-exports and domestic exports, has sharply slowed since late last year. The relative strength of the Hong Kong dollar, which is pegged to the U.S. dollar, reduced the territory's competitiveness; this along with the global economic slowdown caused total exports to decline 8.4% in June from a year earlier. In addition, total imports plunged by 6.6%. The current account surplus narrowed in the first quarter of this year, amounting to HK\$10.5 billion, down 5.0% from a year earlier.

Outlook

Consumer Markets

Climbing unemployment, a plunging stock market, and a depressed property market, along with the deteriorating economy, continued to dampen consumer sentiment. This dampened sentiment is reflected in larger declines in durable goods, clothing and footwear, and housing prices, as well as resumed declines in transport and utility prices. The aggressive interest rate cuts, along with China's entry into World Trade Organization, are likely to stimulate domestic consumption and, thus, demand for imports sometime next year

Investment

Despite the global economic slowdown, investment in Hong Kong will continue to be strong in 2002 and the remainder of the short-term forecast. In 2001, investment grew by

5.9%. While this is significantly less than the 9.8% growth from 2000, it is still quite impressive, given that Hong Kong's real GDP only grew by 2.6% in 2001. In fact, the absolute increase in investment was over 50% more than the dollar increase in private consumption for that year, making investment the primary driver of GDP growth in that year.

As the economy resumes its normal rate of growth in 2002, investment's pace quickens as well. Our forecast is for investment to grow 6.1% between 2002 and 2003, 6.8% in 2003, and at an average rate of 7.3% from 2004 to 2006. During this period Hong Kong's real GDP only increases by 4.9% on average over the forecast period, investment will play an increasingly large role in Hong Kong's economic expansion.

Foreign Trade

Hong Kong's current account balance has remained in a surplus since 1997, when it recorded a deficit of HK\$47.7 billion. After a peak of HK\$89.1 billion in 1999, the surplus started to decline, totaling HK\$68.8 billion in 2000, and accounting for 5.4% of GDP. As slowing global demand weakened the territory's exports of goods and widened trade deficit, the current account surplus narrowed in the first quarter of this year, amounting to HK\$10.5 billion, down 5.0% from a year earlier. The first-quarter y-o-y decline was led by a greater traded-goods deficit and continued outflows of current transfers, but tempered by an increase in a traded-service surplus and higher inflows of factor income.

Meanwhile, the territory's merchandise trade has remained depressed since late last year, along with the economic slowdowns in the global economies. In addition, with weakening currencies in the region, the relative strength of the Hong Kong dollar through the peg to the U.S. dollar moderated the territory's competitiveness. As a result, total exports of goods plunged 8.4% in June from a year earlier, after falling 3.6% in May. Total imports of goods also plummeted by 6.6% in June, after declining 3.3% in May. The trade deficit expanded from HK\$8.0 billion in May to HK\$8.2 billion in June.

The near-term trade outlook remains gloomy. The worse-than-expected slowdowns in the U.S. and Japanese economies will continue to weaken the territory's exports. In addition, the weakening Japanese yen and other regional currencies should further reduce the territory's competitiveness. Meanwhile, sluggish domestic demand will also undermine import growth in the coming months. However, the aggressive interest rate cuts, along with China's entry into the World Trade Organization, are likely to stimulate domestic consumption and thus, demand for imports later this year. As a result, the trade balance will remain in deficit, while the current account balance maintains a surplus, as rising factor income flows in from business opportunities in China.

Policy

Fiscal Policy

Chief Executive Tung Chee-hwa confirmed that the government has no plans to change salaries of civil servants, but it will conduct salary adjustments based on the survey to private sector's salaries. He also confirmed that the government has no plans to change the territory's currency

board system, which links the Hong Kong dollar to the U.S. dollar at 7.8/dollar. Meanwhile, as a result of concerns over Hong Kong's linked exchange rate system, triggered by Argentina's debt problems worsening its linked system, the Hong Kong dollar forward rate increased sharply on October 19. One-year forward contracts closed at 7.83/U.S. dollar, 300 points above the 7.8/dollar spot rate.

The government recorded a fiscal deficit of HK\$60.7 billion for the first six months of the 2001/02 fiscal year. During the same period, government expenditure stood at HK\$115.3 billion, while revenue amounted to HK\$54.6 billion and fiscal reserves totaled HK\$369.5 billion. Meanwhile, the broadest measure of money supply, M3, increased in September by 2.2% from a year earlier, after rising 2.6% in August. In addition, the narrower money supply measures also expanded in September, with M1 jumping 8.7% and M2 increased 2.0%.

Monetary Policy

In late June, the Hong Kong Association of Banks (HKAB) left the key saving deposit rate unchanged at 2.25%, right before a banking deregulation takes place on July 3. The HKAB will no longer set the saving deposit rates, leaving the local banks to determine their own rates. Meanwhile, some major Hong Kong banks, including Bank of China, are planning to cut the prime lending rate from 7.0% to 6.75%, effective July 3.

In the meantime, it is unlikely that the Hong Kong Monetary Authority (HKMA), the territory's effective central bank, will abandon the currency board in the near future. As a result, interest rates here will continue to mirror those in the United States. Since the U.S. economy has so far shown little signs of revival, the Federal Reserve is likely to cut interest rates further. Therefore, Hong Kong's rates are expected to fall as well. The risk premium in the territory's nominal rates should stay nonexistent in the short run, because the HKMA has eliminated its ability to control liquidity through the "technical measures" implemented in fall 1998, which have strengthened the credibility of the currency board.

The broadest measure of money supply, M3, increased by 4.8% y-o-y in May, after rising 5.0% in April. The narrower money supply measure, M1, rose by 4.5% in May, while M2 increased by 4.9%.

Inflation

Hong Kong's consumer price index (CPI) plunged sharply in 1998, driven by the economic deterioration during the Asian crisis. Declining prices are a natural consequence of maintaining the territory's currency board amid negative economic conditions. In other words, by keeping the exchange rate fixed throughout the Asian crisis, Hong Kong's economy could adjust only through deflation. Indeed, in 1998Q1, consumer price inflation still hovered around 5%, while by November of that year, it had moved into negative territory, where it has since remained. In 2000, as the economy recovered, deflation began to ease since, improving from 5.3% in January to 1.8% in December. However, the pace has slowed in 2001, and deflationary pressures have persisted along with the weakening economy. The CPI declined by an average 2.0% in the first quarter and 1.3% in the second quarter.

Deflationary pressure is likely to continue to ease, but at a slower pace. The U.S. Federal Reserve is likely to continue to loosen monetary policy, which would effectively ease the liquidity in Hong Kong further, given the territory's currency peg to the U.S. dollar. This should help ease deflation. However, Hong Kong's recovery after the Asian crisis has slowed since late last year, and has since weakened, which in turn, will dampen consumer spending and increase deflationary pressure. As a result, we expect consumer prices to improve gradually this year, and probably return to positive territory by next year.

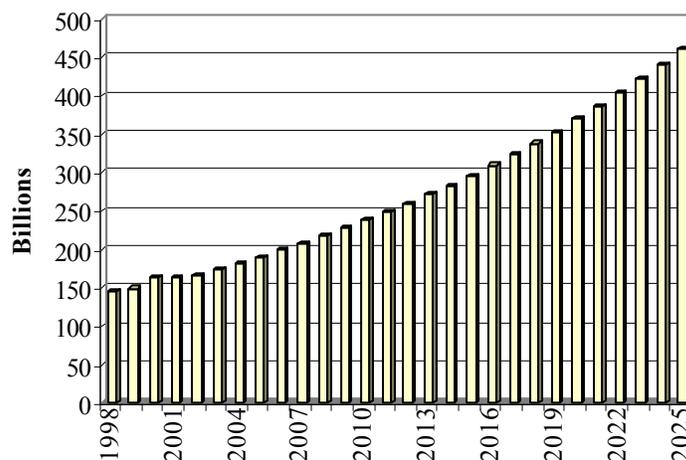
Employment

Due to the slowing economy, the labor market has shown no signs of improving. As students are expected to graduate and look for jobs in these months, unemployment is likely to remain high.

Exchange Rate

The Hong Kong dollar remains pegged to the U.S. dollar. However, as Hong Kong's economy sharply weakened since late last year, following the worse-than-expected slowdowns in the U.S., Japanese, EU, and other East Asian countries, pressure on the Hong Kong dollar has increased. In addition, the deteriorating Japanese economy has led to a substantial weakening in the Japanese yen, followed by other regional currencies, along with their slowing economies. Meanwhile, the U.S. dollar remained strong, although its economy is worsening. As a result, the relative strength of the Hong Kong dollar through the peg has reduced the territory's competitiveness to other countries and, in turn, raised the downward pressure on the currency. In the meantime, the monetary base decreased from HK\$218.7 billion on May 7 to HK\$220.6 billion on August 8. According to the currency board system, changes in the monetary base were met by corresponding changes in foreign reserve.

Real GDP, 1995 U.S. \$



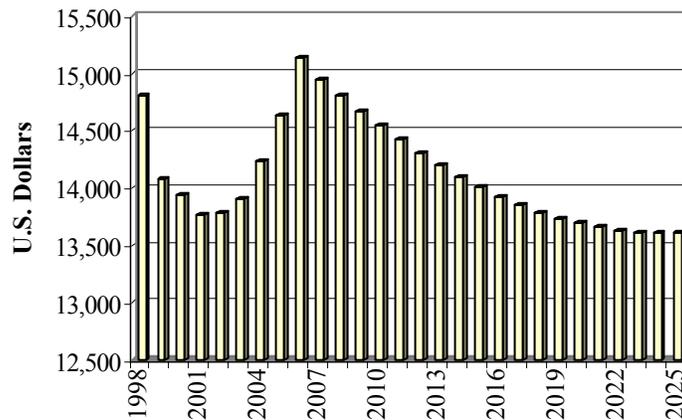
Although the pressure is increasing, it is unlikely that Hong Kong will abandon its currency board arrangement soon. Unlike other currency boards that serve as an inflation anchor, Hong Kong's currency board was established essentially as a confidence anchor

against negative developments in China. Given the high risk in the structural reforms that China is currently undertaking, Hong Kong's resolve to maintain the currency board is very strong, and the island's public seems willing to pay the high price of keeping such a system. Along with the government's incentive to stabilize the investment environment and curb any speculation on the currency, we expect the Hong Kong dollar to maintain the link to the U.S. dollar at HK\$7.8/\$.

Political Developments

Hong Kong's political risks have decreased slightly. External political risks have diminished after the terrorist attacks in September. With the ongoing U.S.-led military campaign in Afghanistan against terrorism, China and the United States are building toward a better relationship. Meanwhile, the risks of domestic political gridlock remain

Consumption Per Capita
(U.S. Dollars per Person)



low since Donald Tsang became chief secretary, although his political stance toward China differs from the chief executive's more compromising approach. The territory's autonomy remains at risk, however, as Chief Executive Tung Chee-hwa is likely to compromise it at Beijing's request

Forecast

Short Term

Hong Kong has recovered phenomenally from the Asian crisis-induced recession since 1999Q1, when real GDP contracted 3.0%. In 2000, economic growth shot up to 10.5%, led by soaring export gains, increasing private consumption, and impressive growth in fixed capital formation, despite the high real interest rates.

Hampered by the deteriorating external environment, though, the territory's recovery has started to cool since late last year. Real GDP rose just 2.5% in the first quarter of this year, down from gains of 10.8% in the third quarter and 6.9% in the fourth quarter of last

year. Weakening global demand, caused by the slowdowns in the U.S. and world economies, has pinched Hong Kong's export growth. Goods exports rose only 4.2% in the first quarter, after climbing 13.3% in the fourth quarter, while imports of goods increased 5.3%, after growing 13.4% in the previous quarter. Meanwhile, private consumption remained modest, increasing 2.8%. The first-quarter slowdown was tempered, however, by slightly better performances in government consumption and domestic investment, which increased 4.0% and 13.8%, respectively.

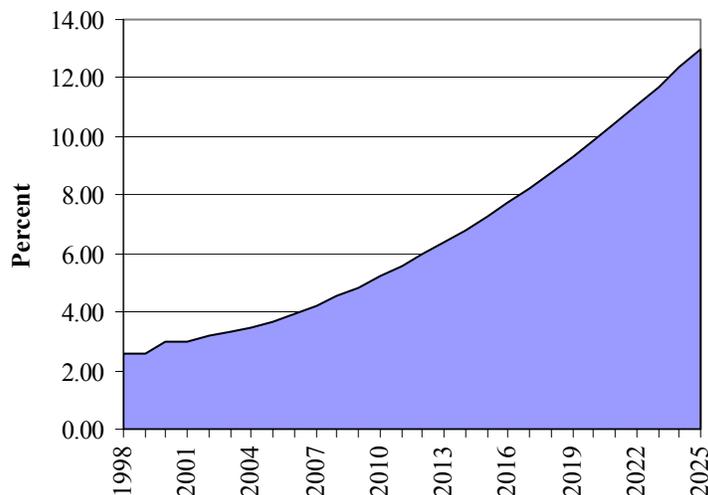
The territory's recovery is losing steam. Exports are likely to remain weak, driven by continued slowdowns in the U.S. and Japan economies. High unemployment and sluggish property market would continue to depress consumer spending. However, the Federal Reserve's interest rate cuts have led monetary easing in Hong Kong, given its currency board system that pegs the Hong Kong dollar to the U.S. dollar. Lower interest rates are likely to stimulate consumer sentiment later this year. Meanwhile, the territory could benefit from China's still strong growth and its entry into the World Trade Organization. As a result, the economy is likely to gradually pick up late this year and into next year.

Long Term

Growth in Hong Kong over the long run is unlikely to repeat its superior performance of past decades. The economy has already matured, with annual per capita GDP well above US\$20,000. Nevertheless, the territory has several favorable characteristics for its long-term outlook: openness to trade, a high savings rate, a government with a long history of noninterventionist policy, and a massive and fast growing neighbor—China

Hong Kong's real economy will be pulled forward in the future by China, and by an expanding export base. DRI•WEFA predicts that Hong Kong's economy will reach US\$460 billion (1995 dollars) in the final year of the forecast, 2025. After the slight recession in 2001, growth is expected to resume thereafter, averaging 3.8% per year through 2010, and 4.5% through 2025.

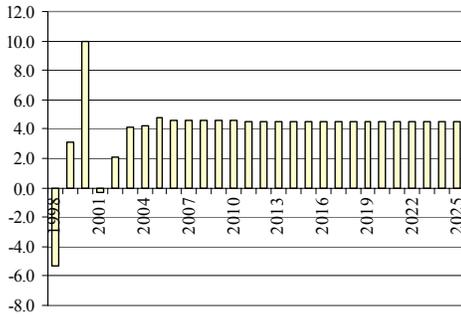
Total Trade share of GDP



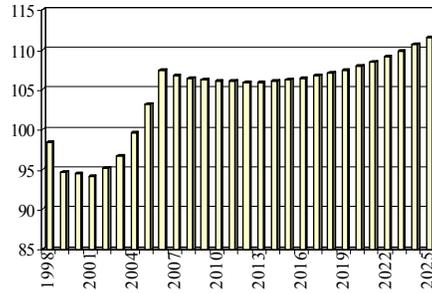
Hong Kong's per capita consumption is expected to level off. While DRI•WEFA thinks that per capita consumption may increase through 2006, thereafter a slow decline is expected in real terms. This is because of the inflation effects as well as the fact that Hong Kong's real growth engine in the future will be trade, as it has been in the past, but less of the proceeds will fall to the average population. See the chart of per capita consumption.

The growth in trade will continue. In fact, Hong Kong is one of the few economies in the world in which the value of its trade component is actually larger than the internal economy itself. The territory is completely dependent on trade, and with China experiencing high growth rates, it has a natural trading partner at its doorstep. DRI•WEFA expects that the ratio of trade to GDP will increase from the 2001 level of 3.02 to almost 13 in the final year of the forecast. The territory's recovery is losing steam. Exports are likely to remain weak, driven by continued slowdowns in the U.S. and Japan economies. High unemployment and sluggish property market would continue to depress consumer spending. However, the Federal Reserve's interest rate cuts have led monetary easing in Hong Kong, given its currency board system that pegs the Hong Kong dollar to the U.S. dollar. Lower interest rates are likely to stimulate consumer sentiment later this year. Meanwhile, the territory could benefit from China's still strong growth and its entry into the World Trade Organization. As a result, the economy is likely to gradually pick up late this year and into next year.

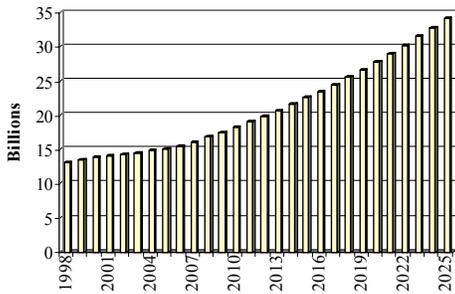
Real GDP Growth (%)



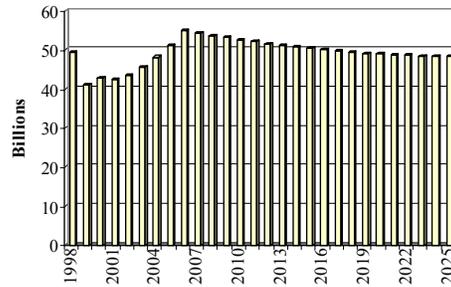
**Private Consumption
(Billion U.S. Dollars)**



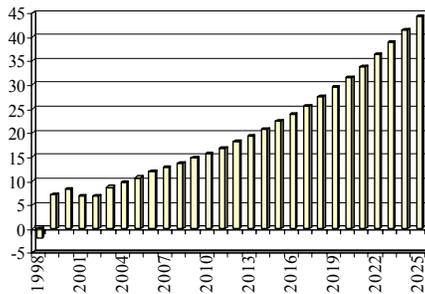
**Government Consumption
(Billion U.S. Dollars)**



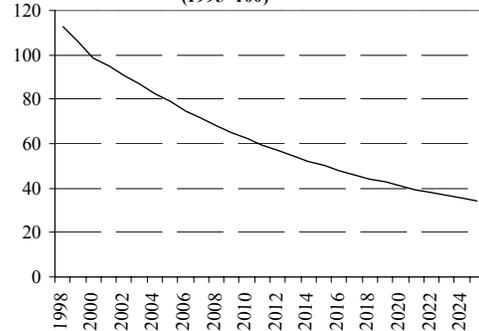
**Investment
(Billion U.S. Dollars)**



**Total Trade Balance
(Billion U.S. Dollars)**



**GDP Deflator
(1995=100)**



HONG KONG	2001	2005	2010	2025	Avg. Annual Compound Growth		
					2001-05	2005-10	2010-25
Real GDP, 1995 Billion \$US	163.58	189.92	237.65	460.06	3.8%	4.6%	4.5%
GDP, Billion \$US	155.21	149.55	147.93	156.49	-0.9%	-0.2%	0.4%
Real GDP, Percent Change	(0.32)	4.77	4.55	4.50	nc	-0.9%	-0.1%
GDP Deflator, \$ based, 1995=100	0.95	0.79	0.62	0.34	-4.6%	-4.6%	-3.9%
Consumption per Capita	13,770.20	14,634.99	14,549.19	13,610.97	1.5%	-0.1%	-0.4%
Consumption share of GDP	0.61	0.69	0.72	0.71	3.2%	0.8%	0.0%
Government Spending share of GDP	0.10	0.12	0.12	0.12	3.6%	0.8%	0.0%
GDP per Capita	22,692.34	21,223.49	20,287.76	19,117.73	-1.7%	-0.9%	-0.4%
Investment share of GDP	0.27	0.34	0.37	0.36	5.8%	1.4%	-0.1%
GDP by Sector, Agriculture, \$bn	0.12	0.12	0.12	0.12	-0.9%	-0.2%	0.4%
GDP by Sector, Mining \$bn	0.05	0.05	0.05	0.05	-1.0%	-0.2%	0.4%
GDP by Sector, Manufacturing \$bn	10.44	10.06	9.95	10.53	-0.9%	-0.2%	0.4%
GDP by Sector, Utilities \$bn	4.54	4.38	4.33	4.58	-0.9%	-0.2%	0.4%
GDP by Sector, Construction \$bn	9.55	9.20	9.10	9.62	-0.9%	-0.2%	0.4%
GDP by Sector, W&R Trade \$bn	47.52	45.79	45.29	47.91	-0.9%	-0.2%	0.4%
GDP by Sector, Transport and Comm. \$bn	16.01	15.42	15.26	16.14	-0.9%	-0.2%	0.4%
GDP by Sector, FIRE \$bn	47.43	45.70	45.21	47.82	-0.9%	-0.2%	0.4%
GDP by Sector, Community and Social Svcs. \$bn	13.70	13.20	13.06	13.82	-0.9%	-0.2%	0.4%
Private Consumption, \$bn	94.18	103.12	106.09	111.41	2.3%	0.6%	0.3%
Government Consumption, \$bn	15.84	17.60	18.09	19.08	2.7%	0.6%	0.4%
Investment, \$bn	42.42	51.22	54.28	56.87	4.8%	1.2%	0.3%
Exports of Goods and Services, \$bn	237.80	279.65	391.13	1,031.62	4.1%	6.9%	6.7%
Imports of Goods and Services, \$bn	231.04	271.27	379.15	1,000.02	4.1%	6.9%	6.7%
Total Trade, \$bn	468.84	550.92	770.28	2,031.64	4.1%	6.9%	6.7%

Taiwan

Recent Developments

The island's real GDP growth weakened to its slowest pace in 26 years in the first quarter, rising only 1.1% from a year earlier, driven by the slowing U.S. and global economies, down sharply from 4.1% in the fourth quarter of last year. The slowdown was led by continued slowing in domestic investment and government consumption, along with weakening exports and sluggish private consumption.

Weakening global demand for the island's high-tech and electronics goods has led to a sharp decline in total exports, while sluggish domestic demand and investment have depressed total imports. As a result, exports declined 3.5% from a year earlier in the first quarter, while imports fell 10.0%. The current account remained in surplus of US\$3.5 billion in the first quarter.

Despite rises in January because of the Lunar New Year holiday, prices have remained depressed this year, along with the weakening economy and sluggish domestic consumption. The CPI declined by 0.21% in May and 0.16% in June, while the WPI decreased 1.30% in May and 0.22% in June. As the economy continues to slow, there is little inflationary danger in the coming months.

Due to political instability and ongoing confidence crises, along with the deteriorating economy, an intensely pessimistic atmosphere has covered the island. As a result, the New Taiwan dollar fell sharply on May 21, to 33.46/\$, and again on May 28 to 34.56/\$. Since then, the currency has continued a depreciation trend with no end in sight. Following the falling Japanese yen and the tumbling stock market, the New Taiwan dollar depreciated considerably on July 11, to a 14-year low of 35.05/dollar.

Outlook

Consumer Markets

Private consumption has actually decelerated since the second quarter of 2000. In addition, the continuing climb in the rate of unemployment would further dampen private consumption. To make matters worse, it appears that both the U.S. and Japanese economies—which combined, absorb more than one-third of Taiwan's exports—are sliding into recessions, following the terrorist attacks on the United States. The decelerating U.S. economy is dragging down global growth as well, with little hope for a recovery this year and a possible turnaround next summer. As a result, we expect to see an economic contraction this year, with a slight rebound next year following the U.S. economic recovery.

Investment

Prolonged political instability and depressed stock and real state markets would keep domestic investment and demand weak. Rebound in domestic and foreign investment is highly dependent on the government's ability to restore consumer confidence and to bring stability to the Taiwan dollar.

Foreign Trade

Since late last year, weakening global demand for the island's high-tech and electronics goods has led to a sharp decline in Taiwan's trade sector. Exports and imports plunged further in September, after the September attacks on the United States disrupted shipments of export products and the powerful typhoon, Nari, brought devastating floods, shortening the working days. Exports dropped for the seventh consecutive month in September by a sharp 42.5% to US\$7.5 billion. Exports to the major trade partners, including the United States, Hong Kong, Europe, Japan, and ASEAN, all recorded a more than 36% y/y decline in September. Meanwhile, imports also tumbled by a sharp 40.4% to US\$7.0 billion due to weakening domestic demand and falling investment. The y/y declines in exports and imports were the largest contractions on record. This resulted in a trade surplus of US\$417.4 million in September. On the other hand, the current account remained in surplus, amounting to US\$3.9 billion in the first quarter and US\$3.7 billion in the second quarter.

Policy

Fiscal Policy

The Legislative Yuan passed the petroleum management law to fully liberalize the local petroleum market and to open up the market for foreign oil imports. The law also enables the government to accelerate the privatization process of Chinese Petroleum Corporation (CPC). In addition, the passage of the law is expected to increase competition and reduce the company's dominance in the local market. CPC has relinquished around 25% of market share to Formosa Petrochemical, after the entry of Formosa Petrochemical ended the monopoly of CPC in the domestic market. The Ministry of Economic Affairs is planning to announce 17 subsections of the law by the end of the year 2001.

Monetary Policy

In late 1999, the Central Bank of China (CBC), Taiwan's central bank, adopted monetary tightening due to concerns over built-up inflationary pressure and the U.S. Federal Reserve's interest rate hikes. Money-supply (M2) expansion averaged about 8.3% in 1999, meeting the target range of 6%-11% that the central bank set for the year.

For 2000, the CBC had again set a target range of 6%-11% for M2 growth. However, monetary conditions had tightened more than expected in the second half of the year. Fearing government cleanup of their non-performing loans, banks had become increasingly reluctant to lend. In addition, the continuing instability in President Chen's new government had led domestic capital to seek safer havens elsewhere, and the central bank's defense of the Taiwan dollar aided the liquidity crunch. As a

result, y-o-y growth of money supply (M2) recorded a historical low of 5.0% in April, below the bottom of the 6%-11% target range. Meanwhile, the narrower measures, M1A and M1B, continued to decline. M1A declined 7.4% in April, while M1B dropped 6.8%. However, due to the extension of bank credit and higher demand for funds caused by rising investment, M2 expanded by 6.0% for the second consecutive month in June, up from a 5.6% jump in May. For 2001, due to a cooling economy, the CBC set the M2 growth target to 5%-10%, down from the 6%-11% range of previous years.

In addition, following the U.S. Federal Reserve's interest-rate cut, the island's central bank had lowered its two key interest rates seventh times since December 2000. In June, the discount rate stood at 3.50% and the accommodation with collateral rate recorded 3.875%; both are at record lows.

Inflation

The island's overall price levels have remained stable for over two years. The consumer price index (CPI) has stayed below 2.1% y-o-y, after experiencing a 3.9% increase in November 1998; the wholesale price index (WPI) fell for 13 consecutive months between October 1998 and October 1999. As a result, the CPI averaged only 0.17% in 1999, while the WPI declined by 4.6%. Last year, however, due to higher oil prices and holiday spending, overall price levels climbed in late 2000, resulting in an average 1.3% increase in the CPI and 1.8% in the WPI. Despite rises in January because of the Lunar New Year holiday, prices have remained depressed this year, along with the weakening economy and sluggish domestic consumption. The CPI declined by 0.21% in May and 0.16% in June, while the WPI decreased 1.30% in May and 0.22% in June. For the first six months, the CPI increased only 0.30% and the WPI was down 0.01%.

There is little inflationary pressure. In fact, inflation is likely to stay modest toward the year-end, as the deteriorating economy, plunging stock market, and rising unemployment continue to depress domestic consumption and keep wages from growing. In addition, stabilized oil prices and a sluggish real estate market should limit overall price growth, while the expected entry to the World Trade Organization is likely to raise competition and hence keep inflation in check. Meanwhile, the central bank has lowered the key interest rates seven times to record lows since December 2000, and is likely to reduce them further if the slowing in the economy accelerates. However, inflationary pressure from the loosening monetary policy should be restrained.

Employment

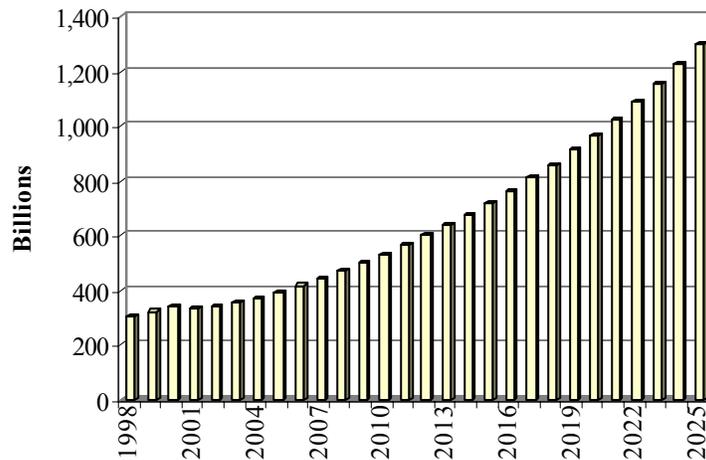
The outlook for Taiwan's labor market remains gloomy in the coming months, as the global and domestic economies decelerate further following the worsening U.S. economic outlook. Continued slowing in global demand for Taiwan's products, especially electronic goods, has fast decelerated its exports and, in turn, the export-driven economy. A rapidly weakening economy has deteriorated the island's business environment and driven the firms to close plants and fire workers. In addition, students are graduating and looking for jobs, which boosts overall labor supply. While labor demand is limited by the decelerating economy, increasing supply should keep unemployment high and increasing.

Exchange Rate

The Taiwan dollar had been on a depreciating path since President Chen took office last year. The weakened Taiwan dollar was partly due to the U.S. Federal Reserve's past rate hikes, which further widened the interest rate differential. A more important factor in the Taiwan dollar slide, however, was capital flight due to political instability in the new Chen administration. The central bank initially defended the Taiwan currency, but the resulting liquidity crunch stifled the economy, and the central bank consequently allowed the Taiwan dollar to depreciate. In addition to buying the Taiwan dollar on the foreign exchange market, the central bank also tried to stop the currency from falling by implementing a 10% reserve requirement ratio on domestic banks' foreign currency deposit, thus narrowing the interest differentials between foreign currency and Taiwan dollar deposits.

Along with the weakening economy and political instability, public confidence also hit bottom. Driven by the intense pessimistic atmosphere, the overall perspective on the currency from investors and researchers implied a substantial weakening trend. As a result, the New Taiwan dollar fell sharply on May 21, to 33.46/\$, and again on May 28 to 34.56/\$. Since then, the currency has remained weak. It averaged 34.38/\$ in June, softening from 33.24/\$ in May. However, the decline has apparently not ended. Following the falling Japanese yen and the tumbling stock market, the New Taiwan dollar depreciated considerably on July 11, to a 14-year low of 35.05/\$. As the economy deteriorates further, we expect the New Taiwan dollar to continue weakening at a slow and gradual pace.

Real GDP, 1995 U.S. \$



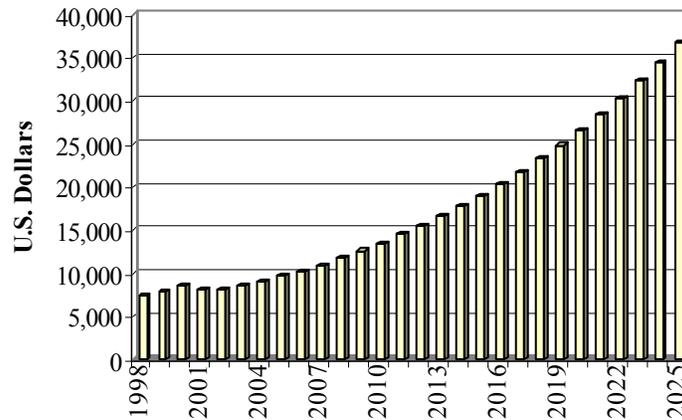
Political Developments

The government decided not to participate in the informal leadership meeting of the Asia-Pacific Economic Cooperation (APEC) forum, after China, the host of APEC, refused to issue an invitation to Taiwan's chosen representative, Li Yuan-zu. As a long-term strategy for China preventing Taiwan's recognition as an

independent country, China has blocked Taiwan’s president and higher-level officials from participating at such events. Although it was not a surprising result, withdrawing from the APEC forum will narrow Taiwan’s already limited role in world events—a critical development at a time when the domestic economy is decelerating.

Forecast

Consumption Per Capita
(U.S. Dollars per Person)

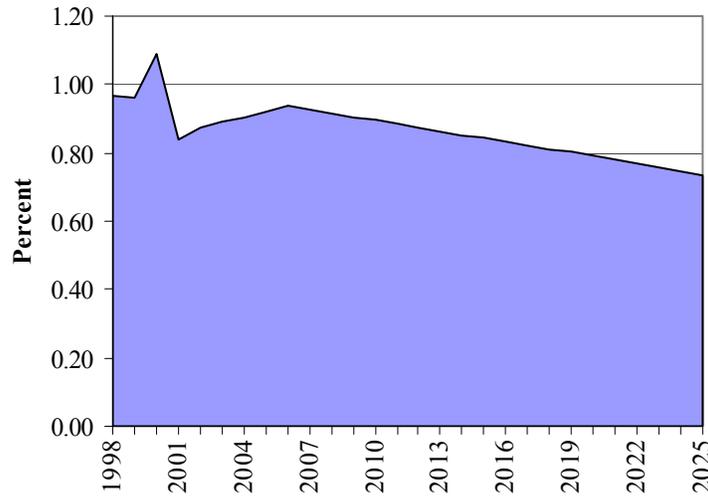


Short Term

The island’s real GDP growth weakened to its slowest pace in 26 years in the first quarter of 2000, rising only 1.1%, taking a heavy toll from the U.S. and global economic slowdowns. It was the lowest growth rate since 1975Q1, when the world oil crisis hit the economy. The sharp first-quarter slowdown was mainly driven by sharp declines in domestic investment and government consumption, falling 7.9% and 7.0%, respectively. Meanwhile, private consumption grew modestly by only 2.0%. For external sectors, sluggish global demand has halted the island’s phenomenal export performance, with the growth of exports slowing to 1.9% in the first quarter, down from 14.0% in the previous quarter. Led by slowing domestic demand, import growth declined 4.5% in the first quarter.

The outlook for both domestic demand and exports is negative. Private consumption growth has, in fact, decelerated since 2000Q2. Continuing political instability and depressed stock and real state markets would keep domestic demand weak. In addition, the continuing climb in the rate of unemployment would further dampen consumer demand. To make matters worse, it appears that both the U.S. and Japanese economies—which combined, absorb more than one-third of Taiwan’s exports—are softening. As a result, overall growth in Taiwan is likely to continue to moderate in the near term.

Total Trade share of GDP



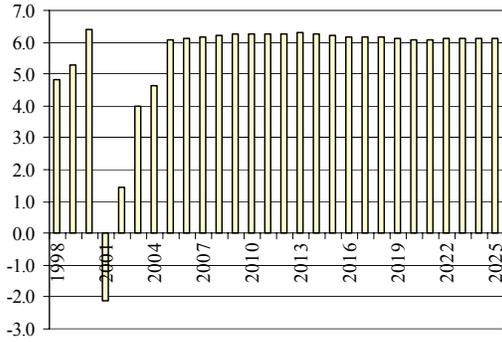
Long Term

The long-term outlook for Taiwan calls for real GDP growth to average 6.2% per annum through 2010, and then to take place at 6.2% annually through the end of the forecast period. This slower growth for the next ten years stems from this year's expected slow growth, which has resulted from the terrorist attacks and their negative effect on U.S. economic growth. The 2.1% reduction in real output in 2001 is a serious setback for this otherwise dynamic, export-oriented economy.

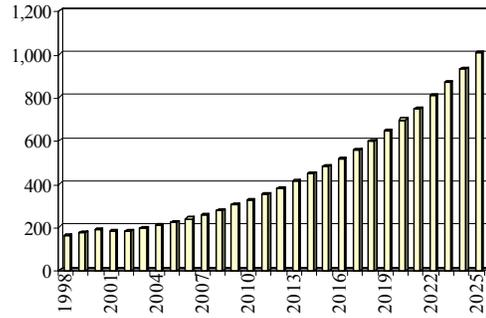
A pattern similar to that is real GDP is seen in real consumption per capita, with a dip occurring during the present recession. The bumpy period through 2003 lowers the average per capita consumption rate to \$10,133 for the 2000–10 period, followed by an average of \$23,485 thereafter as consumption patterns increase in line with steadier overall growth in the economy.

The trade share of real GDP is very high for Taiwan, over 80% on average over the last 20 years. This is because exports, in particular, have been the driving force behind the growth in this state. In 2001, there will be a drop in this ratio to almost 80%. Through 2006, as the United States and the rest of the world recover, the ratio of total trade to GDP will improve as exports resume their historical advances. However, as has been the case in Japan and Hong Kong, this ratio is expected to start a steady decline. Increasing labor rates will soon begin to price many Taiwanese export products out of their traditional competitive markets, which will be overtaken by Southeast Asian and Indian subcontinent countries, or even by Central American free trade operations. By the end of the forecast period, this ration will have fallen to 73%.

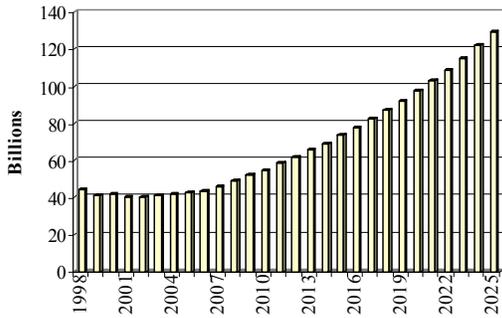
Real GDP Growth (%)



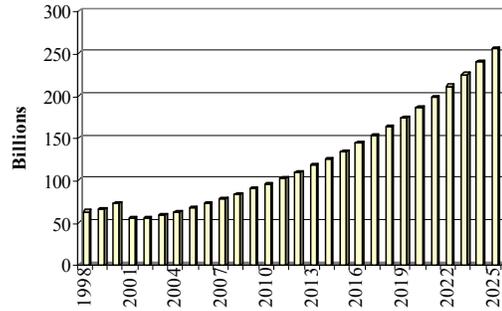
**Private Consumption
(Billion U.S. Dollars)**



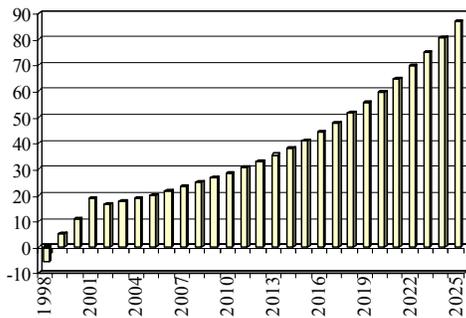
**Government Consumption
(Billion U.S. Dollars)**



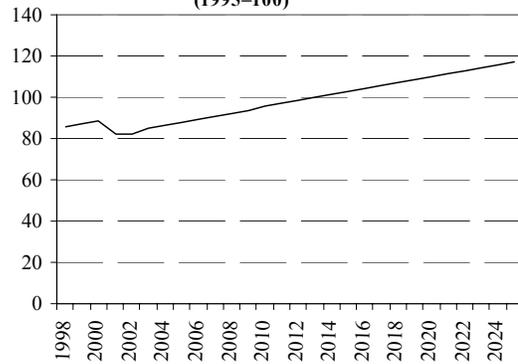
**Investment
(Billion U.S. Dollars)**



**Total Trade Balance
(Billion U.S. Dollars)**



**GDP Deflator
(1995=100)**



GLOBAL MACROECONOMIC AND TRADE SCENARIO VOLUME I
Most Probable Scenario

TAIWAN	2001	2005	2010	2025	Avg. Annual Compound Growth		
					2001-05	2005-10	2010-25
Real GDP, 1995 Billion \$US	335.25	392.50	530.02	1,300.98	4.0%	6.2%	6.2%
GDP, Billion \$US	275.81	344.73	505.45	1,527.85	5.7%	8.0%	7.7%
Real GDP, Percent Change	(2.12)	6.06	6.28	6.11	nc	0.7%	-0.2%
GDP Deflator, \$ based, 1995=100	0.82	0.88	0.95	1.17	1.6%	1.7%	1.4%
Consumption per Capita	8,054.30	9,648.96	13,524.20	36,736.08	4.6%	7.0%	6.9%
Consumption share of GDP	0.65	0.65	0.65	0.66	-0.2%	-0.1%	0.1%
Government Spending share of GDP	0.13	0.12	0.11	0.11	-2.3%	-1.0%	-0.4%
GDP per Capita	12,336.44	14,898.41	20,951.87	55,976.72	4.8%	7.1%	6.8%
Investment share of GDP	0.20	0.20	0.19	0.19	-0.9%	-0.1%	-0.2%
GDP by Sector, Agriculture, \$bn	6.14	7.68	11.26	34.03	5.7%	8.0%	7.7%
GDP by Sector, Mining \$bn	1.53	1.91	2.80	8.45	5.7%	8.0%	7.7%
GDP by Sector, Manufacturing \$bn	71.57	89.46	131.16	396.47	5.7%	8.0%	7.7%
GDP by Sector, Utilities \$bn	6.25	7.81	11.45	34.63	5.7%	8.0%	7.7%
GDP by Sector, Construction \$bn	8.97	11.22	16.45	49.71	5.7%	8.0%	7.7%
GDP by Sector, W&R Trade \$bn	44.92	56.14	82.32	248.82	5.7%	8.0%	7.7%
GDP by Sector, Transport and Comm. \$bn	20.87	26.09	38.25	115.63	5.7%	8.0%	7.7%
GDP by Sector, FIRE \$bn	57.38	71.72	105.16	317.88	5.7%	8.0%	7.7%
GDP by Sector, Community and Social Svcs. \$bn	55.37	69.21	101.47	306.73	5.7%	8.0%	7.7%
Private Consumption, \$bn	180.07	223.26	326.26	1,002.69	5.5%	7.9%	7.8%
Government Consumption, \$bn	35.45	40.30	56.32	161.40	3.3%	6.9%	7.3%
Investment, \$bn	55.79	67.39	98.52	288.58	4.8%	7.9%	7.4%
Exports of Goods and Services, \$bn	122.39	165.26	235.68	584.02	7.8%	7.4%	6.2%
Imports of Goods and Services, \$bn	108.74	151.08	216.32	536.06	8.6%	7.4%	6.2%
Private Consumption, bn 1995 \$	211.03	240.31	321.75	799.08	3.3%	6.0%	6.3%
Government Consumption, bn 1995 \$	40.28	42.65	54.85	128.89	1.4%	5.2%	5.9%
Investment, bn 1995 \$	75.60	87.61	117.40	277.91	3.8%	6.0%	5.9%
Exports of Goods and Services, bn 1995 \$	156.58	195.48	276.43	842.89	5.7%	7.2%	7.7%
Imports of Goods and Services, bn 1995 \$	137.58	175.45	247.92	755.95	6.3%	7.2%	7.7%
Total Trade share of GDP	0.84	0.92	0.89	0.73	2.3%	-0.5%	-1.3%
Total Trade, \$bn	231.13	316.34	452.00	1,120.07	8.2%	7.4%	6.2%

Korea

Recent Developments

The manufacturing sector in Korea is trending downward due to the loss of export sales, following the slowing of the global economy. At the same time, however, consumer spending has increased, generating growth in the service sector and keeping unemployment low.

After slowing marginally by 1.7% (annual rate) in the fourth quarter of last year, GDP increased at a 1.2% rate in 2001Q1. This was partly due to a slight rebound in exports and investment, and to decreasing imports, which indicate that spending has shifted in favor of domestically produced goods.

Inflation remains moderately high, though still in single digits, as the Bank of Korea maintains an expansionary monetary policy. In fact, the BOK lowered rates by one-quarter point in July to 4.75%, making the real short-term interest rate negative. The BOK will not begin to seriously fight inflation until the threat of recession has passed, probably at year-end.

The forecast for 2001 overall is a 4% increase in GDP, with the decline in manufacturing being more than offset by growth in services and housing construction; the trade balance should remain essentially unchanged, yielding no net change in external demand. In the next two years, the gradual upturn in the world economy is forecast to raise the growth rate to 5.6% and 7.1%, respectively.

The labor market will move largely in step with output growth. The unemployment rate is not expected to change significantly this year, averaging 4.1%, then trend downward for a 2002 mean of 3.6%.

Lastly, relative stability is seen for the won in the near term, with only a marginal strengthening by year end. The medium term should show a slow appreciation into the low 1,200's over the next few years, before turning around to begin a long-run depreciation due to inflation differentials.

Outlook

Consumer Markets

The reason Korea has been able to avoid recession, despite the drop in external demand, has been strong domestic demand. Retail sales and auto purchases are rising at 6–8% rates. The sustainability of consumer demand will be a key risk factor in the coming months. Retail sales and housing demand has been a primary driver in the economy; if households begin to reduce their spending, it could initiate a contraction. The hope is that consumers will continue to drive the economy for the next three quarters, by which time foreign demand should return.

Investment

The investment outlook for Korea is quite strong, especially in comparison with the rest of the world. The rate of increase in investment for 2001 was 5.8%, despite the global economic slowdown. Our forecast is for investment in Korea to increase by 7.0% in 2002, 9.0% in 2003, and at an average annual rate of 7.8% from 2004 to 2006.

Foreign Trade

Prior to the Asian crisis, Korea's trade balance was frequently negative, as the country's fast growth necessitated high imports of capital goods and raw materials, while capital inflows kept the currency relatively strong. However, the crisis and resulting recession of 1998 sent imports plummeting, reflecting the drop in domestic demand; this led to a trade balance of nearly \$4 billion per month. Over the next two years, these surpluses gradually declined, as imports increased faster than exports, leveling off in the \$1-2 billion range. Higher import prices, especially for oil, explain much of the trade balance decline—in real terms, the balance has actually increased since the Asia crisis.

The slowing of the world economies in late 2000 reduced exports, which are now down 10-15% from a year ago. However, imports have fallen by roughly the same amount, due to lower domestic demand and the won depreciation. As a result, the trade balance has remained in the \$1-2 billion per month range; in addition, the won depreciation has actually increased the balance slightly in won terms. Lastly, there has, as yet, been no sign of flattening of the downtrend in seasonally adjusted exports and imports.

For the second half of 2001, exports and imports should stabilize. Even marginal growth in the overseas economies should be sufficient to stem the slide in Korean exports; this is partly at the expense of other emerging Asian economies, whose exports may not be considered as cost or quality-competitive as Korea's. Though the year-over-year change in exports and imports will be negative in dollar terms, they should both register increases in won terms. The trade surplus for 2001 is forecast to decrease slightly in both real and nominal terms; in subsequent years, the nominal balance should continue to trend downward, while the real balance remains relatively stable.

Policy

Fiscal Policy

Immediately after the Asian crisis hit, Korea's policymakers were primarily concerned with stabilizing the country and avoiding economic collapse. In this, they were successful, thanks to an IMF loan in early 1998, which helped them through a liquidity crunch, and thanks to the undervalued won and strong external demand, which spurred exports. As the economy recovered, focus shifted to the financial sector, which was burdened with heavy debts, often to foreigners and denominated in dollars, and with bad loans. A gradual cleanup began, directed in particular toward the large chaebol (conglomerates), which dominate the Korean economy.

Economic reforms should continue at a slow pace. Responding to the slowdown, the government will advance the spending on a supplementary budget and public works

projects totaling 20 trillion won earlier than scheduled. This will likely result in a budget deficit of 1% of GDP. By comparison, in the first five months of this year, the budget balance showed a surplus of 2.5% of GDP. The deficit should worsen slightly over the next two year, though it is not expected to exceed 2% of GDP, and thereafter, should gradually move toward surplus.

Monetary Policy

Monetary policy should remain accommodative throughout most of the year, though it could begin to tighten by year-end, especially if the threat of recession has diminished significantly and inflation remains high. Next year, interest rates should return to their normal levels, approaching 10% for money markets and government bonds.

Inflation

In 1998, the sharp depreciation of the won caused the prices of traded goods to increase by 25%, generating an overall inflation rate of roughly 7%. However, the following year saw the opposite occur, as the rapid recovery and won appreciation caused export and import prices to drop 20% and keep the overall price level constant. In 2000, inflation returned to a more normal pattern, with the consumer price index rising 2.3% and the GDP deflator falling 3.4% due to a decrease in the prices of capital goods and exports. Although the slowing economy in late 2000 caused a short-lived drop in the inflation rate, prices quickly resumed growing in early 2001, with the CPI increasing at a 4% rate both y-o-y and month-over-month.

Lately, inflation has accelerated. The consumer price index in mid-2001 was up 5% over a year earlier, and the monthly changes show prices growing at a 7% rate. Under normal conditions, this would have led the Bank of Korea to raise interest rates; instead, it lowered the overnight call rate by one-quarter point to 4.75%. This was done to combat the economic slowdown; clearly, the BOK is more concerned with a recession than with moderately high inflation. In addition, core inflation (i.e. excluding food and energy) registered a slightly lower rate of 4.6% y-o-y.

Price increases should begin to moderate in the second half, due to the slow economy and the fact that higher traded goods prices caused by the won depreciation will, by then, have fed through the economy. Thus for 2001 overall, the consumer price index should show an inflation rate of 4.5%, while the GDP deflator increases 3.6%. In subsequent years, inflation rates are expected to be moderate in the 3.5-4.0% range, as excess capacity prevents price pressure from developing as the economy recovers.

Employment

The Asian crisis and resulting recession of 1998 sent the unemployment rate to a high of roughly 8%. The strong recovery over the next two years gradually lowered unemployment below 4% by mid-2000. During this period, the labor force rose constantly, so the eventual decline in unemployment was due to job creation, not discouraged workers dropping out of the labor force. In the second half of 2000, the unemployment rate rose slightly to 4.0%, and in early 2001 it increased to 4.2% as a delayed reaction to the slowdown in late 2000. However, in April the unemployment rate

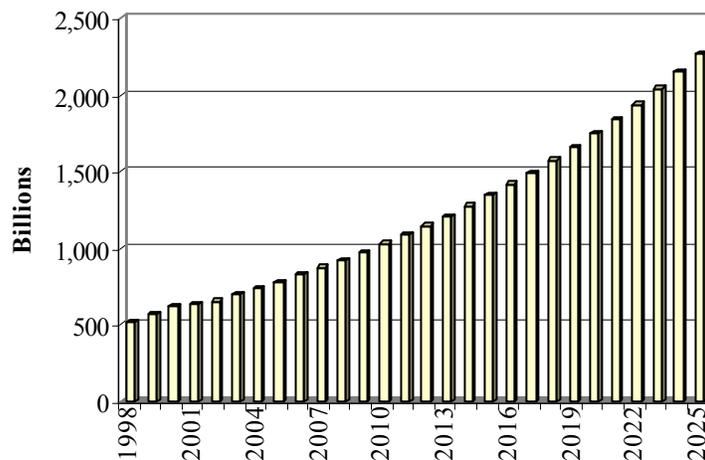
dropped sharply to 3.8%, followed by another drop in May to 3.6%. This was attributed to increased job opportunities in the services sector; in combination with increasing retail sales, this suggests that domestic demand is more than enough to offset the decline in exports.

The unemployment rate may rise again, but is unlikely to go much above 4%. As the economy gradually improves next year, the unemployment rate should trend downward into the low 3% range. Thus, the forecast is for an average jobless rate of 4.1% in 2001 and 3.6% in 2002. The downtrend should continue over the next two years, but at a decelerating rate, flattening out slightly above 3%. In the long run, the unemployment rate is forecast to gradually rise, as Korea shifts to a service-based economy with a greater structural mismatch between job requirements and workers' skills.

Exchange Rate

The Asian crisis, in which foreign investors began to pull out from Korea and other countries, caused the won to lose half its value in late 1997 and early 1998. The won began to appreciate later in 1998, as the economy recovered, and by early 1999, had moved into the 1,100's. Compared to pre-crisis values, this was still down approximately 25% (20% in real terms after correcting for inflation), enabling Korea to increase its exports dramatically and generating fast growth over the next two years. Throughout most of 2000, the won was stable in the low 1,100's relative to the dollar, but since the dollar was strengthening during this period, it actually meant the won was appreciating relative to most other currencies. This implied that the won had become overvalued, and explains its fast decline when the world economies slowed late in the year, reaching the upper 1,200's by January. The depreciation was also partly a response to the falling stock market: low profitability, despite the fast-growing economy, had stock prices trending downward during most of last year.

Real GDP, 1995 U.S. \$



Since April, the won has been fairly stable around 1,300 per dollar. This coincides with a stable stock market, and a developing consensus that the economy should be able to

avoid a downturn. In addition, no bad news has been encountered regarding economic reforms, which are proceeding at a slow pace, as expected.

The won is not expected to change significantly in the short term. By year-end 2001, it should be marginally stronger, in the high 1,200's, as the absence of a dramatic slowdown improves investor confidence and maintains capital inflows. Over the next three years, the currency should gradually strengthen, reducing the undervaluation left over from the Asian crisis. However, around 2005, the direction is expected to reverse, with the won, thereafter, depreciating due to the higher domestic inflation rate compared to the United States.

Political Developments

The last parliamentary election took place in April 2000. President Kim Dae-jung's Millennium Democratic Party (MDP) finished second, with 115 seats, while the opposition Grand National Party (GNP) took 133. The poor showing of the president's party, despite the strong economy, was largely due to concerns over corruption in the government. Nevertheless, the MDP later managed to restore a majority coalition by attracting members from the breakaway United Liberal Democratic Party and several independents. However, the political environment remained shaky. A cabinet reshuffle in August installed nine new members, including Jin Nyum, as the new finance minister. Then in early 2001, the cabinet had to be reshuffled again, after the foreign minister was removed for making statements considered critical of U.S. President Bush's proposed missile defense program. Lastly, in May the newly appointed justice minister had to resign, after reports surfaced that he would use his influence to help President Kim's MDP win in next year's election.

Both the ruling MDP and the opposition GNP have low opinion ratings among the public, each with only a 24% favorable rating. Both parties have been tainted by scandals, and both are seen as engaging in pointless squabbling rather than addressing the country's problems. This situation will undoubtedly continue, since any attempt to improve the economy involves either fiscal stimulus or restructuring, both of which face bitter opposition in parliament.

Forecast

Short Term

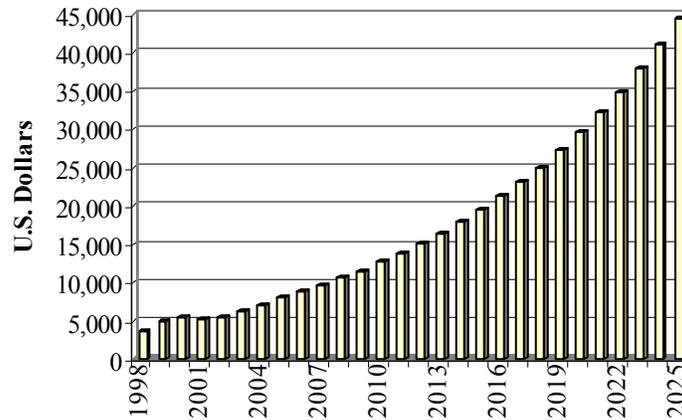
South Korea underwent a deep recession in 1998, with GDP contracting by 5.8%. The next year saw a terrific rebound: real GDP grew nearly 11%, buoyed by a 29% jump in exports and a 10% gain in private consumption. The recovery was sustained in 2000, with GDP growing nearly 9% again due to strong export growth. During this period, unemployment declined continuously, the won stabilized in the low 1,100's, and the Bank of Korea rapidly accumulated foreign reserves approaching \$100 billion. However, in late 2000, the slowing of the world economies caused a slump in Korean exports, for computer and information-technology goods, in particular. This resulted in fourth quarter GDP falling at an annual rate of 1.7%. However, 2001Q1 saw GDP increase marginally at a 1.2% rate due to fixed capital investment and a rebound in exports; this turnaround

was surprising since most Asian countries were feeling a greater impact from the global slowdown in early 2001 than they had in late 2000.

Recent data indicate that manufacturing continues to be weak due to the export slump, with industrial production sliding and excess capacity high. However, imports have fallen to roughly the same degree as exports, thus the trade balance has stayed in the \$1.0-1.5 billion range. Along with data showing that retail sales are rising, this means that consumers are switching their expenditures away from foreign products toward domestic goods and services. Thus, the increase in domestic demand has thus far offset the fall in external demand, resulting in falling unemployment, and rising consumer and business confidence.

In mid-2001, the net effect of declining manufacturing and rising services should result in marginal economic growth. Fiscal and monetary stimuli are expected to continue, as politicians and the Bank of Japan ignore relatively high inflation in favor of avoiding recession. For 2001, overall GDP is forecast to increase 4.0% over last year, composed of a decline in net exports and increases in other expenditures. The growth rate then rises over the next two years, as increasing foreign demand takes up the slack in manufacturing production, reaching 7% in 2003. Thereafter, long-run growth will gradually decelerate, as the Korean economy matures, heading toward growth rates in the 3% range in the future.

Consumption Per Capita
(U.S. Dollars per Person)



Long Term

South Korea's GDP will show surprising strength through the rest of the forecast period, even though the economy does exhibit a tendency to dip when external factors affect it. Such dips can be seen in the chart that follows, where 2000 was a weak year and 2001 will turn out to be weak as well, all for external reasons. Thereafter, DRI•WEFA expects real GDP to climb at an average annual growth rate of 5.2% in the 2000–10 period, and then by 5.4% in the remaining years of the forecast.

Consumption per capita will increase as the economy improves, since the consumer sector is an important one overall in the Korean economy. This is shown in the previous

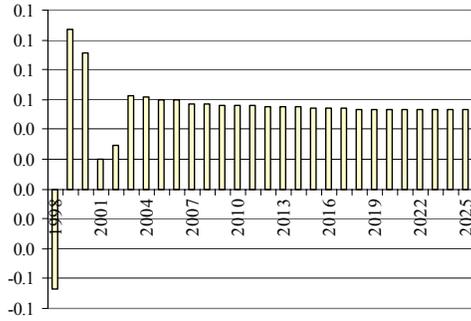
chart , where the 2001 level of per capita consumption, US\$5,127, will increase to almost US\$44,500 by the end of the forecast period. Net productivity improvements, coupled with high growth rates in the real economy, will benefit the consumer, who is expected to spend at rates much higher in the future than in the past.

Total Trade share of GDP

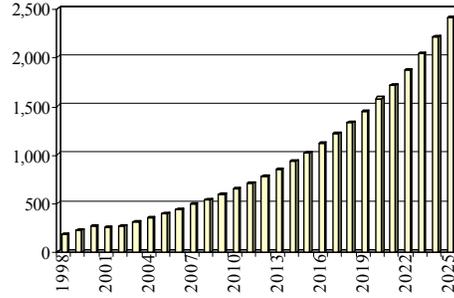


Over the 2000–10 forecast period, the average of trade’s share of GDP will be 70%. However, thereafter, it will fall to 55% on average, over 2010–25. This “downturn” will be caused basically by the economy becoming more internalized, when GDP growth (not counting trade) grows faster than trade itself. The importance of trade to the Korean economy will, in effect, become less and less after its peak of 87% in 2000.

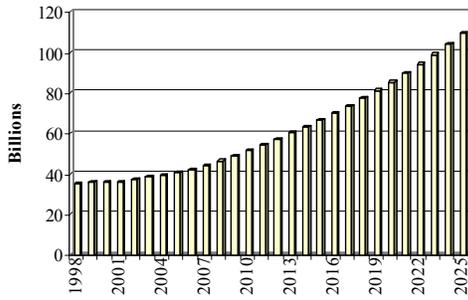
Real GDP Growth (%)



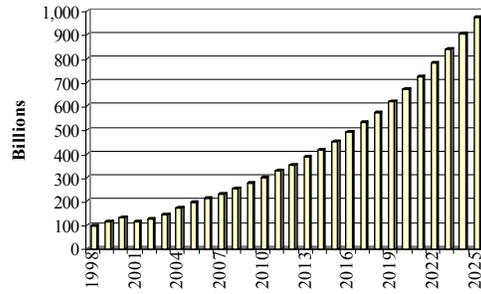
Private Consumption (Billion U.S. Dollars)



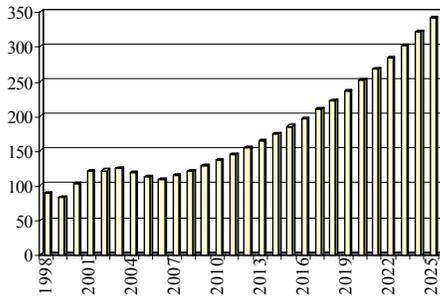
Government Consumption (Billion U.S. Dollars)



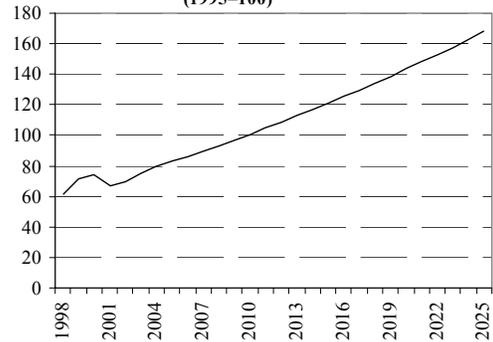
Investment (Billion U.S. Dollars)



Total Trade Balance (Billion U.S. Dollars)



GDP Deflator (1995=100)



South Korea	2001	2005	2010.00	2025.00	Avg. Annual Compound Growth		
					2001-2005	2005-2010	2010-2025
Real GDP, 1995 Billion \$US	634.15	779.67	1028.98	2264.61	5.3%	5.7%	5.4%
GDP, Billion \$US	423.62	648.43	1037.51	3800.45	11.2%	9.9%	9.0%
Real GDP, Percent Change	1.99	5.96	5.6	5.33	5.6%	3.9%	3.5%
GDP Deflator, \$ based, 1995=100	0.67	0.83	1.01	1.68	11.5%	9.7%	8.7%
Consumption per Capita	5157.18	7980.22	12664.65	44463.54	1.1%	0.5%	0.1%
Consumption share of GDP	0.58	0.61	0.62	0.63	-1.6%	-0.9%	-0.4%
Government Spending share of GDP	0.10	0.10	0.09	0.09	10.3%	9.1%	8.6%
GDP per Capita	8882.59	13171.16	20383.51	70215.78	2.4%	-0.1%	-0.2%
Investment share of GDP	0.27	0.30	0.30	0.29	12.4%	10.4%	9.2%
GDP by Sector, Agriculture, \$bn							
GDP by Sector, Mining \$bn							
GDP by Sector, Manufacturing \$bn							
GDP by Sector, Utilities \$bn							
GDP by Sector, Construction \$bn							
GDP by Sector, W&R Trade \$bn							
GDP by Sector, Transport and Comm. \$bn							
GDP by Sector, FIRE \$bn							
GDP by Sector, Community and Social Svcs. \$bn							
Private Consumption, \$bn	245.95	392.87	644.62	2406.61	12.4%	10.4%	9.2%
Government Consumption, \$bn	43.79	62.89	96.41	331.82	9.5%	8.9%	8.6%
Investment, \$bn	114.54	192.75	307.40	1085.13	13.9%	9.8%	8.8%
Exports of Goods and Services, \$bn	188.15	260.98	353.83	824.91	8.5%	6.3%	5.8%
Imports of Goods and Services, \$bn	171.87	254.04	355.10	827.86	10.3%	6.9%	5.8%
Total Trade, \$bn	360.03	515.02	708.93	1652.77	9.4%	6.6%	5.8%

III. Europe

United Kingdom

Recent Developments

Although recently released data confirmed our belief that the third quarter saw an acceleration in quarterly GDP growth, more timely data for the final quarter of the year points to a swift deterioration in economic conditions across many key sectors of the economy. Real GDP growth quickened to an estimated 0.6% in the third quarter, although the pace of annual growth slowed to 2.2% year over year (y/y). It is likely that strong growth across the domestic economy continued to take a strong cyclical lead in that period, driven mainly by continued strong gains in consumer spending. Historically low interest rates, strong income gains, and strong consumer confidence over much of that period helped keep spending strong in the third quarter.

The events of September 11 came too late in the quarter to have a significant effect on the data. However, evidence from other parts of the economy is likely to paint a less rosy growth picture. Investment growth is likely to have weakened further in the period, as firms cut back investment in line with rising economic risks and slowing global demand. Export growth is also likely to have eased, as demand for U.K. goods in the key United States and European markets continued to ease. Overall economic conditions, although strong, became even more unbalanced in the period, as the manufacturing sector continued to languish in recession while the service sector of the economy continued to race ahead.

Early evidence for the final quarter of the year points to a rapid weakening in growth conditions. The events of September 11 are clearly affecting some areas of the economy, though more on the external side for now. Export demand weakened considerably as global economic conditions remain poor, confidence remains low, and economic risks continue to rise. Investment intentions have also been hard hit, with firms starting to curtail investment projects in response to the deterioration in economic conditions. Employment intentions have also weakened markedly, and the first signs of rising unemployment are emerging across the labour market, even across the previously buoyant service sector of the economy.

For now, though, consumers seem to be ignoring the economic realities and rising risks around them and continue to spend heavily. Low borrowing rates therefore are underpinning consumer spending as the even-stronger driver of the economy in the period following September 11. It is doubtful if this trend can continue over next year, and we continue to expect an easing of consumer spending growth as unemployment edges further higher. Our latest forecast for 2002 shows economic growth of 2.2% for the year, although risks remain firmly on the downside.

Outlook

Consumer Markets

Consumer confidence and sales have been dented by unfolding global economic and political events. The latest Daily Telegraph survey showed that the balance of people reporting better expectations over poorer expectations over the next 12 months fell to negative eight, compared to the previous survey's balance of negative four. Retail sales growth also slowed sharply in October, according to the latest CBI retail survey. The net balance of retailers reporting higher sales than lower sales fell to 19% in the month, significantly lower than the 54% balance recorded in September. However, retailers expect sales to pick up in time for the critical holiday period in December.

Over the coming months, there are still fears that consumer spending growth will begin to react to the deteriorating economic picture, placing further strains on overall growth. The recent loosening of monetary policy has boosted consumer spending and confidence, although this effect is expected to wear off somewhat over the coming months due to the unsettled global economy. Still, household spending is forecast to rise by 3.2% in real terms over the year as a whole, pushing the savings rate marginally lower. Next year, consumption is set to slow further as rising unemployment begins to take its toll on previously buoyant high street sales. Low borrowing rates will stop a complete crash in consumer spending, though, and we forecast growth to ease to 2.2% over the year. This forecasted growth is slightly weaker than the expected rise in real disposable income, a condition that will permit a slight rise in the savings rate.

Investment

Overall investment is expected to stay weak this year as firms hold back investment decisions until positive economic signs appear again. Not even recent reductions in interest rates will be enough to turn around the bleak investment picture. Lower business spending will be counterbalanced somewhat by stronger construction growth and higher government investment spending. However, a decline in inventory stocks from the strong first quarter will be enough to push down gross investment gains to 0.8% this year.

Foreign Trade

On the trade side, we expect another year of negative contribution to overall growth. Export gains will continue to be pushed downward throughout the rest of the year as global demand wanes and exporters struggle to maintain competitiveness, and as sterling continues to be vastly overvalued against the still-ailing euro. We expect the current account deficit in the external trade account to weaken to £18.4 billion across the year as a whole, slightly ahead of the £17.8-billion deficit posted in 2000. Most of the deterioration in the current account position will be a result of a further weakening of the trade balance, as demand for U.K. exports continues to fall behind the growth of imports.

A higher net income surplus will absorb some of this weakening in the trade account, although it will not be enough to stop the overall current account deficit from weakening to 1.9% of GDP. In 2002, a further decline in the trade balance will occur, as demand for exports stays weak over most of the year. Exports will rise 3.1% in nominal terms,

outpaced by an expected 4.4% climb in imports, sufficient to push the trade deficit out to a record £40 billion. A steadier performance across the invisible side of the balance of payments will see the current account deficit deteriorate to £21.1 billion (2.1% of GDP).

Policy

Fiscal Policy

The public sector net cash requirement posted a deficit of £3.87 billion in September, following the revised £226 million surplus in August. Net borrowing also fell into deficit in the month, with the government finances deteriorating to a £688 million shortfall. Current receipts rose just 1.1% y/y, with taxes on income and wealth falling by 3.2%. Government spending climbed 1.5% y/y, with benefit spending up 5.6%, almost matching the fall in spending on interest payments on government debt. Net debt rose to £307.9 billion in September, equivalent to 31% of GDP. Strong surpluses have allowed the government to reduce its debt stock rapidly over the last year, with lower debt interest repayments allowing expenditures to be diverted to other important areas of the economy. Government debt remains among the lowest in the European Union. The chancellor ruled out raising taxes to pay for any future war effort while also committing the government to carry through its program of increased investment in public services. He cited the already strong position of the public finances, underpinned by falling debt servicing repayments and social security spending, as the main reasons for his confidence in the government's financial position over the coming months.

Government finances are forecast to continue to deteriorate over the remainder of the year and into next year. Tax receipts are expected to fall further, and alongside the government's aim to continue to boost spending in key public areas, the prospects of the government reaching its most recent budgetary targets are now slim. The good news, however, is that the benefits of recent efforts to reduce public debt will soon start to show through, as spending is redirected away from debt-servicing interest repayments and toward other key projects. This year, we forecast a net cash requirement surplus of £5.3 billion (1.7% of GDP) over the calendar year. Revenues are expected to finish the year just 0.8% higher than last year, although strong growth was recorded in 2000 because of the proceeds from the mobile phone licensing auction.

Overall government expenditure is forecast to rise 5.2%, with spending on social security benefits strong, outweighing the fall in debt-servicing interest repayments. By the end of 2001, net debt will begin to rise to 32.8% of GDP, as government finances go into deficit. Looking ahead to 2002, we expect the government to record a small net cash requirement surplus of £2.3 billion, significantly lower than the Treasury's own forecasts. Our forecast is underpinned by the assumption of a 2.2% rise in GDP across the year, resulting in a 5.4% drop in the overall tax take. Income tax, corporation tax, and VAT returns are all expected to slow in line with the overall easing in economic conditions. With spending set to rise 2.2% as some programs are cut back, the overall budget position will again return close to balance. Net debt is, therefore, expected to also remain largely steady around 32% of GDP.

Monetary Policy

The Monetary Policy Committee of the Bank of England announced a further cut in interest rates at November's monthly meeting. Interest rates were reduced by 50 basis points to 4.0% from the previous 4.5% rate, well below the 6.0% rate at the start of the year. The MPC cited a further weakening of global economic prospects in recent months, alongside weaker inflationary risks, as the main reason for the seventh loosening of monetary policy this year. Although the key lending rate has tumbled this year, there remains further scope to add monetary stimulus to the economy if needed in the coming months. With U.K. interest rates much higher than in the United States or across the euro area, the MPC has more ammunition and room to maneuver than other central banks to deal with any further downturn in global economic prospects. In fact, we now expect one further cut in U.K. interest rates in this current cycle, to 3.75%. Rate changes portend to stay on hold for the first half of next year and then start to rise once more late next year as economic conditions improve and inflationary risks rise.

DRI•WEFA continues to expect one further cut in U.K. interest rates, to 3.75%, in the current cycle as the economic outlook deteriorates further into 2002. The next downward move could come as soon as the December meeting of the Monetary Policy Committee, in time to give consumer confidence a needed boost in the critical holiday period. Economic conditions are now expected to deteriorate more than we expected in our last forecast, and with the slowdown in global growth also being more prolonged than was anticipated, monetary policy looks set to loosen further over the short term. In particular, the alarming events in the United States economy will hurt demand for U.K. exports. If consumer confidence also begins to fall, and household spending, the previous main driver of growth, begins to decelerate swiftly, then the U.K. economy could be set for a short period of historically weak economic growth, increasing the likelihood of further cuts in borrowing rates. However, concerns about inflationary pressures further down the line, and increasing imbalances between the domestic economy and external economy, may limit the policy response of the MPC. Consequently, the committee faces a tough task in balancing inflationary risks while maximizing the growth potential of the economy in this critical period.

We now only see a rebound in economic conditions in the second half of next year, as growth across the United States and Europe begins to find its feet again. Interest rates are expected to rise to 4.5% during the latter part of next year as the economy regains momentum and inflation begins to threaten the 2.5% price stability target once more. The bank will also be eager for the euro to recover. Not only will this offer exporters an urgent lifeline as they struggle to maintain competitiveness on the international stage, but it will also provide the bank some extra room to maneuver monetary policy if inflationary or economic risks rise higher than currently expected.

Inflation

Inflationary pressures will continue to weaken over the remainder of this year and into next. With economic growth set to ease a notch, alongside weakening global energy prices, the outlook for inflation over the near-term forecast horizon is, therefore, benign. This year, we expect underlying inflation to average 2.2%, with consumer price gains set

to close the year 2.1% higher than a year earlier. With energy prices already cutting firms' costs, price margins should fall further as competition intensifies across the economy. Food prices are also expected to moderate in the short term as the final effects of the foot-and-mouth crisis ebb away. Wage growth will decelerate to 4.2% by the end of the year as labor market conditions turn around and bonuses slow rapidly in line with the deterioration across many company balance sheets.

Next year, we forecast inflation to stay below the key 2.5% price stability target used by the MPC to set monetary policy. Over the year as a whole, underlying inflation (excluding mortgage interest repayments) will come in at 2.3%, but will hit the 2.5% target by the final quarter of the year as economic conditions improve. As inflation picks up speed in the second half of the year and re-approaches the 2.5% price stability target, the MPC will react swiftly by tightening its grip on monetary policy. A further stabilization of global energy prices, alongside weak growth over the first part of the year, will keep inflationary strains in check. Imported inflation will remain low as sterling continues to be overvalued against the euro. The costs of imports will only rise 1.4% over 2002, limiting the risks to inflation from the external sector. Wage demands will continue to slow over the first part of next year as unemployment edges higher. Average wages, including bonus payments, will rise 4.5%, resulting in real wage gains of 2.2% in the year. House price inflation is also set to weaken over next year, with average property values expected to increase by just 2.9% due to weakening demand and overvaluation across some regions of the country.

Employment

Conditions throughout the labor market remain very tight, with unemployment close to record lows. Unfortunately, the first signs of deterioration in labor market conditions are now emerging. The more reliable Labor Force Survey measure of counting unemployment showed that the number of jobless rose by 53,000 in June–August from the previous three months, to stand at 1.51 million (5.1% of the labor force). Total employment fell by 19,000, to 28.16 million, as employment-cutting programs began to show up in the data. Further falls in employment levels are expected over the remainder of the year as the economy slows further and job losses in the airline, tourism, and service sectors begin to gather pace. The claimant count measure of unemployment fell to 942,100 for September, with the registered jobless rate dropping to 3.1%.

Unemployment, as measured by the labor force, will continue to rise over the rest of 2001 and into most of 2002 as the delayed effects of slowing economic conditions begin to emerge. We forecast ILO-consistent unemployment to reach 5.25% by the end of the year as employment growth decelerates briskly. Previous job increases in the then-buoyant service sector, which absorbed many of the job losses seen across the manufacturing sector, look set to end. Over 2001 as a whole, employment gains should average 0.8%, and with an average 0.4% rise in the labor force, unemployment will average 5.1% over the year.

Next year, we expect the weakening in labor-market conditions to gather pace, with further unemployment increases across both the services and manufacturing sectors of the economy. Overall employment growth now looks set to be flat across 2002, and with the labor force growing 0.5%, unemployment is likely to edge upward to 5.6% over the year.

Labor-market conditions will start to turn around by the final quarter of the year, though, as business investment recoups some momentum, alongside strengthening demand for exports, pushing overall GDP growth up strongly. Unemployment will fall back to 5.2% over 2003 as growth conditions strengthen across the period, further boosting employment gains.

Exchange Rate

Over the near term, we continue to expect sterling to gain more ground against the dollar while trading steadily against the euro. Our end-year forecast for sterling vis-à-vis the U.S. dollar has been revised downward only slightly to US\$1.485. The latest forecast is underpinned by the expectation of a continued steadier performance across the U.K. economy than in other major European economies or in the United States. In particular the U.S. economy will continue to stay weak during most of the first half of next year, when any recovery is expected to begin. Although U.K. economic conditions will not be immune to the global fallout, it does look better placed to weather the current storm, and looks on track to post just-below-trend growth through next year. If economic risks do begin to escalate then the policy response measures available to the MPC and the government are in place to add an additional boost to the economy if deemed necessary. By the end of next year, sterling is forecast to reach US\$1.51 and steady around 1.60 euro.

In coming years, sterling will rely on a further recovery of the euro against the dollar to push the sterling-euro cross down to 1.45 euro (2.83 DM). This is the probable currency conversion rate at which the United Kingdom would look to join EMU. However, such a move must first be approved by the treasury, parliament, and a referendum. We continue to see this move as far off and assess only a 20% probability of EMU entry over the next four years. The next window for entry will not come until 2007–08, to which we attach a 40% chance of joining.

Political Developments

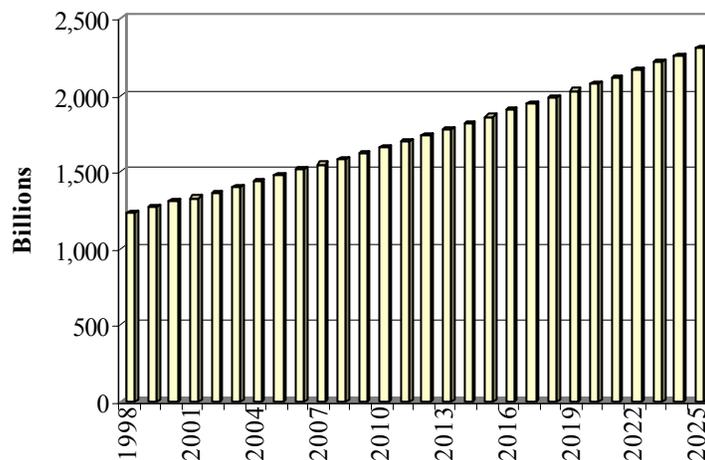
Prime Minister Tony Blair threw his power strongly behind U.S. President Bush's campaign to fight global terrorist activity. The United Kingdom remains ready to support any U.S. military action and retaliation. The prime minister has spearheaded the European campaign, coordinating support across the European Union and involving himself closely in other diplomatic activity. In other political news, the main opposition Conservative Party elected steadfast euro-skeptic Iain Duncan-Smith to be its new leader. The party has clearly now taken another shift to the right, risking further alienation within the U.K. electorate.

Having secured a strong mandate from the electorate, Labour will want to focus on the essential areas of public services and the euro membership issue. Both these matters will be brought to the forefront of the administration's agenda, which will be underpinned by continued economic stability. Blair faces a hard task in delivering the promises made before the two previous elections, and if he fails to deliver substantive change in this parliament, the electorate may not forgive as easily as it did at the polls in the last election. If successful, though, Blair will go a long way toward ensuring a third term of

office and probably pave the way for a successor to take the helm of the party and country.

Trying to persuade the traditionally euro-skeptic U.K. public to join the single currency project will prove difficult. Blair surprised many observers by his recent statement outlining the timetable for a referendum on euro membership within two years of the next parliament. The surprise move puts down on paper the first possible timetable that may see the United Kingdom join the euro project (which Blair supports). The prime minister's popularity among the electorate may be enough to push a close vote on the issue in any possible referendum in two years time, but even that may not be enough to see the euro "yes" vote prevail. Our current forecast assumes that a euro referendum will probably take place in 2003, which is expected to confirm the United Kingdom's rejection of the euro project, similar to the results in Denmark. The earliest point of membership could now be a distant 2007–08. If the euro finally becomes organized, bringing with it a period of increased volatility and isolation for the United Kingdom, support may quickly change, allowing entry in the third stage.

Real GDP, 1995 U.S. \$



Forecast

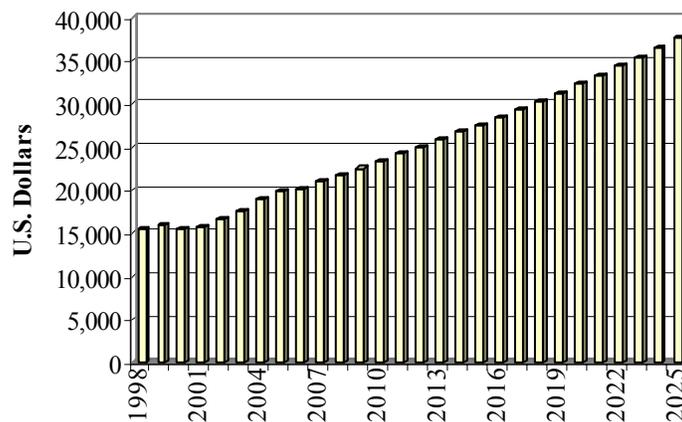
Short Term

Even before the horrific terrorist attacks on the United States, it was clear that the U.K. economy was set to slow further over the second half of this year and into next. With global risks rising and the U.S. economy now in a mild recession, demand for U.K. exports will fall further over the remainder of this year and into the first half of 2002, with any chance of a swift rebound in growth now low. In fact, we only expect U.K. growth conditions to pick up in the latter part of 2002, although the recovery is expected to be strong. Our latest forecast for U.K. real GDP growth is now 2.0% for this year and 2.2% for next. The slowdown will become evident in the final quarter of this year, when

the economy is expected to grow by only 0.1% from the previous quarter (1.4% y/y). Strong but slowing consumption gains will be the main driver of growth in this key period, with private spending by households forecast to rise 0.3% in real terms compared with the third quarter and by 2.9% on an annual basis. On the trade side, real export growth will continue to be dampened by weak global demand and continued sterling strength.

Next year, the economy is expected to regain strong momentum only in the second half of the year. Overall growth will remain below trend, averaging just 2.2% over the course of the year. Private consumption will rise 2.2%, remaining weak as income gains slow in line with a rise in unemployment. Real investment growth will come in at 1% over the year, supported only by strong government investment spending. Private investment spending will continue to fall over the year as firms exercise caution concerning the direction of the global economy. With government consumption set to climb a strong 3.5% in real terms, overall domestic demand growth will stay at 2.4% over the year. Export gains will come in around 2.3%, only reaching positive growth in the second half of the year as the U.S. economy edges up a notch. Imports will increase 3.0%, although the drop will be enough to see a slight decline in the negative contribution to overall growth seen over recent years. In 2003, the economy is expected to record above-trend growth once more as the global economy finally finds firm footing, and real GDP growth will surge to 3.2% y/y as the economy hits the peak of the current cycle.

Consumption Per Capita
(U.S. Dollars per Person)



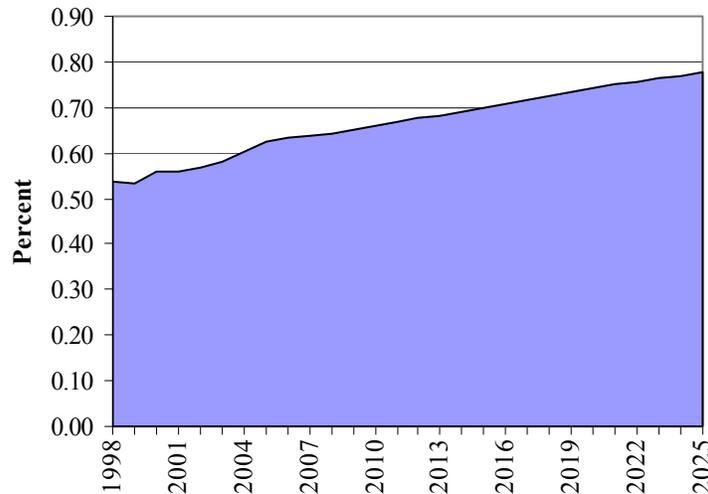
Long Term

We assume that the UK enters the European Union and adopts the euro.

The post-terrorist effects being felt throughout the world will show their impact on the United Kingdom as well, although the impact, 1.9% real GDP growth, is more muted. Thereafter, we expect the growth in the United Kingdom to resume its historical average, which is actually below that of several of its European neighbors and of the United States. Over the 2000–10 period, we foresee average annual growth of 2.5%, followed by a slower 2.2% through 2025.

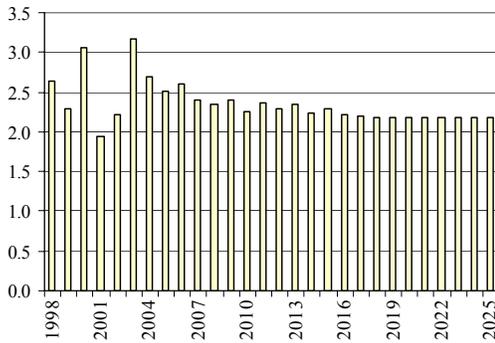
Consumption per capita in the United Kingdom will show a decline during the weak economic period through which we are passing at this moment. Indeed, consumption per capita already declined in 2000 and will be more or less flat through 2001, with modest increases in 2002. On average over the 2000–10 period, consumption per capita will be \$19,371, and will then rise to \$30,100 in the final 15 years of the forecast period. Of course, the long-term forecast assumes no recession, so the growth in the Most Probable for per capita consumption is steady.

Total Trade share of GDP

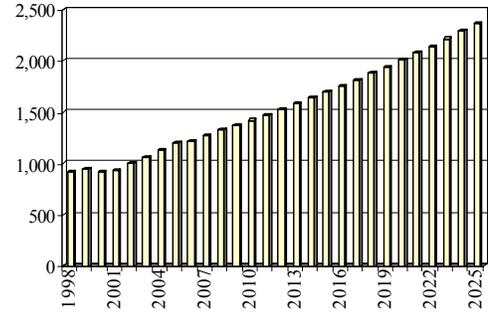


The U.K. trade share of GDP was 50% in the early 1980s, and it remained in the 50% range through the 1990s as well. We expect this ratio to hit 60% by 2004, and then to continue a steady climb to 70% by 2015. By the end of the period, this ratio should reach 78%, which can be expected due to the U.K.'s island status and the assumption that it will become a member of the European Union. However, the cargo moving between the United Kingdom and European Union will still be considered international, included in the U.K. trade accounts.

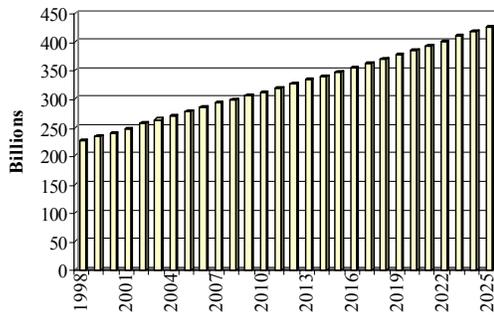
Real GDP Growth (%)



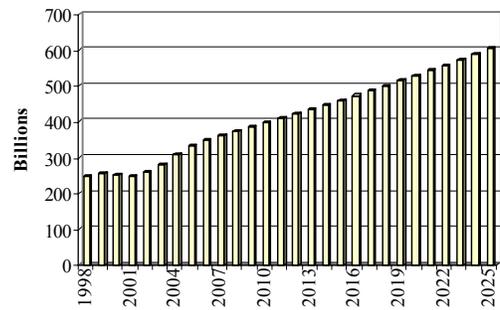
**Private Consumption
 (Billion U.S. Dollars)**



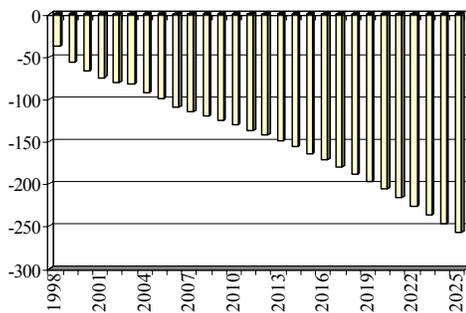
**Government Consumption
 (Billion U.S. Dollars)**



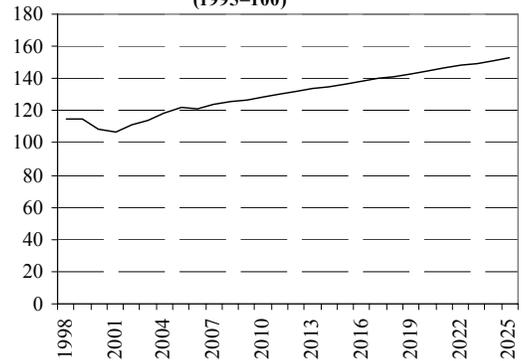
**Investment
 (Billion U.S. Dollars)**



**Total Trade Balance
 (Billion U.S. Dollars)**



**GDP Deflator
 (1995=100)**



UNITED KINGDOM	2001	2005	2010	2025	Avg. Annual Compound Growth		
					2001-05	2005-10	2010-25
Real GDP, 1995 Billion \$US	1,328.16	1,474.34	1,660.03	2,309.78	2.6%	2.4%	2.2%
GDP, Billion \$US	1,416.85	1,795.06	2,134.78	3,524.77	6.1%	3.5%	3.4%
Real GDP, Percent Change	1.95	2.51	2.26	2.19	6.5%	-2.1%	-0.2%
GDP Deflator, \$ based, 1995=100	1.07	1.22	1.29	1.53	3.4%	1.1%	1.1%
Consumption per Capita	15,622.11	19,846.30	23,351.72	37,647.16	6.2%	3.3%	3.2%
Consumption share of GDP	0.66	0.67	0.67	0.67	0.3%	0.0%	0.0%
Government Spending share of GDP	0.19	0.18	0.18	0.18	-0.6%	-0.3%	-0.2%
GDP per Capita	23,765.48	29,838.50	35,112.47	56,182.84	5.9%	3.3%	3.2%
Investment share of GDP	0.17	0.19	0.19	0.19	1.7%	0.3%	-0.1%
GDP by Sector, Agriculture, \$bn	18.36	23.26	27.66	45.67	6.1%	3.5%	3.4%
GDP by Sector, Mining \$bn	51.33	65.04	77.35	127.71	6.1%	3.5%	3.4%
GDP by Sector, Manufacturing \$bn	297.13	376.45	447.69	739.19	6.1%	3.5%	3.4%
GDP by Sector, Utilities \$bn	26.00	32.94	39.17	64.68	6.1%	3.5%	3.4%
GDP by Sector, Construction \$bn	83.60	105.92	125.96	207.98	6.1%	3.5%	3.4%
GDP by Sector, W&R Trade \$bn	228.50	289.50	344.28	568.45	6.1%	3.5%	3.4%
GDP by Sector, Transport and Comm. \$bn	134.67	170.62	202.90	335.02	6.1%	3.5%	3.4%
GDP by Sector, FIRE \$bn	374.62	474.62	564.45	931.96	6.1%	3.5%	3.4%
GDP by Sector, Community and Social Svcs. \$bn	121.35	153.74	182.83	301.88	6.1%	3.5%	3.4%
Private Consumption, \$bn	931.36	1,193.94	1,419.74	2,361.89	6.4%	3.5%	3.5%
Government Consumption, \$bn	267.95	330.82	388.42	625.69	5.4%	3.3%	3.2%
Investment, \$bn	246.27	333.21	402.45	654.82	7.9%	3.8%	3.3%
Exports of Goods and Services, \$bn	378.56	520.53	651.71	1,265.57	8.3%	4.6%	4.5%
Imports of Goods and Services, \$bn	415.06	598.12	756.32	1,468.72	9.6%	4.8%	4.5%
Private Consumption, bn 1995 \$	898.75	993.10	1,118.40	1,565.53	2.5%	2.4%	2.3%
Government Consumption, bn 1995 \$	247.70	277.74	311.30	426.13	2.9%	2.3%	2.1%
Investment, bn 1995 \$	248.72	290.44	332.03	456.49	4.0%	2.7%	2.1%
Exports of Goods and Services, bn 1995 \$	436.70	523.85	654.09	1,290.24	4.7%	4.5%	4.6%
Imports of Goods and Services, bn 1995 \$	510.97	622.91	784.47	1,547.41	5.1%	4.7%	4.6%
Total Trade share of GDP	0.56	0.62	0.66	0.78	2.7%	1.1%	1.1%
Total Trade, \$bn	793.61	1,118.66	1,408.03	2,734.29	9.0%	4.7%	4.5%

Germany

Recent Developments

The German economy is on the brink of recession. Activity had already slowed markedly this year before the September 11 terrorist attacks on the United States weakened and clouded the global outlook. The global slowdown, high inflation earlier this year, and the persistent weakness of the construction sector have weighed down on economic activity. Business confidence and the export-orientated industrial sector have been particularly weak.

GDP was flat quarter over quarter (q/q) in the second quarter of 2001, resulting in annual growth of only 0.6%. In the first quarter, the economy expanded by 0.4% q/q and 1.8% year over year (y/y). Business investment and exports weakened markedly in the second quarter, with only resilient consumer spending preventing the economy from contracting. Economic activity remained weak, although some improved data for August had raised hopes that the economy could be bottoming out. These hopes have been dashed by the September 11 terrorist attacks, which caused business confidence to plunge in September to its lowest level for nearly eight years.

In our October forecasting round, we reduced our GDP growth forecasts to 0.8% in 2001 and 1.3% in 2002. If the military action against terrorism is contained and oil prices do not surge, German growth is forecast to pick up slowly in the first half of next year and then gain significant momentum in the second half. Growth will be supported by reduced inflation, lower interest rates, the likelihood of eventual further fiscal stimulation, and an improving global environment. Growth is projected at 3.2% in 2003.

Annual consumer price inflation fell back to 2.0% in October from May's eight-year peak of 3.5%. Assuming that oil prices do not surge, inflation should trend lower through to mid-2002 amid subdued growth, moderate energy prices, reduced food price pressures, and a firmer euro. Wage moderation should continue. Consumer price inflation is forecast to average 2.5% in 2001 and 1.5% in 2002. A modest pick-up to 1.9% is expected in 2003.

Unemployment rose in eight of the first nine months of this year, as weakening economic activity took its toll. In September, there were 3.882 million jobless, giving an unemployment rate of 9.4%. We expect the unemployment rate to peak at 9.9% by mid-2002, when the number of jobless is likely to reach 4.150 million. Thereafter, the expected acceleration in German growth should enable the labor market to turn around again.

Outlook

Consumer Markets

The breakdown of the GDP components shows that private consumption was much stronger than expected and previously reported, suggesting that January's tax cuts had

more of a positive effect than previously credited. Consumer spending rose by 0.9% q/q in the second quarter of the year, while first-quarter growth was revised up sharply, from 0.1% to 1.0%. Year-over-year growth was 1.2% in the second quarter.

Consumer sentiment in Germany edged up in September, having fallen over the previous four months. However, sentiment remained very weak, and most of the survey replies were received before the terrorist attacks on the United States. This pushed German business confidence to a near eight-year low in October, and it seems certain to have a major negative impact on consumer sentiment as well. The consumer sentiment index, published by the ICON Research Institute, rose from 88 in August (its lowest level since 1996) to 90 in September. The index's last peak was 102 in May 2000. The survey showed that consumers were concerned about their future income, the German economy, and employment.

German salaries fell by 1.0% y/y in real terms in the second quarter of 2001, according to the Federal Statistics Office. This was because of the sharp rise in consumer price inflation, which peaked at an eight-year high of 3.5% in May. In nominal terms, German wages were up 2.1% y/y in the second quarter.

Investment

Real fixed investment is expected to have fallen by 3.1% in the year 2001. Residential investment is projected to have declined by the largest percentage, -5.2%. Equipment investment and government investment are expected to decline the least, each by 1.0%. In 2002, fixed investment is only projected to increase by 0.2% in toto, with residential investment again showing the least growth: -2.0%. Equipment investment in 2002 should see a 2.0% increase—the largest percent increase in that year of the various investment sectors. In 2003, investment is forecasted to return to a non-recessionary level, growing at an average rate of 3.6% per year through 2006. Equipment will lead the increase, growing by 5.3% on average between 2003 and 2006.

Foreign Trade

The slowdown in global economic growth is exerting increasing pressure on Germany's exports and, hence, its external accounts this year. Growth in the trade-weighted index of world demand for German products is forecast to plummet from 12.6% in 2000 to 4.2% in 2001. On the positive side, the recent falling back of oil prices and strengthening of the euro will help its terms of trade, although the euro remains at a competitive level. In addition, the weakness of German domestic demand will result in a significant weakening in imports. In real terms, growth in exports of goods and services is forecast to slow from 13.9% in 2000 to 5.6% in 2001, while import growth is projected to weaken from 10.6% to 3.1%.

Policy

Fiscal Policy

Major income and corporate tax cuts came into effect on January 1, following the tax reforms that were passed in July 2000, and will lower tax burdens significantly through

2005. Corporate tax on retained earnings was cut from 40% to 25%, and on distributed profits from 30% to 25%. Meanwhile, the top rate of income tax was reduced from 51.0% to 48.5%, and it will fall further to 47.0% in 2003 and 43.0% in 2005. The basic rate of income tax was reduced from 22.9% to 19.9%; it is set to then fall to 17.0% in 2003 and 15.0% in 2005. In total, personal and corporate taxes are due to fall by DM 45 billion (over 1% of GDP) in 2001. In addition, as part of the reforms, capital gains tax on corporate share sales will be abolished from January 2002.

The government's fiscal policy is targeted towards achieving a balanced budget by 2002 and a balanced federal budget by 2006. In October, Finance Minister Hans Eichel acknowledged that the targeted budget deficits of 1.5% of GDP in 2001 and 1.0% of GDP in 2002 would be missed because of the negative impact of the economy's weakness on public finances. Indeed, the government is currently being heavily pressured to place its budget consolidation plans on hold and to adopt stimulative measures in order to boost the markedly deteriorating German economy. Pressure for action has come from the German Trade Union Federation, the BDI industry federation, the major German research institutes, opposition parties, and even from some members of the ruling Social Democrats. Among the measures demanded are the early introduction of tax cuts planned for 2003, the scrapping of planned fuel tax increases, and additional public investment, particularly on infrastructure.

Although Eichel currently continues to rule out any further fiscal stimulus, Chancellor Schroeder appeared in October to open the door towards the possibility of implementing further measures next year to boost the struggling economy. Schroeder said that the government needed to watch current developments closely and "check after the fourth quarter whether there may be a need to take action." However, he stressed that any new measures would have to be paid for, as the government "can't and does not want to run up new debt." He had earlier stated his opposition to pump-priming programs, saying that he does not believe that they work, and has ruled out any dramatic deregulation of the labor market or resorting to job creation schemes. With 2002 an election year in Germany, the temptation for the government to enact additional fiscal stimulus is sure to increase unless the economy picks up significantly soon, which seems very unlikely.

Monetary Policy

From January 1, 1999, decisions on monetary policy have been in the hands of the Council of the European Central Bank, with the Bundesbank acting as an agent of the European System of Central Banks. From the same date, the DM conversion rate to the euro was fixed, irrevocably, at 1.95583 to the euro.

Inflation

Inflation is set to trend lower into the early months of 2002. Most of the factors that pushed inflation up earlier this year should continue to abate, although the prospects for oil prices are uncertain. Although oil prices have been muted so far since the events of September 11, they will be prone to further upward spikes if political and military developments over the coming months lead to any disruptions in supply. Strong competition should help keep core inflation down, while wage moderation is expected to continue, although wages could rise marginally more in 2002 following the restraint of

the last two years. Weak economic activity will reinforce these benign inflationary trends over the next few months, although it is expected to pick up appreciably in the second half of 2002.

Consequently, DRI•WEFA forecasts German consumer price inflation to fall back over the coming months, to average 2.5% in 2001. This would still be the highest annual average since 1994. Inflation should be generally lower during 2002, but it could start to edge up later in the year and in 2003 as growth strengthens appreciably. Inflation is forecast to average 1.5% in 2002 and 1.9% in 2003.

Employment

Unemployment seems set to rise further into the first half of 2002, given the slowdown in growth and depressed business confidence. The outlook for the job market has been depressed further by the likely global and domestic economic ramifications of the September 11 terrorist attacks on the United States. Indeed, we expect the unemployment rate to reach 9.6% by year-end and to average 9.4% for 2001. The number of jobless is forecast to rise to just less than 4.00 million in the fourth quarter and to average around 3.88 million for the year as a whole.

The unemployment rate is expected to peak at 9.9% in the second quarter of 2002, when the number of jobless is likely to reach 4.15 million. Thereafter, the expected acceleration in German growth should enable the labor market to turn around again. The unemployment rate is forecast to fall back to 9.6% by the end of 2002 as the number of jobless declines to 4.09 million. In 2003, the unemployment rate should fall further, heading toward 9.0%, with the number of unemployed falling well below 4.00 million again.

Exchange Rate

DRI•WEFA expects the euro to be modestly firmer overall in 2002. However, it must be acknowledged at the outset that the euro has “flattered to deceive” at the beginning of each year since its birth in January 1999. During 2001, for example, the euro reached US\$0.96 in early January after rebounding strongly from its October 2000 record low of US\$0.8225, only to fall back as far as US\$0.8344 by early July. Although the euro was generally firmer in the second half of last year, its subsequent peak was a modest US\$0.9335 in September, just after the terrorist attacks on the United States. Furthermore, a still very uncertain global political and economic outlook clouds the outlook for many currencies. Although the allied military conflict in Afghanistan has effectively come to a successful and quicker-than-expected end, it remains to be seen whether the war against terrorism will be widened.

Our expectations of a somewhat stronger euro in 2002 are based on a combination of factors. The introduction of euro notes and coins should continue to provide a modest boost to sentiment in the near term, while we expect GDP growth in 2002 to be stronger in the Eurozone than in the United States. Specifically, Eurozone growth is currently forecast at 1.3%, with U.S. growth at 0.6%. In both instances, economic activity should be much stronger in the second half of the year. We believe that the European Central Bank’s (ECB) credibility in the markets will gradually improve over the course of 2002,

helped by a further easing of interest rates in the first half that should be facilitated by lower Eurozone inflation. We also assume that capital flows will be generally more positive for the euro in 2002. Finally, the euro should benefit from the fact that the Eurozone is not hampered by any major economic imbalances. In particular, there is not a large Eurozone current account deficit that needs to be financed. Nevertheless, the euro could be held back by persistent doubts about its ability to sustain a rally.

Political Developments

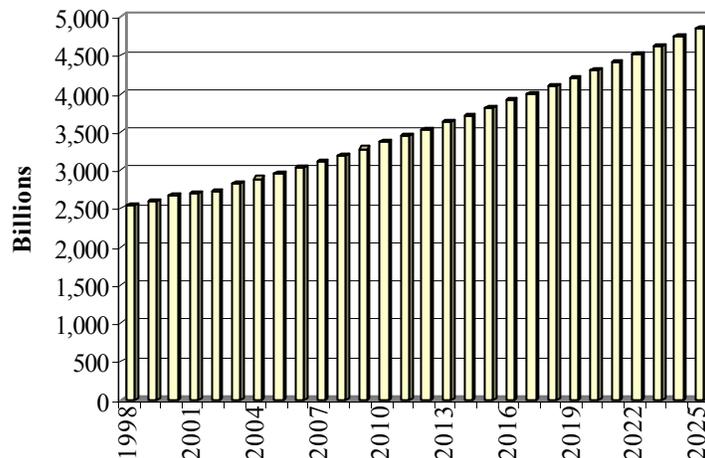
As this September's general election draws ever nearer, the Social Democratic Party (SPD)-led government is coming under increasing pressure in the opinion polls from the economic slowdown and rising unemployment. Therefore, it has lost most of the gains resulting from public approval of its handling of the global crisis, following September's terrorist attacks on the United States. Chancellor Schroeder took the opportunity to offer high-profile support for the United States, including military assistance.

In mid January, Edmund Stoiber, the Christian Social Union (CSU) leader and Bavarian prime minister, emerged as the conservative opposition candidate to face Chancellor Schroeder in the September elections. This followed the decision of the Christian Democrat (CDU) leader, Angela Merkel, to stand aside.

Although the SPD/Green ruling coalition does not hold a majority in the Upper House (the Bundestag), it has been helped during much of its tenure in office by the disarray in the opposition. This included the lack of certainty about who would lead them into the September elections. Now that Stoiber has emerged as the candidate, it is critical for the CDU and the CSU to unite strongly behind him—there is much at stake.

An opinion poll by the Electoral Research Group, published in January, showed that Schroeder's SPD party's support had fallen from 41% to 39% in December, largely due to concern over the stagnant economy and rising unemployment. The CDU's support had risen from 37% to 39%, making the two parties neck and neck. However, the poll also showed that in a head-to-head race, Schroeder was still 4 percentage points ahead of Stoiber.

Real GDP, 1995 U.S. \$

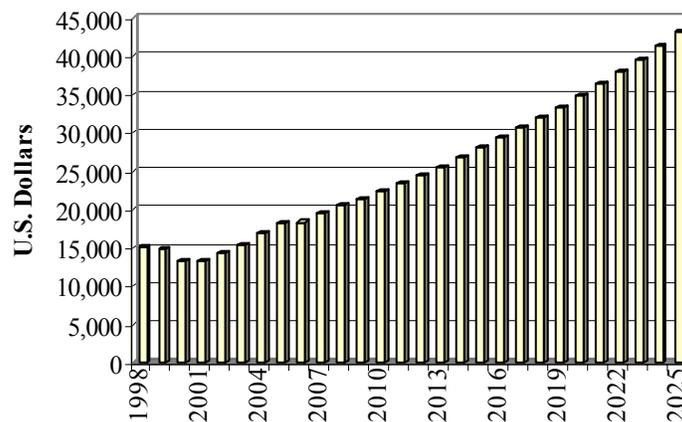


Forecast

Short Term

The German economy is currently on the brink of recession. It is clear that economic activity has been harder hit this year by the U.S. and global economic slowdown than in most, if not all, other Eurozone economies. The outlook has been further hit by the dreadful terrorist attacks in New York and Washington on September 11, which are certain to have significant adverse economic and financial market repercussions. The German equity market closed at its lowest level since November 1997 on September 21, 53% below its March 2000 peak. Although it has since risen from these lows, the market is likely to remain volatile for some time to come. In addition, the already weak and vulnerable business and consumer confidence numbers have come under further pressure. Indeed, business confidence plunged to its lowest level for nearly eight years in September, having shown nascent signs of recovery in July and August.

Consumption Per Capita
(U.S. Dollars per Person)



Business confidence and the export-oriented industrial sector have already suffered markedly this year amid the global slowdown. Persistently high oil prices also dampened growth earlier this year, while inflation was pushed up by high food prices. This situation squeezed household purchasing power and limited the boost to domestic demand that had been expected from the significant tax cuts in January, although consumer spending was healthy during the first half of the year. In addition, growth is being hit by the long-standing weakness of the construction sector. German GDP was flat q/q in the second quarter of 2001, following modest expansion of 0.4% in the first, causing year-over-year growth to slow from 1.8% to 0.6%. This was the weakest annual rate of growth since the third quarter of 1999 and compares with the annual growth rate of 3.6% in the first half of 2000. Very weak business investment was the main factor behind this slowdown, while a rundown in inventories and negative net trade also served to weigh down growth in the second quarter.

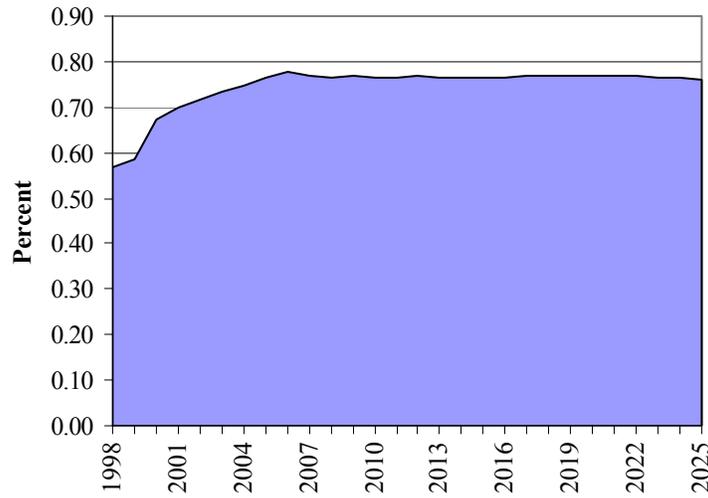
We cut our German GDP growth forecasts sharply in our October forecasting round, to 0.8% in 2001 and 1.3% in 2002. We were set to reduce these forecasts even before the events of September 11, and the risks to the forecast remain primarily on the downside. Much will depend on how global events unfurl over the coming months, how extensive and prolonged military action is against terrorism, what happens to oil prices, and whether there are any terrorist attacks in Europe or other locations.

On the assumption that military action is relatively contained and oil prices remain broadly subdued, we believe that the German economy could start to pick up slowly during the first half of 2002, gaining strong momentum in the second half. Growth should be supported eventually by the major personal and corporate tax cuts that came into effect this year, as well as reduced inflation and lower interest rates. The European Central Bank (ECB) cut Eurozone interest rates by 25 basis points on August 20 and by 50 basis points on September 17, taking its key rate down to 3.75%. More cuts are expected, and further fiscal easing could yet occur despite the government's current reluctance. In October, Chancellor Schroeder indicated for the first time that further measures might need to be taken, although he stressed the need to finance them. An improving global economic environment will also support growth later in 2002, as the U.S. economy is expected to be recovering strongly by then after a brief recession.

Long Term

Germany's real economy is expected to grow by an average annual rate of 2.3% during the 2000–10 period. This includes 2001 growth of only 0.7%, caused by the global slowdown, as well as other internal matters outlined previously. The resumption of higher rates of growth will come after 2010, when the average annual growth of real GDP will be 2.5% through 2025, in other words, moderately higher than the first ten years of this century.

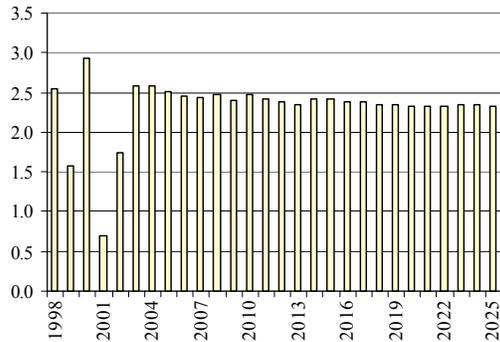
Total Trade share of GDP



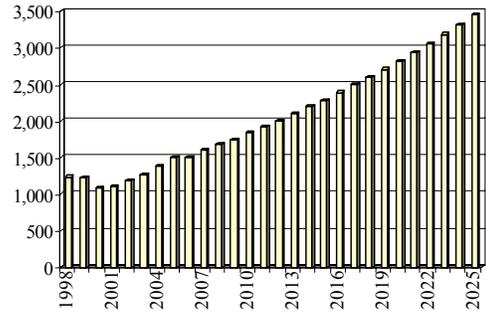
The consumption per capita in Germany for 2001 is forecast to be US\$13,405, but this will climb to US\$22,439 by 2010 and to US\$43,106 in the 2025. This growth in per capita consumption stems from the overall expected growth in Germany's economy but is higher than the economy itself. This has been the historical pattern in Germany for most years. Even during the 1980s, when consumption per capita declined for the first five years and then grew quickly even as the economy had moderate growth, the economy grew at only 2.2% per annum in that decade, while per capita consumption grew at 5.7%.

Germany's trade share of GDP has risen in the 1990s, reaching 71% in 2001. We predict that this ratio will remain in the 70% range for the entire forecast period, as indicated in the previous chart. While Germany's trade outlook is reasonably strong, so is its growth in real GDP, so the ratio is not likely to shift either up or down a great deal. While the long-term trend will roughly maintain this ratio, there may be yearly fluctuations due to unforeseeable events.

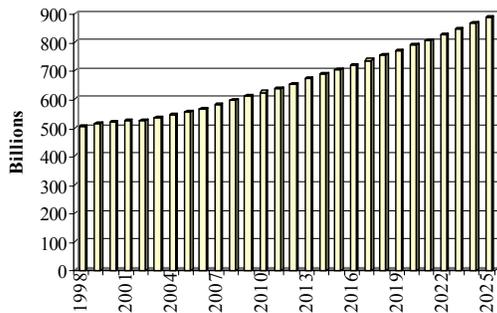
Real GDP Growth (%)



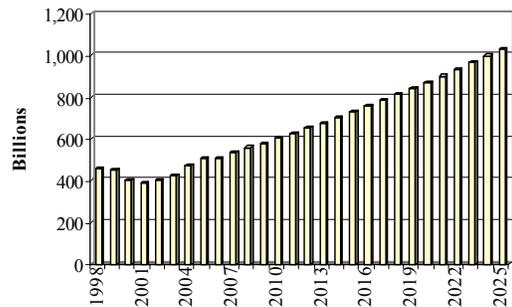
**Private Consumption
(Billion U.S. Dollars)**



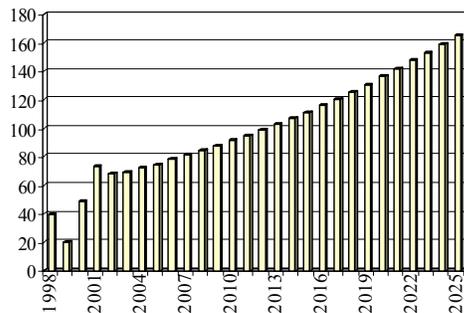
**Government Consumption
(Billion U.S. Dollars)**



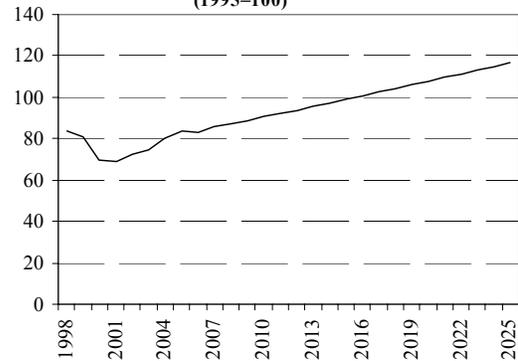
**Investment
(Billion U.S. Dollars)**



**Total Trade Balance
(Billion U.S. Dollars)**



**GDP Deflator
(1995=100)**



GERMANY	2001	2005	2010	2025	Avg. Annual Compound Growth		
					2001-05	2005-10	2010-25
Real GDP, 1995 Billion \$US	2,692.06	2,965.20	3,361.98	4,855.03	2.4%	2.5%	2.5%
GDP, Billion \$US	1,852.67	2,489.21	3,044.24	5,657.95	7.7%	4.1%	4.2%
Real GDP, Percent Change	0.70	2.50	2.48	2.34	37.6%	-0.2%	-0.4%
GDP Deflator, \$ based, 1995=100	0.69	0.84	0.91	1.17	5.1%	1.5%	1.7%
Consumption per Capita	13,404.63	18,175.81	22,348.72	43,105.85	7.9%	4.2%	4.5%
Consumption share of GDP	0.60	0.60	0.60	0.61	0.3%	0.1%	0.1%
Government Spending share of GDP	0.19	0.19	0.18	0.18	-0.6%	-0.2%	-0.2%
GDP per Capita	22,517.80	30,223.07	37,055.72	70,820.58	7.6%	4.2%	4.4%
Investment share of GDP	0.21	0.20	0.20	0.20	-0.5%	-0.2%	-0.1%
GDP by Sector, Agriculture, \$bn	4.02	5.71	7.23	14.59	9.2%	4.8%	4.8%
GDP by Sector, Mining \$bn	1.67	2.37	3.00	6.05	9.2%	4.8%	4.8%
GDP by Sector, Manufacturing \$bn	25.04	35.55	45.02	90.91	9.2%	4.8%	4.8%
GDP by Sector, Utilities \$bn	3.53	5.01	6.34	12.80	9.2%	4.8%	4.8%
GDP by Sector, Construction \$bn	7.24	10.28	13.02	26.29	9.2%	4.8%	4.8%
GDP by Sector, W&R Trade \$bn	24.58	34.89	44.19	89.23	9.2%	4.8%	4.8%
GDP by Sector, Transport and Comm. \$bn	12.78	18.14	22.97	46.39	9.2%	4.8%	4.8%
GDP by Sector, FIRE \$bn	35.65	50.60	64.07	129.40	9.2%	4.8%	4.8%
GDP by Sector, Community and Social Svcs. \$bn	43.97	62.42	79.04	159.62	9.2%	4.8%	4.8%
Private Consumption, \$bn	1,102.87	1,496.98	1,836.02	3,443.78	7.9%	4.2%	4.3%
Government Consumption, \$bn	352.68	462.09	559.30	1,008.38	7.0%	3.9%	4.0%
Investment, \$bn	384.82	506.14	612.49	1,117.86	7.1%	3.9%	4.1%
Exports of Goods and Services, \$bn	659.26	960.94	1,180.58	2,178.42	9.9%	4.2%	4.2%
Imports of Goods and Services, \$bn	634.95	937.81	1,152.72	2,127.01	10.2%	4.2%	4.2%
Total Trade, \$bn	1,294.21	1,898.75	2,333.30	4,305.43	10.1%	4.2%	4.2%

France

Recent Developments

In 2001 growth was generally subdued, although it has held up better than in several other Eurozone countries, notably Germany. Indeed, some of the data around August suggested that the economy could be bottoming out, but hopes that this was the case have been undermined by the September 11 terrorist attacks on the United States, which have weakened and clouded the global economic outlook.

Second-quarter 2001 GDP growth eased to 0.3% quarter over quarter (q/q) from a revised 0.4% in the first quarter. Household consumption slowed to 0.3% in the latest quarter, compared with 1.2% in the first. Total investment ground to a halt, after rising just 0.6% in the first quarter. Somewhat surprisingly, given the deterioration in many companies' balance sheets, growth in business investment strengthened slightly, from 0.3% in the first quarter to 0.4% in the second. Since the second quarter, the French economy has clearly shown that it has been affected more markedly by the slowdown in global growth. Based on estimates from the Bank of France's monthly survey of industry, output grew by 0.3% in the third quarter and is set to increase 0.2% in the final quarter. The sharp deterioration in the world economy has been the overriding factor. Business and consumer confidence have fallen, unemployment rose in each of the three months to August, and leading survey indicators have weakened significantly. Equity prices have also suffered, although they have rebounded somewhat since plunging to a three-year low on September 21.

The recent slowdown in growth and the prospect of subdued expansion in the near term means that unemployment is expected to rise further in the next few months, before eventually resuming a downward trend. The growing number of firms endorsing the 35-hour workweek will accentuate the need to hire on a significant scale. Smaller firms must adopt the legislation by the start of 2002. We expect the unemployment rate to rise to an average of 9.3% in 2002 and 2003, from an expected 8.9% this year.

Outlook

Consumer Markets

Hopefully, the better-than-expected spending data reflect a desire by consumers to spend recent tax cuts. Spending going forward from the final quarter onwards should also be helped by a continued fall in price inflation. The annual rate of consumer price inflation dropped from 1.9% in August to 1.5% in September. On the EU-harmonized index, consumer price inflation eased further from 2.0% in August to 1.6% in September. Consumer price inflation was pushed up earlier this year by higher food prices resulting from the problems in the livestock industry and unseasonable weather, firm oil prices, and renewed euro weakness, but these are temporary factors. Indeed, oil prices have already eased, and they are expected to be generally more moderate over the coming

quarters, although they will remain prone to upward spikes. However, consumer confidence fell in September (compared with July), both before and after the terrorist attacks on the United States. The consumer optimism index slipped from a revised -10 in July to -15 in September. It edged back up to -14 in October, but is still very weak. This could weigh down future consumption, particularly if the labor market weakens markedly further. Unemployment rose for the fifth successive month in September, by 31,000 to 2.434 million.

We expect French consumer spending to grow by just 1.1% over 2002 as a whole. This will be supported by real disposable incomes rising by 1.0%, compared with an expected 3.0% growth in 2001. The slowdown reflects the fact that employment is not expected to grow at all next year. Total fixed investment growth is forecast to slow from an expected 3.4% in 2001 to 2.1% next year. Within this, business investment is expected to lead the way down, slowing from 4.5% growth this year to just 1.5% in 2002. Public investment growth will strengthen to 2.3%, from this year's 2.1%, with domestic demand projected to rise by just 1.5% in 2002. Meanwhile, export growth is set to remain subdued again at 2.8%, from an expected 3.0% in 2001, while import volume growth is also projected to remain unchanged at 2.3% due to modest domestic demand growth. In all, net trade is projected to make a very small positive contribution of 0.1 percentage point to overall GDP growth in 2002.

Investment

The short-term outlook for French investment is much better than the outlook for Germany. Despite the weak global economy, total fixed investment in France is expected to have grown by 3.4% in real terms in 2001. While this is significantly less than the 6.2% figure for 2000, it is still an impressive showing. In 2002, investment is only expected to grow by 2.1%, but from 2003 through 2006 investment is expected to grow at least 3% per annum.

Throughout the period, non-residential investment is expected to lead the growth, increasing by 5.0% in 2001, 3.0% in 2002, and 4.9% in 2003. In the last three years of the near-term forecast the rate will level out closer to 4.0%. Government investment during this period is expected to grow by an average of 2.2% per year. Residential investment is expected to decline by an average of 0.2% per year from 2001 to 2006, with the most volatility being exhibited between 2001 and 2003.

Foreign Trade

French exports are coming under increasing pressure from weaker global growth this year, stemming from the U.S. economic slowdown and its impact on other countries, including Germany. However, import growth is also set to slow markedly, reflecting the current slowdown in French domestic demand. In real terms, French export growth is forecast to slow from 13.5% in 2000 to 3.0% in 2001, while import growth is projected to weaken from 15.3% to 2.3%. Meanwhile, with oil prices remaining relatively high and the euro weak during most of the first half of 2001, France has seen little improvement in its terms of trade following the substantial decline in 2000. However, the terms of trade should improve modestly late this year and in 2002 as oil prices ease back further and the euro rises modestly. In all, the trade surplus is set to remain broadly unchanged at 0.3%

of GDP this year, compared with 0.1% in 2000. A modest easing in the services surplus to 1.4% of GDP is forecast to keep the overall current account surplus unchanged at 1.5% of GDP.

In 2002, we are unlikely to see things change a great deal on the current account side. Weaker import growth due to more sluggish domestic demand growth is expected to largely offset weakening exports. The net impact of reduced tourist flows across the globe is forecast to lead to a further modest decline in the services balance surplus. Consequently, the current account surplus is forecast to remain broadly unchanged again at 1.5% of GDP. It is likely that it will not be until 2003 that we see a noticeable improvement in the current account. Real export growth of around 7.0%, underpinned by a firm pick-up in world trade growth, is set to propel the trade surplus to 0.6% of GDP, from an expected 0.3% in 2002. This, along with an improvement in the services balance, should mean that the current account surplus also grows to 1.9% of GDP, from an expected 1.5% in 2002.

Policy

Fiscal Policy

Finance Minister Laurent Fabius announced at the end of August 2001 details of the government plan to cut taxes by an additional 120 billion francs over the next three years. Benefiting from a range of windfall tax revenues, the government will most notably commit to a reduction of 43 billion francs in income taxes, cuts in corporate taxation, and relief on social security contributions for the lowest paid worth 25 billion francs.

About half of the income tax cuts, affecting some 90% of taxpayers, took effect in the current year. In total, tax cuts amounted to 57 billion francs; this will be followed by cuts of 37.5 billion francs in 2002 and 25.0 billion in 2003. All six personal income tax bands were reduced, with the four lower bands benefiting the most. The lowest rate fell from 9.50% to 8.25% this year and is set to fall further to 7.00% by 2003. The highest personal income tax band was cut from 54.00% to 53.25%. Meanwhile, the 10% corporation tax surcharge was reduced to 6% in 2001 and to 3% for 2002, and will then disappear in 2003. Consequently, the corporate tax rate will be back down to 33.3%. There were additional measures cutting corporate taxes for smaller companies, depending on certain criteria. The overall implicit tax rate is therefore expected to fall from 45.5% of GDP in 2000 to 44.7% this year and is set to fall further to 43.7% by 2004.

In September this year, Finance Minister Laurent Fabius submitted the government's 2002 election-year budget bill. The budget plans are based on GDP growth of 2.5% next year, with the deficit expected to be unchanged from this year's target of 1.4% of GDP. He has since declined to downgrade the government's 2002 GDP forecast of 2.5%, despite the obvious slowdown in the economy. However, he has conceded that it is rather ambitious. DRI•WEFA expects growth to register just 1.6% next year. In the following month, a stimulus package of corporate tax breaks, support for poorer households, and state aid for struggling sectors to try to protect the economy from recession was announced. The proposals include doubling the current grant available to households

whose monthly income is less than 1,600 euro (\$1,460) and a one-off 30% write down for the purchases of capital goods before next March.

Monetary Policy

From January 1, 1999, decisions on monetary policy have been in the hands of the Council of the European Central Bank, with the Bank of France acting as an agent of the European System of Central Banks. From the same date, the French franc conversion rate to the euro was fixed, irrevocably, at 6.55957 to the euro.

Long-term interest rates (ten-year) have remained at close to ten basis points above their German equivalents. This differential is likely to remain over the forecast period. It is unlikely to be eroded over the next few years, as the public debt burden is significantly higher than in most other European countries. However, more significant short-term variations in spreads may occur, reflecting supply issues in the bond market, as was the case in the latter part of 1998.

Inflation

On the labor market front, hourly wages rose strongly in 2000, a direct consequence of the workweek reduction. Hourly wages rose by 2.2% q/q in the first quarter of last year, causing annual growth to surge to 5.1%. This rose to a peak of 5.5% in the second quarter. The quarter-over-quarter rise in hourly base wages slowed sharply from 1.1% in the third quarter to 0.6% in the fourth, but the year-over-year increase was still 5.1% in the fourth quarter. Average hours worked dipped 2.1% in the first quarter and 3.6% y/y (the biggest drop since 1981), pushing up hourly wages at nearly the same rate. Average working hours fell to 36.6 hours by the end of December, down 0.4% from the third quarter and 3.7% from the fourth quarter of 1999. At the end of 2000, 56.3% of full-time salaried workers in firms with at least ten employees were working less than 36 hours a week, compared with only 23% a year earlier. Yet, productivity gains and reductions in employers' social contributions have been strong enough to keep unit labor costs in check. The rise in average monthly salaries has remained relatively tame; indeed, it slowed to 0.4% q/q in the fourth quarter of 2000 from 0.7% in the third quarter. In the first and second quarters, the increases had been 0.5% and 0.4%, respectively. Average monthly wages rose by 2.0% y/y in the fourth quarter, up modestly from the annual increase of 1.9% in the third.

It is very likely that May's annual consumer price inflation rates of 2.3% on the national basis and 2.5% on the EU-harmonized measure will prove to have been the peak in the current cycle. Consumer price inflation was pushed up earlier this year by higher food prices resulting from the problems in the livestock industry and unseasonable weather, firm oil prices, and renewed euro weakness, but these are only temporary factors. Food prices are projected to fall back to more normal levels, and energy prices will start to have a neutral impact on the index (compared with the last 12 months' positive effect). The base effects from energy prices can also be seen in our forecast of producer price inflation, as output prices are expected to fall by 0.3% next year. Import inflation into the domestic price system should also be far lower, following the stabilization and possible appreciation of the euro against the U.S. dollar. Slower activity should also ease core inflationary pressures, while rising unemployment will dampen wage demands.

Given the extension of the introduction of the 35-hour week, pay developments will be critical to containing consumer price inflation over the longer term. We are broadly optimistic that wage moderation will continue, and expect the growth in hourly wages to ease back from 5.2% in 2000 to 3.9% in 2001 and 3.6% in 2002. The workweek reduction explains a major proportion of these gains. With external inflationary pressures declining, annual consumer price inflation should fall back from its high of 2.3% in May to average a modest 1.4% in 2002 and 1.5% in 2003.

Employment

However, rises in unemployment indicate that the labor market is now suffering significantly from the slowdown in global growth that has led to a steady recent decline in French business confidence. By the ILO measure, the number of unemployed rose by 31,000 in September (1.3%) to 2.434 million. This matched the rise in August and was the fifth successive monthly increase. The unemployment rate rose to 9.1% in September from 9.0% in August, its fourth successive increase. The unemployment rate had been at an 18-year low of 8.7% in March–May.

INSEE has announced that it will revise the way it calculates the unemployment rate on the ILO basis starting in November. The revisions will take into greater account the growing number of temporary jobs and are expected to reduce the unemployment rate by 0.2 percentage point.

Strong economic conditions have an important role to play in these upbeat labor market developments, but institutional changes and active labor market policies are also currently yielding some positive results. The workweek reduction has also been an important contributor in recent months. During the first quarter of 2000, for example, average weekly working hours dipped by 2.2%. At the end of September, average working hours fell to 36.76 hours, from 36.92 at the end of June, as more companies adopted the 35-hour week. This has clearly put a strain on production capacities, obliging firms to hire significantly to respond to generally healthy growth. For the time being, the reduction in employers' social contributions for firms moving to a shorter working week and hourly productivity gains have prevented any serious adverse impacts on unit labor costs.

In early December, the Conseil d'Analyse Economique, an economic think-tank set up to study the matter, released a report on full employment. The report concluded that the current unemployment rate of just under 9.5% cannot be reduced much further without removing labor market rigidities and introducing more supply-side measures in economic policy. The report noted that 1.6 million new jobs have been created since 1987, largely due to moves to stimulate demand and boost employment, including cuts in high social security charges, youth employment schemes, and the introduction of the 35-hour week. The level of structural unemployment was estimated at about 8% of the workforce, and the report argued that to achieve full employment France would have to widen the numbers in work, including both younger and older workers. A supply-orientated strategy including training, research, innovation, and investment needed to be adopted, as well as attention to fiscal competitiveness in terms of tax treatment of capital and highly skilled labor. Specific measures suggested included: ending early retirement incentives, giving more tax breaks to encourage unemployed on state assistance to return to work,

eliminating the distortions created on the minimum wage by the 35-hour week that are disguised until 2005 by subsidies, limiting state recruitment of graduates, and improving professional training. The report concluded that France would need to create at least 300,000 jobs a year if the unemployment rate is to be brought down to 5% by 2010.

The recent slowdown in growth and the prospect of subdued expansion in the near term means that unemployment is likely to rise further in the next few months, before eventually resuming a downward trend. The growing number of firms endorsing the 35-hour workweek will accentuate the need to hire on a significant scale. Smaller firms must adopt the legislation by the start of 2002. We expect the unemployment rate to rise to an average of 9.3% in 2002 and 2003, from an expected 8.9% this year. This compares with the rate of 9.1% in September. In the latter stages of next year, job creation should start to pick up once more. The pick up in the labor market should again be spread widely across a spectrum of professional qualifications. The poorly skilled will continue to benefit from the government's targeted measures, aimed at attracting them back into work. In addition, the workweek reduction will generate more jobs for manual workers and for those involved in divisible tasks, rather than for managerial staff or highly qualified workers.

Exchange Rate

(See discussion of the Euro under Germany, Exchange Rate)

Political Developments

The ruling left-wing coalition headed by Prime Minister Lionel Jospin has been in place since June 1997. It is made up of the Socialist Party (PS), with 241 seats; the Communists (PCF), with 38 seats; the Radical Socialist Party (MRG), with 2 seats; the Ecologists, with 8 seats; and other leftist parties, with 21 seats. This gives the ruling coalition 320 seats out of a total of 577 in the National Assembly. The opposition consists of the Rally for the Republic (RPR), with 134 seats; the Union for French Democracy (UDF), with 108 seats; the National Front, with 1 seat; and other rightist parties, 14 seats. The ruling coalition has benefited from a record long-standing level of popularity in French politics.

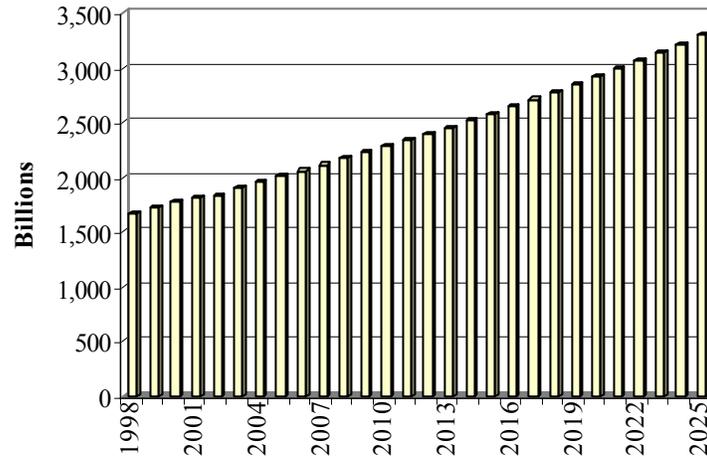
In late December, Prime Minister Jospin succeeded in getting the national assembly to vote in favor of changing the order of elections in 2002. The vote for the presidency will take place before the vote for parliament. This is widely seen as improving Prime Minister Jospin's chances of defeating the incumbent, President Jacques Chirac. The move is also likely to reduce the chances of "co-habitation," as exists at present, where the president is of one political movement and the parliament another. Under a recent change in legislation, the presidential term has been reduced from seven years to five. For most of the recent past, Prime Minister Jospin and President Chirac have been very close in opinion polls. However, an opinion poll published on January 10 in *Liberation*, a daily newspaper, showed that support for a second term in office for President Chirac had fallen to 46%, from 51% in November. Meanwhile, support for Jospin had risen from 49% to 54% over the same period.

In January 2001, Edouard Balladur called for the creation of a new unified right-wing political party, provisionally called "L'Union Pour La Reform." Balladur, who was the last conservative Prime Minister (1993–95), is aiming to unify the right-wing opposition,

which is currently fractured and struggling for support in opinion polls. The main right-wing party, the Rally for the Republic (RPR), is seen by many as being too dominated by President Chirac, and has suffered from a party financing scandal.

The municipal elections that took place in March 2001 provided better-than-expected results for the right-wing parties. Although the Socialists secured control of Paris (regarded as President Chirac's personal fiefdom) and Lyon, where the right was split, their victory margins were smaller than anticipated. In addition, the right performed very strongly in the provinces, gaining about 30 towns. Several of the coalition government's cabinet ministers failed in their attempts to gain local power. Other features of the municipal elections were the relatively strong performance of the Greens and the slump in support for the Communists. This could result in a modest shifting of power between the two in the Socialist-led coalition government.

Real GDP, 1995 U.S. \$

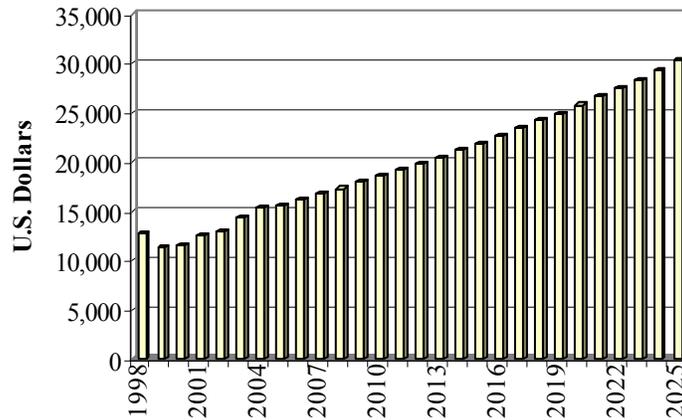


Before the end of the legislature in 2002, the government might feel it increasingly difficult to maintain a consensus on major policy orientations. In the run-up to the general election, the Socialist Party is expected to shift gradually to the center/left, thereby making life in government very difficult for their Communist and Green partners. The debate over pension reforms should be a particularly difficult one. The Socialists, under the impulse of Finance Minister Laurent Fabius, should encourage pension-fund look-alike schemes. The necessary shift from today's expensive and outdated pay-as-you-go schemes—in which pensions are paid directly through contributions of working people—to pension funds may be a politically damaging move. It will take a lot of thinking and significant political skills to ensure that the reform will not be interpreted as an abandonment of the very notion of solidarity and redistribution that underlines the present welfare system. This idea of redistribution and solidarity is the main ideological pillar gluing the present coalition. Should this pillar be questioned, the government would not be able pursue its task.

As for the next general election, the Socialists still seem in a generally good position at this stage, with a clean record in government and a divided opposition. Prime Minister

Jospin, the most likely candidate for the party, has firmed his grip on the Socialist Party by appointing Finance Minister Fabius. The French electorate's peculiar taste for a president from the opposition party, however, and a general volatility of voters could provide some sparks in the election. Furthermore, the 2001 municipal elections indicated that neither the government nor the opposition could be confident of victory at the moment.

Consumption Per Capita
(U.S. Dollars per Person)



Forecast

Short Term

The outlook for the economy has been affected by the dreadful terrorist attacks in New York and Washington on September 11, which are certain to have significant adverse economic and financial market repercussions. Therefore, DRI•WEFA has decided to revise down its 2001 and 2002 GDP growth forecasts. Although the downgrade for this year is a mere 0.2 percentage point to 1.9% (simply because most of this year is already behind us), it is next year that growth is expected to be hardest hit. In 2002, GDP is now expected to grow by just 1.6%, versus 2.1% in DRI•WEFA's August forecast.

Although the United States accounts for a relatively modest 7.5% of total French exports and 1.9% of total GDP, the effect on growth will materialize through such channels as reduced global growth, particularly in Germany; the negative impact on business, evident throughout this year; and consumer confidence (much less affected to begin with, but now suffering more markedly); and lower equity prices. However, this sharp slowdown masks the fact that the second half of the year will be much stronger than the first half. Significant tax cuts, modestly accelerating wages, and, eventually, lower interest rates should ensure that consumption is the main engine for growth next year. Lower inflation will help real incomes growth, supporting consumer spending. Nonetheless, with little employment growth in the cards, growth in consumption is unlikely to be spectacular.

The upswing in economic activity is set to continue through 2003, supported by a firm strengthening in Eurozone and world trade growth. In general, DRI•WEFA anticipates a broad-based recovery. Business investment and private consumption are both expected to grow more strongly, supported by this year's monetary and fiscal stimulus. The annual quarterly growth rates in the first half of the year will be steep, reflecting the very weak quarter-over-quarter growth rates of the first half of 2002. As such, the economy is forecast to expand by a very robust 3.5% in 2003.

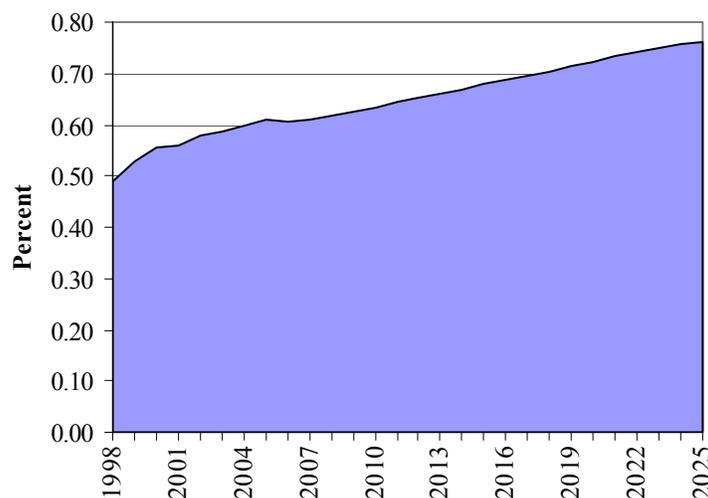
Private consumption growth is projected to pick up to 2.2% in 2003, supported by stronger disposable income growth. Total income will benefit from a pick-up in job creation to 0.5%. Brighter prospects for the industrial sector should underpin investment growth of 3.8%, compared with 2.1% in 2002, while government spending growth is forecast to remain stable. In all, domestic demand is set to grow by 2.6%. Therefore, it will therefore be net trade that will provide the major impulse to the economy in 2003. Export growth is forecast to strengthen sharply to 7.1%, from an expected 2.8% in 2002. Although import growth is also set to strengthen, net trade is projected to add almost one percentage point to expansion.

Long Term

The long-term pattern of real GDP growth in France has been steady for the most part, except in 1993 (recession) and the slowdown occurring now stemming from the global slowdown. The average rate of real GDP growth in the 2000–10 period will be 2.5%, and this is expected to continue through 2025

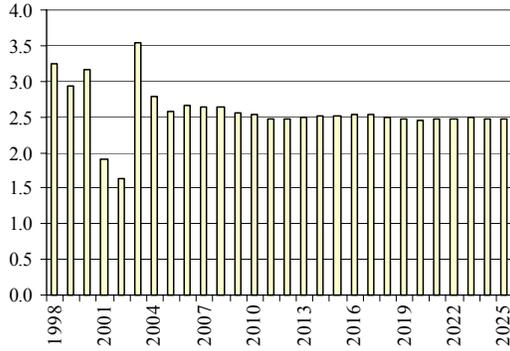
Consumption per capita, which was only \$5,142 in 1981, will be \$12,554 in 2001 and will climb to \$30,275 by the final year of the forecast period, 2025. Historically, the growth in this indicator has not been smooth, a marked difference from Germany. The shifts in consumption amounts, per capita, have been tied to overall growth in the economy.

Total Trade share of GDP

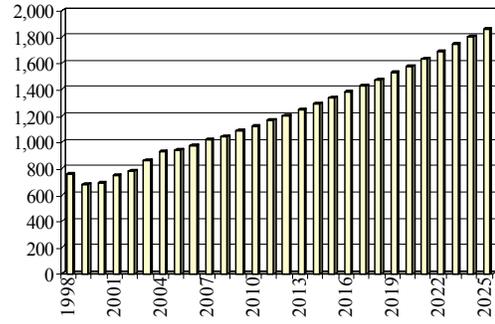


Finally, France's trade share of GDP is expected to climb steadily, in line with the economic forecast. However, as is typical in the advanced nations, trade will grow slightly faster than economic growth overall, thereby increasing the trade share of GDP. In 2001, this ratio was 56%, and the forecast calls for it to reach 76% in the final year, 2025.

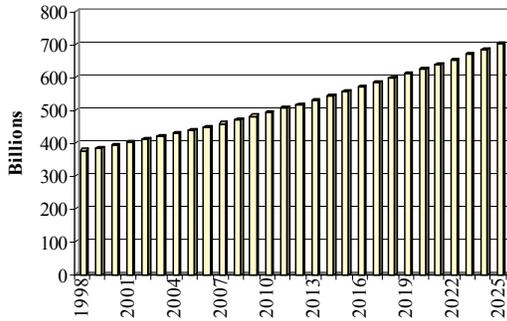
Real GDP Growth (%)



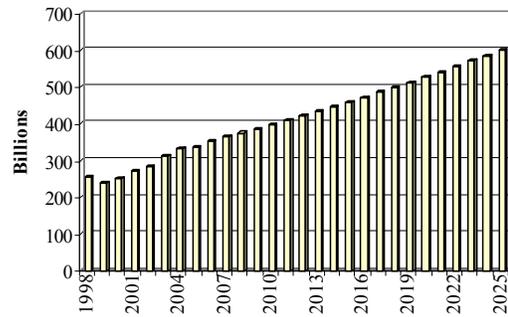
**Private Consumption
(Billion U.S. Dollars)**



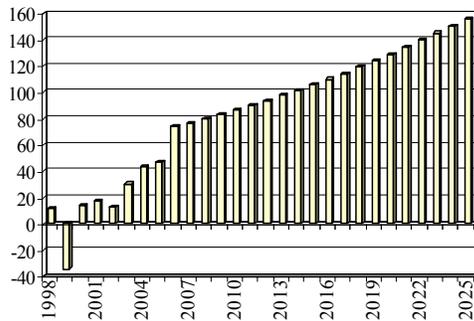
**Government Consumption
(Billion U.S. Dollars)**



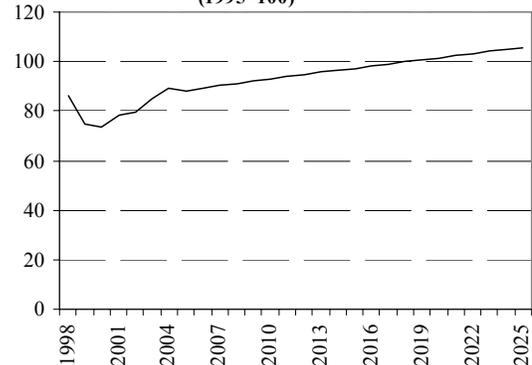
**Investment
(Billion U.S. Dollars)**



**Total Trade Balance
(Billion U.S. Dollars)**



**GDP Deflator
(1995=100)**



FRANCE	2001	2005	2010	2025	Avg. Annual Compound Growth		
					2001-05	2005-10	2010-25
Real GDP, 1995 Billion \$US	1,807.61	2,005.65	2,281.13	3,299.10	2.6%	2.6%	2.5%
GDP, Billion \$US	1,413.78	1,767.32	2,123.31	3,486.18	5.7%	3.7%	3.4%
Real GDP, Percent Change	1.90	2.58	2.54	2.47	7.9%	-0.3%	-0.2%
GDP Deflator, \$ based, 1995=100	0.78	0.88	0.93	1.06	3.0%	1.1%	0.8%
Consumption per Capita	12,554.42	15,562.10	18,556.29	30,274.64	5.5%	3.6%	3.3%
Consumption share of GDP	0.53	0.53	0.53	0.53	0.0%	0.0%	0.0%
Government Spending share of GDP	0.23	0.22	0.22	0.21	-0.4%	-0.3%	-0.2%
GDP per Capita	23,801.12	29,457.40	35,096.95	56,850.59	5.5%	3.6%	3.3%
Investment share of GDP	0.19	0.19	0.19	0.19	-0.2%	0.0%	-0.1%
GDP by Sector, Agriculture, \$bn	33.37	41.71	50.12	82.29	5.7%	3.7%	3.4%
GDP by Sector, Mining \$bn	11.97	14.97	17.98	29.52	5.7%	3.7%	3.4%
GDP by Sector, Manufacturing \$bn	324.03	405.06	486.65	799.02	5.7%	3.7%	3.4%
GDP by Sector, Utilities \$bn	39.34	49.17	59.08	97.00	5.7%	3.7%	3.4%
GDP by Sector, Construction \$bn	78.32	97.90	117.62	193.12	5.7%	3.7%	3.4%
GDP by Sector, W&R Trade \$bn	196.33	245.42	294.86	484.12	5.7%	3.7%	3.4%
GDP by Sector, Transport and Comm. \$bn	82.56	103.21	124.00	203.59	5.7%	3.7%	3.4%
GDP by Sector, FIRE \$bn	433.54	541.96	651.12	1,069.05	5.7%	3.7%	3.4%
GDP by Sector, Community and Social Svcs. \$bn	213.45	266.83	320.58	526.35	5.7%	3.7%	3.4%
Private Consumption, \$bn	745.73	933.66	1,122.63	1,856.50	5.8%	3.8%	3.4%
Government Consumption, \$bn	320.99	394.08	466.54	747.52	5.3%	3.4%	3.2%
Investment, \$bn	271.54	337.37	405.54	656.08	5.6%	3.7%	3.3%
Exports of Goods and Services, \$bn	397.82	548.97	706.36	1,393.45	8.4%	5.2%	4.6%
Imports of Goods and Services, \$bn	395.13	528.33	640.15	1,262.83	7.5%	3.9%	4.6%
Total Trade, \$bn	792.95	1,077.30	1,346.51	2,656.28	8.0%	4.6%	4.6%

Italy

Recent Developments

The provisional third-quarter national accounts reveal that the economy continued to cool during the summer months. Real GDP rose by a seasonally adjusted 0.2% quarter over quarter and was 1.9% higher than the corresponding period a year ago. The year-over-year growth rate was the lowest since the third quarter of 1999. We expect real output to decline by 0.1% between the third and fourth quarters, which implies that economic growth for the year as a whole will be 1.7%. The latest survey indicators provide strong evidence that economic activity is set to weaken again in the closing months of this year.

The near-term outlook is weak, with output expected to contract in the final quarter of this year and grow very modestly in the first half of 2002. Consequently, the growth profile for next year as a whole has been revised down, with real GDP growth expected to slow by 0.3 percentage point to 1.4% (down from 2.6% in the July forecast round) in 2002. The main drags on near-term growth will be markedly slower export growth, a fall in corporate investment, and the likelihood of a rundown in stocks.

The latest batch of industrial indicators confirms that the manufacturing sector is clearly struggling and is a major drag on economic activity. According to ISTAT, industrial production fell by a seasonally adjusted 0.8% between August and September, which was the largest drop since October 2000. The year-over-year comparison revealed an adjusted 1.8% fall, the sixth consecutive month to post an annual decline. In addition, the sentiment indicators signal that the immediate outlook is gloomy.

The national accounts data for the second quarter and more recent foreign trade data reveal that Italian exports have been squeezed as the global economy stumbles. Recent foreign trade data suggest that exports might have contracted in the third quarter, while sentiment indicators report a marked decline both new export orders and prospects. New manufacturing export orders in the second quarter were 8.8% lower than a year ago and continued to fall in the third quarter. In addition, the EC's survey of manufacturers conducted in October confirm the weak inflow of new foreign orders, with a sizable majority of respondents claiming that their export order books are below normal.

Inflation is forecast to trend gradually lower in the final months of this year and in 2002. Oil prices have fallen sharply, which implies that last year's and the early 2001 surge in fuel prices will drop out of the annual calculation. Meanwhile, food prices should start to fall back, as the livestock crisis in Europe has abated.

Outlook

Consumer Markets

Consumer spending growth is an important engine of growth but will continue to develop at a moderate pace in the final months of this year and in 2002. The surge in consumer optimism following Silvio Berlusconi's victory in last May's general election

helped to deliver a pick-up in household spending in the second quarter, which expanded by 0.5% q/q, having been flat in the previous quarter. However, the underlying annual trend revealed a steady slowdown, with the year-over-year rate easing by 0.2 percentage point to 1.3%. Despite favorable fundamentals, the rate of growth in consumer spending growth has been weaker than expected in the second half of this year. In the July forecast round, we expected stronger consumer spending growth given the anticipated rise in real disposable income, which was due to tax cuts, higher wage agreements, and an easing back of inflation in the second half of the year. However, it is likely that consumers have postponed spending on non-essential, big-ticket items until the impact of the September 11 attacks and the military conflict in Afghanistan is clearer. The latest indicators suggest the rate of growth in consumer spending continued to edge down in the third quarter, undermined by a 7.2% fall in car registrations. Retail sales continued to trend up at a solid pace, with the value of retail sales in July and August rising by 2.2% over the year. We do not expect any improvement in the final quarter of this year, with ailing consumer confidence likely to deliver another moderate increase at best in private spending. Over this year as whole, household consumption growth will be around 1.4%, down from 2.9% in 2000.

Consumer spending growth is expected to remain virtually unchanged next year, at 1.5%. The backdrop of consumers is likely to be a mixed bag in the coming months. The growth in real disposable income will slow sharply next year as the impact of a marked slowdown in employment growth offsets an easing back in inflation. Consumer confidence remains vulnerable to a mild turnaround in the labor market, with unemployment expected to rise by 0.1 percentage point to 9.8%. However, the steady stream of interest rate cuts since mid-September and the strong likelihood of further reductions in the coming months will help to assure consumers that better times are around the corner. The resumption of strong economic growth from the latter months of next year will improve the business climate and labor demand, which will lead to a rapid improvement in both household confidence and spending. Consequently, the rate of expansion in private consumption is forecast to accelerate by 1.1 percentage points to 2.6% in 2003.

Investment

Business confidence sunk further following the terrorist attacks on the United States and growing evidence that the problems in the global economy will carry over into next year. The slowdown in corporate investment activity began in the second quarter of 2001. Fixed investments increased by 0.3% q/q, with the annual growth rate declining to 1.3% from 2.9% in the first quarter. Largely because of the acute slump in confidence, business investment will continue to slow in the final months of this year and in 2002. Corporate tax cuts and very low interest rates—by past Italian norms—will provide only limited support to investment. We believe that manufacturers will postpone their investment plans until they receive strong signals that the global economy has turned the corner and the conflict in Afghanistan will end well. Consequently, corporate fixed investment is forecast to grow negligibly next year, with a fall in the first half of next year offset by a revival in investment activity in the latter half of the year. The prospect of stronger economic growth in Italy, the Eurozone, and the United States in 2003 will lead to lively business investment spending beyond 2002.

The slowdown in real household disposable income next year will hit the demand for housing. Very low interest rates will provide only limited support to investment. Consequently, residential construction investment is projected to decline by 2.8% in 2002, with a recovery expected to get underway in early 2003.

Foreign Trade

The national account data for the second quarter and more recent foreign trade data reveal that Italian exports have been squeezed as the global economy stumbles. In addition, Italy is still struggling to protect its competitiveness against other Eurozone countries, although its competitiveness with non-Eurozone countries is being supported by the weak euro. The second-quarter national accounts revealed that the slowdown in the United States and Germany resulted in a 1.3% quarter-over-quarter fall in exports, with the annual growth rate falling back to 8.8%, from 13.4% in the first quarter. Recent foreign trade data suggest that exports might have contracted in the third quarter, while sentiment indicators report a marked decline both new export orders and prospects. New manufacturing export orders in the second quarter were 8.8% lower than a year ago and continued to contract in the third quarter. In addition, the European Commission's survey of manufacturers conducted in October confirms the weak inflow of new foreign orders, with a sizable majority of respondents claiming that their export order books are below normal. The indicator sunk to -27% in October, down from -12% in the previous month and was the lowest value since June 1999. In volume terms, the rate of growth in Italian exports is projected to slow by half to 5.5% this year and then slow again to 2.4% in 2002. Brighter global economic prospects from late-2002 will see a revival in export growth, which should hit 6.1% in 2003.

Meanwhile, import growth will be limited by the significant slowdown in domestic demand, with import gains set to fall sharply both this year and in 2002. Net trade is therefore set to make a significant contribution of 0.6 percentage point to overall GDP growth in 2001, with no contribution next year.

Meanwhile, the terms of trade are expected to weaken a little further this year, since oil prices will remain above \$20 per barrel in the coming months, and the euro is still very weak against the dollar and is not expected to strengthen significantly. Consequently, Italy's merchandise trade surplus is expected to be limited to 16.4 trillion lire, while the current account posts a deficit of 2.0 trillion lire, equivalent to 0.1% of GDP. The current account is forecast to improve modestly in 2002 to a smaller deficit of 1.2 trillion lire, or 0.1% of GDP.

Policy

Fiscal Policy

Italy presented its 2002–05 EU stability program on November 14, confirming its goal to achieve balance in the public finances as soon as possible. The Ministry of Treasury aims to trim the public sector budget deficit from estimated 1.1% of GDP this year to 0.5% in 2002 and to balance the books by 2003. However, the government did revise down its target for this year from 0.8% of GDP. The economic backdrop is significantly more

positive than our current baseline view, with the economy forecasted to expand by 2.3% (down from 3.1% in the previous stability program, but below our projection of 1.4%) in 2002 and by 3.0% in 2003. The government also said it planned to make around 16.5 billion euro from the securitisation and sale of state properties, raising 7.75 billion euro in 2002, 7.23 billion in 2003, and 1.55 billion in 2004. The funds will be used to lower the deficit in each of the three years. Given our more pessimistic view of Italy's near-term growth prospects, we expect the government to miss the above public finance targets by a significant margin and project that a balanced budget will be achieved in 2004.

The Economy Ministry said that recent calculations showed that public administration net debt (the measure used by the European Union to measure Italy's budget deficit/GDP ratio) would be 45 trillion lire (1.9% of GDP) by year-end. Consequently, Economy Minister Giulio Tremonti said he will bring in measures to contain spending over the rest of this year by around 12 trillion lire, although this will not be sufficient to achieve the 0.8% of GDP target for the budget deficit. Tremonti also said that privatization will enable Italy to achieve a balanced budget by 2003, but his deputy, Mario Baldassarri, acknowledged that this would not happen until 2006 at the current trend growth.

Monetary Policy

From January 1, 1999, decisions on monetary policy have been in the hands of the Council of the ECB, with the Bank of Italy acting as an agent of the European System of Central Banks. From the same date, the lire conversion rate to the euro was fixed, irrevocably, at 1936.27 to the euro.

Inflation

Inflation is forecast to trend gradually lower in the final months of this year 2001 and in 2002. Oil prices have fallen sharply, which implies that last year's and the early 2001 surge in fuel prices will drop out of the annual calculation. Meanwhile, food prices should start to fall back, as the livestock crisis in Europe has abated and recent weather factors diminish. The likelihood of weak economic activity during the next six months should also help to keep lid on inflation. We now expect consumer price inflation at 2.8% this year and 1.9% in 2002 (a downward revision of 0.5 percentage point from the July forecast).

Employment

The anticipated contraction in economic activity in the final quarter of this year and the prospect of modest growth in the first half of next year will halt temporarily the recent improvement in the labor market. A poor business climate suggests that companies will be cautious about recruitment until economic prospects improve significantly. Consequently, employment growth will slow abruptly next year, by around a percentage point to just 0.1%.

Given a small rise in the labor force, the unemployment rate is forecast to edge up slightly to 9.7%. The improvement in the labor market is expected to resume from the latter stages of next year as economic growth gathers momentum. The goal of a sustained fall in unemployment over the medium term will be hindered by Italy's strong regional

base. The jobless rate in the southern regions is still over 15%; while in the north, near-full employment conditions exist, and labor shortages are an increasing problem (the unemployment rate is currently 4.1%). Consequently, future improvements in the labor market will be partly dependent on the success of the many programs to promote economic activity in the south. These include infrastructure projects and direct aid to companies, as well as increased flexibility in employment conditions. At the end of May, Bank of Italy Governor Antonio Fazio stressed the need for greater labor-market flexibility, including the greater use of short-term work contracts.

Exchange Rate

(See discussion of the Euro under Germany, Exchange Rate)

Political Developments

The general election held on May 13, 2001, for the 14th parliament since the end of World War II, resulted in majorities in both the lower (the Chamber of Deputies) and upper (the Senate) houses of parliament for the center-right Casa delle Liberta (Freedom House) coalition, led by Silvio Berlusconi. Consequently, Berlusconi became Prime Minister for the second time, having previously held power for just seven months in 1994. The Freedom House coalition comprehensively defeated the outgoing center-left Ulivo-Insieme per l'Italia (Olive Tree) coalition government, which had been led during the election campaign by Francesco Rutelli. Rutelli took over for outgoing Prime Minister Giuliano Amato. Berlusconi heads the dominant Forza Italia Party, while its major partners in the coalition are the formerly neo-fascist Alleanza Nazionale (AN), led by Gianfranco Fini, and the Lega Nord (Northern League), led by Umberto Bossi. In the past, the Lega Nord, which joined the center-right alliance in 1999, has called for the secession of the north from the rest of Italy.

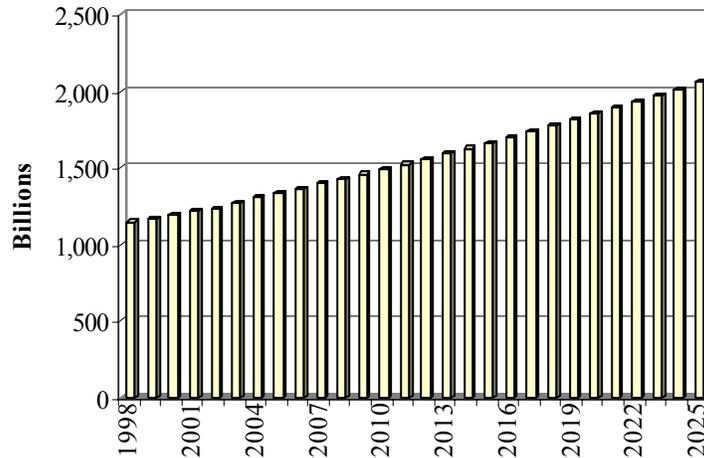
In the May 13 elections, the Freedom House coalition won 177 of the 324 seats in the Senate and 368 seats out of the 630 seats in the Chamber of Deputies. Of importance to Berlusconi was the poor performance of the Northern League, which gained only 3.9% of the vote, down from 10.1% in the 1996 election. This meant that the League was not entitled to any of the 155 seats allocated by proportional representation, thereby limiting its total representation within parliament. Even so, the League still won 17 seats in the Senate, meaning that Berlusconi is still likely to need their support in getting legislation through the upper house.

Consequently, although Mr. Berlusconi will be less dependent on the League's support than had seemed likely, he cannot ignore it. There has been considerable international concern over the stance of the Northern League and its leader Umberto Bossi on issues such as the European Union and immigration, which threatens to cause problems for the new government. In addition, Berlusconi's previous term as prime minister in 1994 was brought to an end by the League's withdrawal of support.

On the policy side, the center-right is well positioned to push forward with much-needed major reforms. It has pledged a policy of free enterprise and reduced bureaucracy. On July 16, the government unveiled its economic plan (the DPEF) for its full five-year term in office during 2001–006. Its main thrust was to reduce the budget deficit by boosting

growth, achieving a balanced budget by 2003. Increases in public spending net of interest payments are to be kept below 1% per year over the next five years. The government also intends to cut the tax burden from around the current 42.0% of GDP to 37.5% by 2006. It will spend 100 trillion lire on infrastructure projects over the next five years, with 15 trillion lire spent in 2002.

Real GDP, 1995 U.S. \$



Forecast

Short Term

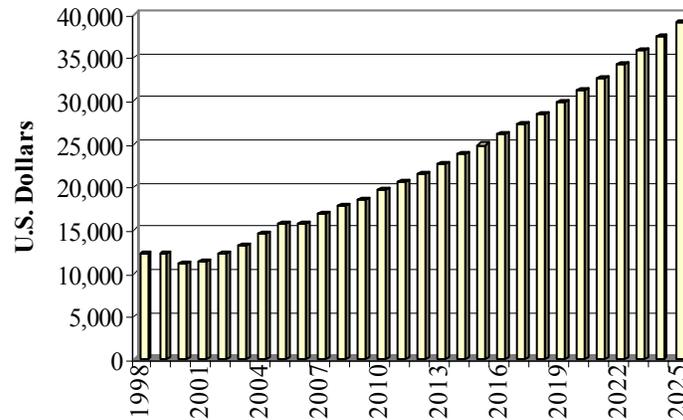
The near-term outlook is weak, with output expected to contract in the final quarter of this year and grow very modestly in the first half of 2002. Consequently, the growth profile for next year as a whole has been revised down, with real GDP growth expected to slow by 0.3 percentage point to 1.4% (and from 2.6% in the July forecast round) in 2002. The main drags on near-term growth will be markedly slower export growth, a fall in corporate investment, and the likelihood of a rundown in stocks.

The recent interest rate cuts by the European Central Bank (ECB) are expected to provide some comfort to consumers in the coming months, help avoid a too-torturous decline in economic activity around the turn of this year, and help fend off a recession next year. The ECB cut its key interest rates by 25 basis points in both May and August, and by 50 basis points on both September 17 and November 8, taking its key rate down to the current 3.25%. We expect another 25-basis-points cut before the end of the year. In addition, oil prices are generally lower, which will help to ratchet down inflation and strengthen purchasing power. Even so, consumer confidence is likely to remain under pressure in the near term, particularly given the slower rate of improvement in the labor market and the uncertain economic environment.

Long Term

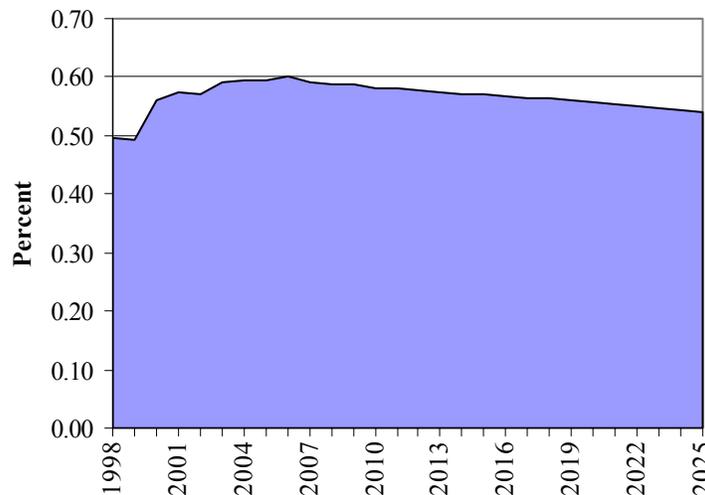
In 1980, Italy had a real GDP (measured in 1990 U.S. dollars) of just \$885 billion. Since then, it has grown steadily, even in the face of many changes in government and policies.

Consumption Per Capita
(U.S. Dollars per Person)



Growth in the early 1990s was flat for several years, as Italy responds to external world recessions in a very elastic manner. This year, 2001, we expect Italy to grow by 2%, and then the real impact will be felt in 2002, when the economy will grow at only 1%. For the longer term, the forecast calls for steady growth, averaging 2.2% over both the 2000–10 period and the final 15 years to 2025.

Total Trade share of GDP

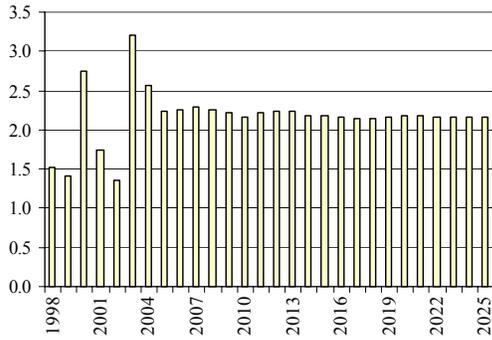


Concerning per capita consumption, history has shown many fluctuations in this important economic measure. In the future, using the assumptions for this most probable analysis, we develop a more steady projection reflecting the similarly steady forecast of economic output. Indeed, per capita consumption in Italy should grow by 5.8% per year

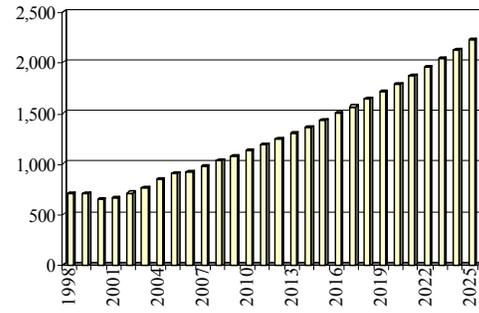
through 2010 and then slow slightly to 4.7% thereafter. This produces an annual per capita consumption figure of nearly US\$40,000 in the final year of the forecast. This is great growth, but the final level will still be below that of Germany, but higher than that of France.

Concerning the trade share of GDP, as the world economy recovers from its recession, Italy's trade share of GDP is expected to increase, but there are limits. In fact, as seen in the chart above, Italy's trade share of GDP will peak at about 60%, after which it will decline steadily to 54% in the final year of the forecast, 2025.

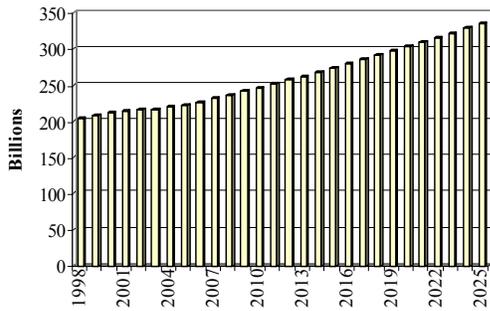
Real GDP Growth (%)



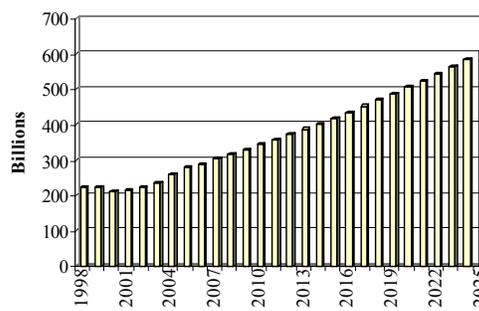
**Private Consumption
(Billion U.S. Dollars)**



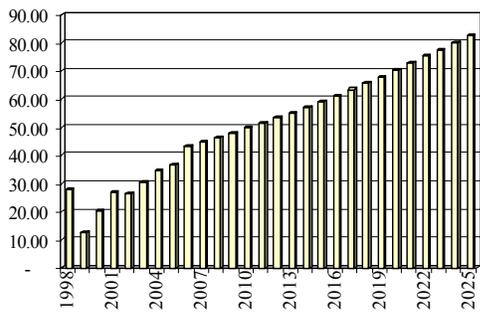
**Government Consumption
(Billion U.S. Dollars)**



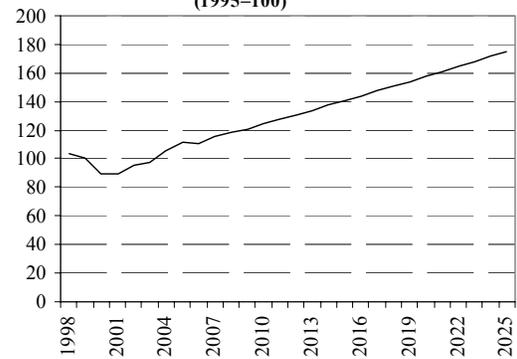
**Investment
(Billion U.S. Dollars)**



**Total Trade Balance
(Billion U.S. Dollars)**



**GDP Deflator
(1995=100)**



GLOBAL MACROECONOMIC AND TRADE SCENARIO VOLUME I
Most Probable Scenario

Italy	2001	2005	2010	2025	Avg. Annual Compound Growth		
					2001-05	2005-10	2010-25
Real GDP, 1995 Billion \$US	1,215.66	1,333.63	1,489.34	2,057.94	2.3%	2.2%	2.2%
GDP, Billion \$US	1,091.87	1,488.46	1,854.10	3,605.13	8.1%	4.5%	4.5%
Real GDP, Percent Change	1.74	2.24	2.17	2.17	6.5%	-0.7%	0.0%
GDP Deflator, \$ based, 1995=100	0.90	1.12	1.24	1.75	5.6%	2.2%	2.3%
Consumption per Capita	11,404.88	15,715.63	19,558.85	38,983.46	8.3%	4.5%	4.7%
Consumption share of GDP	0.60	0.61	0.61	0.61	0.3%	0.0%	0.1%
Government Spending share of GDP	0.19	0.18	0.18	0.17	-1.0%	-0.2%	-0.2%
GDP per Capita	18,916.65	25,759.79	32,137.55	63,423.11	8.0%	4.5%	4.6%
Investment share of GDP	0.20	0.19	0.19	0.18	-1.0%	0.0%	-0.1%
GDP by Sector, Agriculture, \$bn	28.41	38.74	48.25	93.82	8.1%	4.5%	4.5%
GDP by Sector, Mining \$bn	5.05	6.89	8.58	16.68	8.1%	4.5%	4.5%
GDP by Sector, Manufacturing \$bn	241.26	328.88	409.68	796.58	8.1%	4.5%	4.5%
GDP by Sector, Utilities \$bn	36.48	49.72	61.94	120.44	8.1%	4.5%	4.5%
GDP by Sector, Construction \$bn	50.21	68.44	85.26	165.78	8.1%	4.5%	4.5%
GDP by Sector, W&R Trade \$bn	179.54	244.75	304.87	592.80	8.1%	4.5%	4.5%
GDP by Sector, Transport and Comm. \$bn	67.51	92.03	114.64	222.90	8.1%	4.5%	4.5%
GDP by Sector, FIRE \$bn	272.75	371.82	463.16	900.57	8.1%	4.5%	4.5%
GDP by Sector, Community and Social Svcs. \$bn	210.29	286.67	357.09	694.34	8.1%	4.5%	4.5%
Private Consumption, \$bn	658.29	908.08	1,128.40	2,215.92	8.4%	4.4%	4.6%
Government Consumption, \$bn	203.50	266.55	328.44	618.17	7.0%	4.3%	4.3%
Investment, \$bn	214.09	280.79	349.44	666.41	7.0%	4.5%	4.4%
Exports of Goods and Services, \$bn	322.33	460.03	562.91	1,012.52	9.3%	4.1%	4.0%
Imports of Goods and Services, \$bn	304.84	426.91	517.20	930.30	8.8%	3.9%	4.0%
Total Trade share of GDP	0.57	0.60	0.58	0.54	0.9%	-0.5%	-0.5%
Total Trade, \$bn	627.17	886.94	1,080.11	1,942.82	9.1%	4.0%	4.0%

IV. South America

Venezuela

Recent Developments

The economy grew 3.4% year over year, up from 1.9% a year earlier. The non-oil economy is performing relatively well while the oil economy is contracting due to continued oil output cuts. The non-oil economy should continue benefiting from an expansive fiscal policy (although badly implemented, this policy has some positive impact) and relatively strong domestic consumption. In light of the first-half figures (which came in slightly below expectations), we have again revised down our GDP growth forecast for 2001 from 3.9% to 3.5% with risk on the downside.

Inflation was 1.21% in September, up from 0.63% in August, but down from 1.72% a year earlier. Year-on-year inflation by the end of September was 12.3%, down from 12.9% in the previous month. We still expect inflation to accelerate slightly in 2001, as the economy grows faster, thanks to last year's oil windfall. We expect 2001 year-end inflation to be 13.8%, up from 13.4% by the end of last year.

Amid increasing capital flights, the currency depreciated 1.57% in August (the fastest pace since December 1999), then a further 0.8% in September. The bolivar had depreciated 7% by the end of September, which is what the central bank expected for the full year. Higher interest rates in the last quarter of the year should slow capital flights and thus the depreciation pace of the bolivar. Expect the exchange rate to reach 760 dollars/bolivar by year-end.

Unemployment was 12.8% in July, down from 14.7% in the same period a year earlier. The recent reduction in unemployment is also due to the growth of the informal sector, which is highly labor-intensive (mainly informal retailers). We expect the unemployment rate to average 13.3% in 2001, down from 14.0% last year.

Outlook

Consumer Markets

Nominal retail sales grew 36.9% year over year in June, up from 26.7% in the same month a year ago. Such nominal figures imply that real retail sales (discounting inflation) grew 24.5% in June, up sharply from 10.3% a year ago. The retail sectors that led June's increase were machinery, cars, and hardware and pharmacy products; year-over-year nominal growth rates for these sectors were 73.2%, 50.0%, and 36.7%, respectively. Car sales have boomed this year, due to lower and stable interest rates and a strong bolivar (car sales grew 57% year over year during the first eight months of the year). Nominal retail sales grew 35% (year over year) in the first half of the year, compared with 28% a year ago. Sales have benefited from the current overvaluation of the bolivar, which has

made imported goods relatively cheap in Venezuela, fueling consumption of such goods at the retail level. The high level of unemployment, however, is holding back retail sales. We expect retail sales to continue growing at their current pace throughout the year and to be a main force for the overall economy.

Investment

Although Venezuela has inadequate statistics regarding domestic investment, there is some evidence that it is growing faster than last year. The most significant indicator is the performance of the construction sector, which grew 21% year on year in the second quarter. Another indicator is imports, which has grown 12% over the first half of the year. We also expect investment in the oil sector to be growing in real terms despite the fact that oil output have been cut three times over the first three quarters of the year. The reason is that PDVSA (Venezuela's oil company) is increasing output capacity it lost in 1998 and 1999. Even to maintain output capacity stable PDVSA needs to invest three to four billion dollars a year. On the negative side, we expect private investment to grow much slower than public investment (which includes PDVSA's). Private investment remains weak due to the lack of confidence this sector has on the government's economic policy. Meanwhile, political uncertainty never seems to recede as Chávez keeps threatening the private sector and the opposition. Yet, we expect overall investment to grow 8.2% in 2001, up from 2% last year.

Foreign Trade

Venezuelan imports were \$4.47 billion in the second quarter of the year, up 6.9% from a year earlier. As expected, imports have continued climbing as the economy keeps growing, albeit slowly. An overvalued currency also favors consumption of imports over domestic goods. Total exports were \$7.111 billion in the second quarter, down 13.1% from a year earlier. Oil exports dropped 15.4% in the quarter, and represented 82.0% of total exports. The average oil price for the Venezuelan basket was down 10.3% year over year in the second quarter. Thus, as expected, the volume of oil exports decreased over this period. Meanwhile, non-oil exports were \$1.31 billion, down 0.9% from a year earlier. Therefore, Venezuela's trade surplus was \$2.64 billion in the second quarter, down 34% from a year earlier. The current account surplus reached \$1.663 billion in the quarter, down from \$2.85 billion a year earlier (a 41.6% decline). For the first half of the year, the current account surplus reached \$4.08 billion, down 35% from a year earlier. Despite lower average oil prices, Venezuela will continue to enjoy a current account surplus this year, which should be offset by a widening capital-account deficit fueled by private capital flight.

With oil prices expected to average about \$21/barrel range, Venezuela should once again posts a sizeable current account surplus in 2001 (though lower than in 2000). Strong import growth in 2001-02 due to recoveries in consumer demand and business confidence, however, will keep these surpluses in check. The essential variable to watch is oil prices, which determine the size of Venezuela's trade and current account surpluses (or deficits). We expect the current account surplus to reach \$8 billion in 2001 (6.2% of GDP), down from \$13.4 billion in 2000 (11.0% of GDP).

Policy

Fiscal Policy

During the Chávez administration, the government's fiscal dependency on oil revenues has increased significantly, which explains why Chávez has been so keen at promoting higher oil prices. Chávez realizes that with lower oil prices it will be difficult to maintain an overly expansive fiscal policy, which has been the cornerstone of the economy in the last two years. All non-oil tax revenues showed a *real* (discounting for inflation) decline in the first half of the year. Meanwhile, operating expenses continued increasing in the first half of this year. Salary and consumption expenses grew 23% and 132% year-on-year, respectively over this period. Interest expenses on domestic and external public debt grew 47.7% and 13.7%, respectively. On the positive side, capital expenditures increased 72% year-on-year in the first half. This kind of spending is the most beneficial for the economy.

We expect the fiscal picture to deteriorate in the second half of the year amid lower oil prices and increased spending. July's fiscal figures confirm a worrisome trend. Fiscal revenues grew 108% year-on-year in July thanks to a 259% increase in extraordinary fiscal proceeds (most likely coming from PDVSA or the central bank). Meanwhile, fiscal spending grew 106% year-on-year in the same month.

In the near future, we expect public spending to continue growing close to the current level while revenues' growth decelerates sharply amid lower oil prices. This year's fiscal deficit will not reach worrisome levels mainly because the government will still benefit from 2000 and early 2001 high oil prices. The fiscal sector, however, will quickly deteriorate next year unless the government cuts spending and increases non-oil tax collections. We are pessimistic in this regard, though we expect some fiscal restraint once the fiscal situation reaches dangerous levels. At that point, the government will be willing to accept lower public spending (and therefore lower economic growth) in order to prevent macro variables from reaching dangerous levels (especially inflation and the exchange rate).

Monetary Policy

The central bank continues to look for ways to slow demand for dollars and halt the decline in international reserves. On September 10, the central bank started selling seven-day certificates and 27-day repurchase agreements to take bolivars out of circulation, thus easing dollar demand. The short-term CDs had an annual rate of 30%--highly attractive given current conditions. The move had an immediate effect on the market and boosted interest rates to 45%. Meanwhile, the exchange rate stabilized and even strengthened a bit by the end of the week. Demand for dollars has increased in the last two months, fueled by recent statements from President Chávez, which have only increased uncertainty among investors. The recent monetary tightening has already drive average interest rates to their highest levels since early 1999.

The central bank had previously announced new measures aimed at limiting the ability of banks and other financial institutions to buy dollars in the foreign exchange market. The two main measures were the increase in the reserve requirements on public deposits from

17% to 30% and the decrease in the amount of foreign currency that banks can keep at any time (from 15% to 12% of net capital). The first measure reduces the liquidity of banks (and thus their ability to buy dollars) as they have to keep 30% of public deposits (which are large in Venezuela) in the central bank. A recent min-run on the bolivar prompted the central bank to take these measures.

While they can be effective in the short term, these measures result in higher interest rates and thus threaten economic growth. These new measures also illustrate the contradictions of the government's economic policy. While Chávez keeps insisting that banks must reduce interest rates for the economy to grow faster, the central bank—by mandate of Chávez—continues taking measures that go in the opposite direction. Average loan rates by the end of September were over 38%, up from about 22% by the beginning of the year. Meanwhile, average rate on 90-day CDs was 20% by the end of September, meaning that the spread between both rates reached 18%, a level not seen since mid-1996.

Thus the central bank efforts to reduce the spread between loan and saving rates is going nowhere. The central bank has been promoting its own CDs with attractive yields in order to force private banks to follow suit. In the last two years, low returns in bolivar-denominated assets have helped investors make their decision to invest in other currencies. This process has intensified whenever political uncertainty increases, or oil prices drop. Continued capital flights have translated into a significant reduction in bank deposits. Economic agents fearing an exchange rate control (as repeatedly hinted by Chávez) have decided to take their money out of Venezuela. Therefore, international reserves have declined over 28% since the beginning of the year and money supply (M2) by 9.5%. Meanwhile, deposits in commercial banks dropped 2.5% in September and are down 4.5% so far this year.

Inflation

Inflation was 1.21% in September, up from 0.63% in August, but down from 1.72% a year earlier. As expected, the average cost of getting an education increased by more than 9% in September, as private institutes adjusted their tuition for the new academic year. Yet overall inflation was somewhat better than expected due to small increases in key groups, notably, food (0.3%), apparel (0.55%), and transport (0.6%). Year-on-year inflation by the end of September was 12.3%, down from 12.9% in the previous month.

Inflation has remained mostly unchanged since the beginning of the year (when it was 12.6%), as relatively strong domestic consumption has prevented prices from dropping at the same pace they did in 2000. Yet, inflation remains under control thanks in part to the central bank's policy to use the exchange rate as an anchor for prices. This policy has been in place for the last five years, helping lower inflation from 100% in 1996 to the current levels. In the process, however, the exchange rate has become significantly overvalued, which poses important risks in the medium term. Furthermore, this policy alone cannot prevent some prices from increasing (especially those of non-tradable goods or services). In order for inflation to continue decelerating in upcoming months, the government's fiscal policy will have to become less expansive, which seems unlikely at this point.

We still expect inflation to accelerate slightly in 2001, as the economy grows faster, thanks to last year's oil windfall. We expect 2001 year-end inflation to be 13.8%, up from 13.4% by the end of last year. If the economy were to slow in the next three quarters, inflation would be one or two percentage points below our baseline scenario. We expect inflation to accelerate further in 2002, as oil prices drop further (compared with this year) and the central bank is unable to prevent a faster depreciation of the exchange rate. However, we do not expect a maxi-devaluation next year that would send inflation to levels not seen since 1996. Year-end inflation should reach 16% in 2002, and thereafter resume a downward trend and to reach single digits by 2005.

Employment

Unemployment was 12.8% in July, down from 14.7% in the same period a year earlier. According to official figures, 1.4 million persons remained unemployed in July, down from 1.46 million in the previous month. Meanwhile, the number of people working in the informal sector was half of the total, down from 52.4% in June. This is a positive development, as people employed in the informal sector do not enjoy social benefits, nor do they pay taxes. On the negative side, July's figures show that the private sector actually reduced the number of jobs by 33,346, but this was more than offset by the public sector, which created 133,215 positions.

The recent reduction in unemployment is also due to the growth of the informal sector, which is highly labor-intensive (mainly informal retailers). This explains the strong seasonal pattern registered in the unemployment statistics. Thus, in December (the best month of the year for informal retailers), the unemployment rate according to the INE (formerly OCEI) was just 10.2%, but it jumped to 15.8% in January, as those informal or temporary jobs disappeared. INE unemployment figures contrast with estimated private-sector unemployment numbers, which place it at 18-20% (the INE's definition is broader than that used by private researchers). Although we believe that official figures underestimate the real number of unemployed, the recent trend shown by this series suggests that the economy continued performing relatively well going into the third quarter. We expect the unemployment rate to average 13.3% in 2001, down from 14.0% last year.

Exchange Rate

President Chávez and central bank officials recently said that increasing capital flight is threatening the stability of the bolivar. The currency depreciated 1.57% in August (the fastest pace since December 1999), then a further 0.8% in September. The bolivar had depreciated 7% by the end of September, which is what the central bank expected for the full year. Capital flight has been a constant since Chávez took office two and half years ago, although recently it has intensified. Chávez's fiery rhetoric against the business sector and the upper classes has been a major factor behind the outflow of capital. Also contributing have been negative real interest rates in domestic markets. For the most part, the central bank has supplied the market with sufficient dollars to prevent a faster depreciation of the bolivar. With softer oil prices and the intensification of capital flight, however, the bank has been forced to accelerate the depreciation pace while facing declining international reserves.

Indeed, keeping an artificially strong bolivar has begun to have a steep price in terms of international reserves and the competitiveness of the tradable sector (mostly non-oil manufacturing). Another adverse result of trying to keep the depreciation pace slow is rising interest rates, as the central bank reduces liquidity in the market to force banks to sell their dollar reserves.

Chávez has announced that he has no plans to devalue the bolívar, claims that it is overvalued by as much as 50% notwithstanding. Since the lines separating Chávez and the central bank have blurred recently, we believe that the central bank will likely adopt the president's stance in the short term and allow the currency to continue with its crawling peg. The currency should continue to appreciate in real terms throughout 2001 in order to bring down the country's still-high inflation rate. High foreign reserve levels and a large current account surplus will further support the currency. The currency will remain overvalued in the short term as the central bank has enough reserves to satisfy demand and prevent a large nominal depreciation. The overvalued currency will continue to hurt non-oil exports, unless Chávez heeds calls from industry groups to provide additional benefits or incentives. The currency Outlook for the medium term is less optimistic, however. We expect oil prices to remain weak, which will put pressure on public finances and increase the likelihood that the government devalues the currency to lessen its debt obligations. We expect the exchange rate to end the year at 760 Bs./\$. In 2002, the depreciation pace will accelerate to 16%, as oil prices soften.

Political Developments

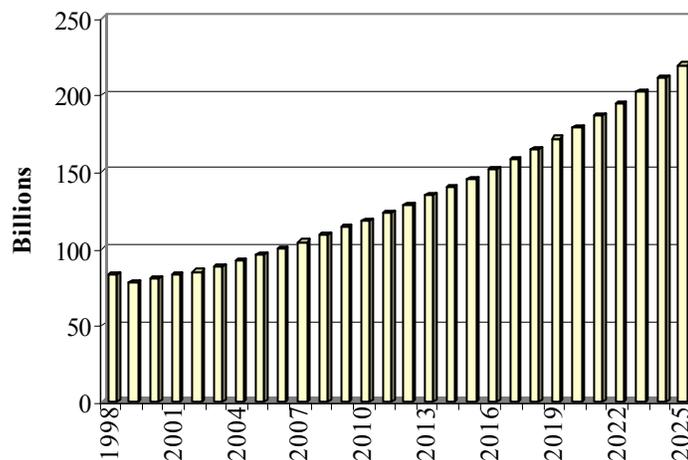
The National Electoral Council (CNE) announced it was delaying union elections until October 25, a month after the original date. The opposition and current union leaders criticized the announced delay as yet another attempt by the government to prolong the process until it feels it can win. Current CTV officials first said they planned to go on with the original schedule (elections by mid-to-late September) even if the CNE was not prepared to do so but later accepted the October 25 date. As mandated by a referendum carried out early in the year, Venezuela's Union Central (CTV) must call national elections this year to vote on new leadership for the country's unions. The referendum was proposed by the government as a way to force an overhaul of the CTV and extend its control over the union movement (traditionally controlled by AD, formerly Venezuela's biggest political party).

Chávez and his political allies, however, have had a hard time overcoming the confidence of most union leaders and finding the right political figure to represent the government in this election. Initially the government named Pablo Medina as its candidate for the presidency of the CTV. Medina, a member of the PPT (formerly part of the alliance that backed Chávez in the presidential elections), accepted the challenge but later was dismissed due to differences with the Minister of Interior and leader of the MVR (Chávez's party) Luis Miquilena. After some internal negotiations it was decided that it would be Mr. Isturiz (also a member of the PPT) the one representing the MVR and the government in the CTV elections. Isturiz seem to be a better choice as it is a more popular figure than the radical Medina and perhaps more conciliatory. Still Isturiz's success in the elections is far from certain though Chávez support should assure him a god share of votes. The CTV elections will be the most important electoral event since

the last presidential election (1999). They will also give us an idea of how popular Chávez still is. If Chávez gains control of the CTV, it will be an important victory for him and a devastating setback for the opposition.

Hugo Chávez's government might be pressured to make changes in its foreign policy after last week's terrorist attack on the United States. While Chávez has said that his government absolutely rejects terrorism, in the past two years he has made efforts to strengthen diplomatic relations with some Arab countries that supposedly harbor terrorist groups. Even if it is true that the goal of this policy has been to improve ties with other OPEC members and thus strengthen the organization, the United States may no longer accept Chávez's closer relations with these countries. We believe that if indeed there is pressure from Washington, the Chávez administration will carefully avoid any further association with certain Arab countries. Although in the past Chávez has challenged the U.S. government (for example, by denying permission to use Venezuelan air space to fight drug traffickers), he has always been careful to stay on generally good terms with the United States given the economic importance of the U.S. market for Venezuela.

Real GDP, 1995 U.S. \$



Forecast

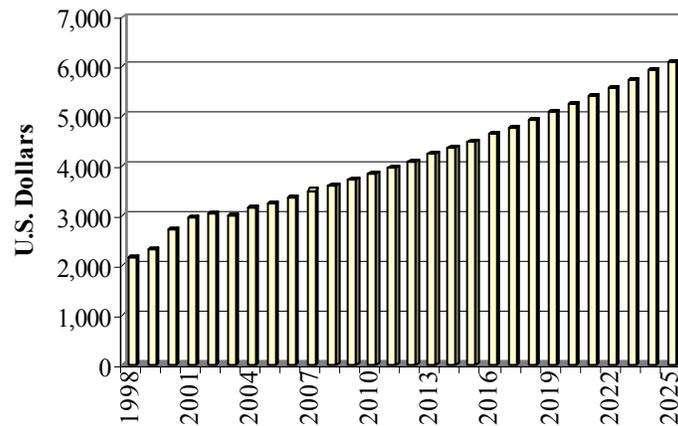
Short Term

In light of the economic data for the first half of 2001 (which came in slightly below expectations), we have again revised down our GDP growth forecast for 2001 from 3.9% to 3.5% with risk on the downside. Chávez's fiery rhetoric against the business sector and political foes continues to prevent business confidence from improving, despite high oil prices in the last year and a half. Low business confidence has kept private investment dormant in the last few quarters. The non-oil economy should grow 3.9% in 2001, up from 2.7% in 2000, while the oil economy should expand 1.5%, down from 3.4% in 2000. The recent oil windfall will stimulate growth this year. These kinds of positive

external shocks always have a lagging impact on the economy, especially when the government is inefficient in spending such windfall (as is currently the case in Venezuela).

Expansion in 2002 should slow, as the non-oil economy loses steam and oil prices soften. Still unclear government policies will also affect the economy in 2002. There is also the risk that oil prices might collapse in the near future amid a global economic recession, in which case the Venezuelan economy would grow just about 1% in 2002. In the longer term, we expect the oil economy to bounce back as the government focuses on expanding Venezuela's oil output capacity, which will in turn have a positive effect on the rest of the economy. For this scenario to be realized, oil prices have to hold in real terms. This is always a bold assumption, but it is nevertheless more likely than the alternative.

Consumption Per Capita
(U.S. Dollars per Person)



Long Term

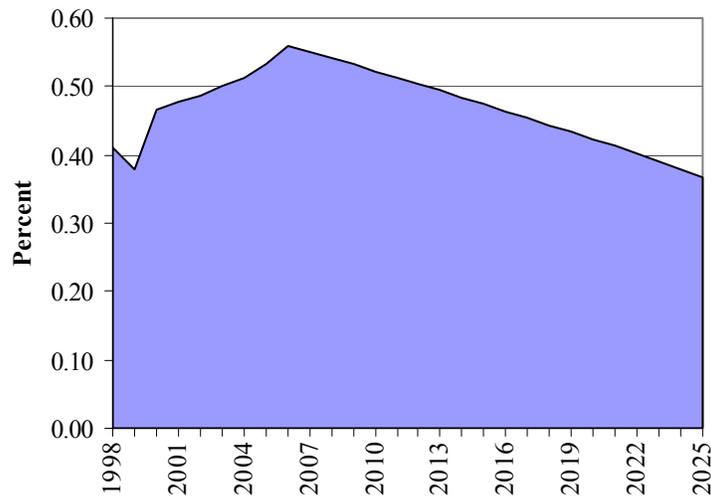
The forecast for 2001 calls for modest growth, followed by a continuation of rather strong growth through 2010 at 4.0% per year, and then 4.2% per year thereafter through 2025. This puts Venezuela in a strong position economically speaking, assuming that the Chávez policies do not severely damage the country's long-term prospects.

In short, the projection is a continuation of the last growth patterns, but without the disruptions that befell the nation—mainly politically-induced or policy-induced shifts that hurt the country in terms of real GDP growth.

Consumption per capita has performed on a rocky road. Now, as of this writing, the consumption per capita is at the same level as in 1983, roughly \$3,025. The good news is that it is on an upward trend, as shown in the chart that follows. In the forecast, DRI•WEFA assumes steady growth of this indicator so that it will average about \$3,285 through 2010 and then will reach \$6,108 in the final year of the forecast, 2025.

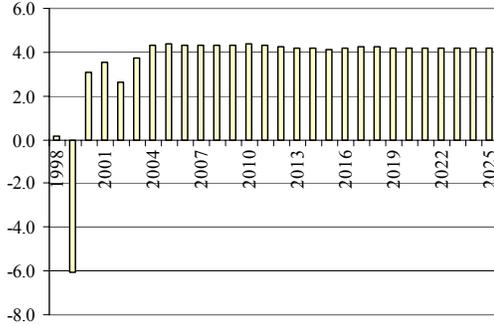
Venezuela's trade share of GDP is expected, in the DRI•WEFA long-term forecast, to reach a peak in 2006, after which it will start to decline. The assumption behind this

Total Trade share of GDP

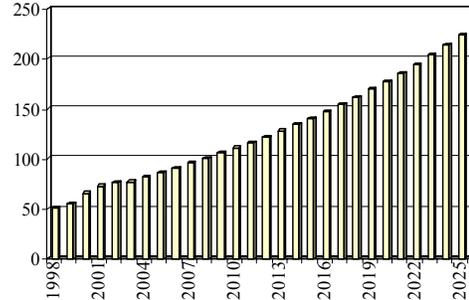


growth pattern is that Venezuela will be forced to reduce its dependence on oil exports and will begin to shift, slowly, to other forms of trading. However, as a percentage of GDP, these other forms will not account for as much activity as oil. The 56% peak in 2006 will decline, in the forecast, to 37% in the final year, 2025 under these assumptions. In addition, the relatively strong growth in real GDP through the final year will reduce the overall importance of trade to the economy, thereby reducing the share of trade to GDP.

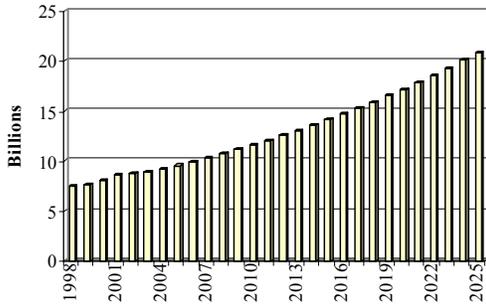
Real GDP Growth (%)



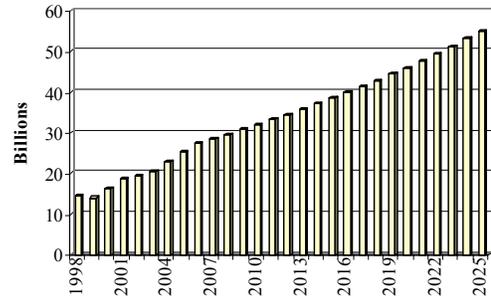
Private Consumption (Billion U.S. Dollars)



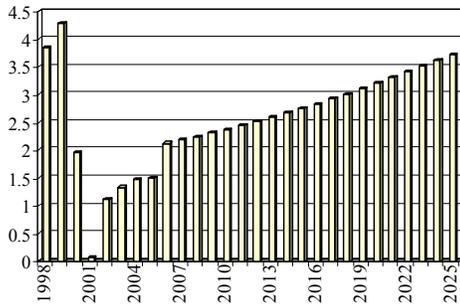
Government Consumption (Billion U.S. Dollars)



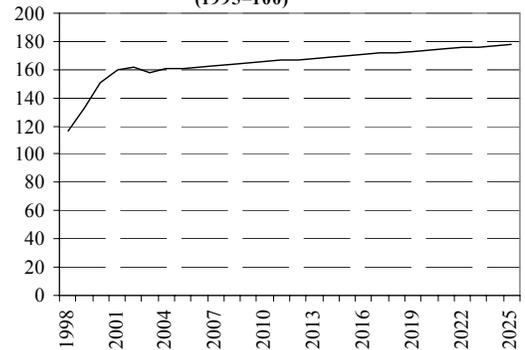
Investment (Billion U.S. Dollars)



Total Trade Balance (Billion U.S. Dollars)



GDP Deflator (1995=100)



Venezuela	2001	2005	2010	2025	Avg. Annual Compound Growth		
					2001-2005	2005-2010	2010-2025
Real GDP, 1995Billion \$US	82.70	95.81	118.39	219.49	3.7%	4.3%	4.2%
GDP, Billion \$US	131.84	154.42	195.99	390.08	4.0%	4.9%	4.7%
Real GDP, Percent Change	3.52	4.35	4.36	4.19	5.4%	0.0%	-0.3%
GDP Deflator, \$ based, 1995=100	1.59	1.61	1.66	1.78	0.3%	0.5%	0.5%
Consumption per Capita	2943.82	3252.14	3848.71	6107.79	2.5%	3.4%	3.1%
Consumption share of GDP	0.55	0.56	0.57	0.57	0.3%	0.3%	0.1%
Government Spending share of GDP	0.10	0.10	0.10	0.09	-1.1%	-0.3%	-0.2%
GDP per Capita	5351.74	5833.56	6807.43	10672.75	2.2%	3.1%	3.0%
Investment share of GDP	0.14	0.16	0.17	0.17	3.9%	0.7%	-0.1%
GDP by Sector, Agriculture, \$bn							
GDP by Sector, Mining \$bn							
GDP by Sector, Manufacturing \$bn							
GDP by Sector, Utilities \$bn							
GDP by Sector, Construction \$bn							
GDP by Sector, W&R Trade \$bn							
GDP by Sector, Transport and Comm. \$bn							
GDP by Sector, FIRE \$bn							
GDP by Sector, Community and Social Svcs. \$bn							
Private Consumption, \$bn	72.52	86.09	110.81	223.23	4.4%	5.2%	4.8%
Government Consumption, \$bn	13.72	15.34	19.15	36.85	2.8%	4.5%	4.5%
Investment, \$bn	18.56	25.34	33.30	65.09	8.1%	5.6%	4.6%
Exports of Goods and Services, \$bn	38.26	50.89	63.86	89.61	7.4%	4.6%	2.3%
Imports of Goods and Services, \$bn	24.68	31.20	38.56	54.11	6.0%	4.3%	2.3%
Total Trade, \$bn	62.94	82.09	102.43	143.71	6.9%	4.5%	2.3%

Ecuador

Recent Developments

The Ecuadorian economy grew at an impressive rate of 8.0% year over year during the first quarter of 2001.

Total consumption grew at a strong rate of 4.9% y-o-y during the first quarter of 2001, after growing by 1.8% during all of 2000.

Real gross investment grew at an impressive 52.6% y/y during the first quarter, after growing by 25.6% and 36.9% in the third and fourth quarters, respectively.

In July, exports fell by 11.4% y/y, after decreasing by 3.7% and 13.5% in May and June, respectively. The growth rate for total imports, on the other hand, has slowed down; in July, they grew by 7.0% y/y, after being growing by 111.4% and 31.6% during May and June, respectively. The trade balance (in accumulated terms from January to July) remained in surplus.

Consumer inflation increased by 0.4% month over month in August, up from 0.2% in July. In annual terms, however, consumer inflation was at 29.3%, down from 30.5% in July, while in accumulated terms (January-August) it reached 15.1%.

The unemployment rate increased to 10.5% in August, one tenth of a percent higher than the level in June and July, 10.4%.

Government revenues fell by 4.6% y/y in July, while Government expenditures rose by only 7.1% y/y in the same month. Government revenues exceeded expenditures by \$41.8 million in July, and in accumulated terms (January-July), the current surplus reached \$237.1 million.

Outlook

Consumer Markets

A survey to retailers showed that consumption might have declined by the end of the third quarter 2001. Retailers were expecting sales to grow at 3.7% in August, but they actually declined by 0.7%. They expect an increase of 2.7% for September due to the back-to-school season that renovates the economic activity in that month. On the other hand, credit to the private sector has been growing consistently since January, and in August, it increased at an annual rate of 16.3%. If part of this credit is going to consumers, this could represent good news for consumption expenditures for the last quarter of the current year.

Imports of consumption goods slowed down in July, as they grew by only 5.2% y/y in July, after growing by 138.1% and 73.0% in May and June, respectively. The extraordinary growth rates in consumption imports were mainly due to the economic recovery but also in part to the low import levels reached in the first two quarters of 2000.

It seems, though, that consumption imports will show lower monthly growth rates in the coming months, since they are reaching more stable and higher levels than during 2000.

The increase in the VAT entered into effect on June 1, 2001 was repealed in August, and the rate returned to its previous level on September 1, 2001. The raise in the VAT did not affect inflation significantly, so we could expect that it did not affect consumption considerably either. Therefore, the revocation of the VAT increase should not do much to promote consumption.

DRI•WEFA is revising up its forecast for private consumption to 5.5% for the current year. The reasons for this change are that the recovery has been strong enough to push up private consumption expenditures and that inflation has receded considerably. Moreover, the public is expecting annual inflation to decline even further, to single digits by end-2002, something that the country has not experienced since July 1982. Public consumption, on the other hand, is expected to decline by 6.1% during the current year and to grow by 1.5% in subsequent years. This will lead total consumption to grow by 4.2% in 2001 and by 2.9% in the coming years.

In figure ED3, we see the growth rates of private and public consumption. Notice that real public consumption has declined much more during the crisis than real private consumption and that even in the recovery period it continues to show negative growth rates. The necessity of the government to keep strict fiscal discipline under the dollarization framework can explain those negative growth rates during the last two quarters of 2000.

Investment

Our investment forecast has been revised up to show a 38.4% increase in investment for the current year and 6.6% in subsequent years. Private investment is expected to grow by 45.1% during the current year and by 7.0% in the following years, while public investment could grow by 8.6% in 2001 and by 4.2% from 2002 on. If the government shows a clear commitment to implementing the necessary reforms to improve the productivity of the economy, it is possible to regain investor confidence, and the forecast for investment could be revised upward again in the coming quarter. Nevertheless, the indicator that shows how investment could be growing in the following quarters, imports of capital goods, slowed down in July, as it grew by 6.1% y/y, after growing by 143.4% and 82.9% in May and June, respectively. We expect that this slowdown will be only temporary and that the Ecuadorian production capacity and efficiency will continue improving in the coming months.

Foreign Trade

Exports continue their downward path, which began in December 2000. In July, exports fell by 11.4% y/y, after decreasing by 3.7% and 13.5% in May and June, respectively. The July results were due mainly to the sharp decline in the price of oil exports for Ecuador, dramatically affecting its revenues on oil exports. The price of oil exports has fallen since December 2000, at an average rate of 15.6%. Crude oil exports represented 47.2% of total exports in July. Banana exports, which represented 17.7% of total exports in July, increased significantly for the first time in a year, at 9.3% y/y in July, after

declining by 17.6% and 10.4% in May and June, respectively. On the other hand, other exports, which were 27.3% of total exports in July, declined by 17.9% y/y, after growing by 11.2% and 10.5% in May and June, respectively. In accumulated terms (from January to July), the picture is gloomier, as banana exports and oil exports fell by 8.0% and 10.7% compared to January to July 2000, while other exports grew by only 0.2% during the same time period.

The growth rate for total imports, on the other hand, has slowed down; in July, they grew by 7.0% y/y, after being growing by 111.4% and 31.6% during May and June, respectively. In accumulated terms (from January to July), total imports grew by 8.8% with respect to the same period during 2000. This could be a clear indication that, although income is increasing, its rate of growth has diminished.

The good news about the slowdown of imports is that the trade balance (in accumulated terms from January to July) remained in surplus. In July, it registered a small surplus of \$8.8 million, after experiencing accumulated surpluses of \$110.6 and \$72.8 million from January to May and January to June, respectively. Part of this decline in the trade balance is related to the increasing difference between the price of crude oil exported by Ecuador and the higher international oil prices, since Ecuador exports heavy crude. On the other hand, an increase in banana exports could considerably help the trade balance in the coming months. DRI•WEFA is forecasting a trade surplus of \$1.1 billion by the end of the year, but this depends on a boost in exports and a considerable decline in imports for the third and fourth quarters. Nevertheless, if the decline in exports continues during the rest of the year, it is likely that the economy will experience a trade deficit, something dangerous for a dollarized economy.

Policy

Fiscal Policy

The share of VAT revenues over oil revenues in the Ecuadorian fiscal finances represents a significant improvement over the status of extreme dependence on oil, since the volatility of oil prices was making fiscal revenues highly unpredictable. Nevertheless, the invalidation of the latest increase in the VAT by the Constitutional Court will affect this improvement. Ecuador's public finances not only benefited from the high level of oil prices during the current year, the economic recovery, and the higher VAT for a couple of months, but also from the efficiency improvement in tax collection and management. On the other hand, the proportion of public expenditures to GDP has declined from 31.5% in 1999 to 28.6% in 2000. This decline was mainly because public salaries were not fully adjusted with the dollarization process, implying that a huge redistribution of income occurred in the last two years. In addition to the real reduction of salaries, public finances benefited from the latest debt re-negotiation with the IMF, which diminished interest payments and capital expenditures considerably. Nevertheless, during the current year, interest payments on the external debt have increased dramatically, although compensated by the reduction of interest payments on the domestic debt.

Ecuadorian public finances are in good shape for now, but the base is still shaky. It is imperative that fiscal reform be implemented as soon as possible. The government needs

to reduce its dependence on oil revenues, and it needs to improve the business climate to attract more foreign investors. The current conditions are good for the country if the authorities make the most of them. Remember that Ecuador is currently the fastest-growing economy in South America, and this could attract more foreign investors and revamp the business climate. Nevertheless, if the country acts as “business as usual,” another opportunity will be lost.

Monetary Policy

There have been some reforms to the financial sector in recent months. Interest rate management has become less restricted, diminishing some market distortions. The central bank does not have discretion anymore to control the interest rate ceiling. Right now, law sets the maximum interest rate. The maximum rate is tied to the average lending rate: the maximum rate is 1.5 times the average lending rate of the past month. The amount of deposits has been increasing, showing increased confidence in the financial sector. Finally, the overdue loans have diminished for private banks (to 8% in August), although for public banks, it is still around 43%.

Two additional reforms to the financial system have taken place during the past six quarters. The first is the devolution of private deposits by most bank clients to the hand of the government. The second reform is creation of the “Liquidity Fund” to be used by the central bank to become a last-resort lender. Moreover, the government began the re-privatization of Filanbanco, the largest bank in Ecuador in government hands. Nevertheless, the process is taking much more time than expected.

Inflation

The gap between consumer and producer inflation declined from 34.0% in July to 30.6% in August. This shows that consumer inflation still has a lot of room for further declines, reinforcing our expectations that consumer inflation will be in the single digits by 2002. Actually, from a special study prepared by DRI•WEFA, we can conclude that producer inflation leads consumer inflation, at least in the dollarization framework. This is the major reason why we expect a further decline in consumer inflation. Nevertheless, with high and positive monthly producer inflation, it seems that consumer inflation could be high for the month of September. DRI•WEFA believes that producer inflation in August was a one-month jump and that it will not have subsequent effects for the remainder of the year.

Employment

The unemployment rate increased to 10.5% in August, one tenth of a percent higher than the level in June and July, 10.4%. Last month, we predicted that the unemployment rate would increase or remain constant due to multiple labor problems experienced by the economy, particularly in the agricultural sector. The increase reported in August is not significant, and it is possible that, if the economy continues growing, the unemployment rate will stabilize between 9% and 10%. Although the problems in the agricultural sector are not solved completely, the main strikes affecting the banana export sector were stopped, for now. The stabilization of the unemployment rate could be related to two major factors: the reactivation of the economy and the migration phenomenon. The

reactivation of economic activity could have provoked the decline in the first six months of the current year. Notice that investment expenditures have increase considerably in the first quarter of the current year. Nevertheless, this decline could have been accentuated by the migration of many workers to other countries, like the United States, Spain, and Argentina, as workers' migration reduces the labor force, shrinking the unemployment rate at the same time.

On the other hand, the real salary index has been declining consistently since June 2001, and in August, the real salary index fell by 3.9%, after falling by 4.8% in July. The level of the index is at 97.1, and although it is above the level of the worst moments of the 1999–2000 crisis, it is still below the levels of 1995, meaning that real salaries have not increased with respect to the base year.

Exchange Rate

The elimination of the sucre as a consequence of the dollarization program is bringing positive results to the economy. Since the adoption of the dollar as legal tender in April 2000, inflation in Ecuador has gone down consistently. On the other hand, dollarization has brought an appreciation of the real exchange rate for Ecuador, meaning that Ecuador will have more problems exporting its products to other countries of the region. As other Latin American countries keep depreciating their currencies with respect to the dollar, Ecuadorian products will become relatively more expensive. Therefore, Ecuador urgently needs to improve its production efficiency, diminish costs and increase productivity, reduce the price of its products, and be more competitive with the economies of the region.

The implementation of the dollar as the legal currency in Ecuador has brought down inflation. Nevertheless, the decline of inflation took much more time than the immediate plunge of salaries and pensions. Now, many retired people find that their pensions do not reach even the subsistence level. Therefore, the informality in the labor sector has remained high in spite of the current economic recovery. The government announced that it would increase pensions before the end of the year. On the other hand, the dollarization program has been beneficial for the increase in investment, particularly foreign direct investment.

International reserves minus gold declined by 5.7% m/m, from \$1183.8 million in July to \$1116.3 in August. Nevertheless, the annual growth rate has been impressive, as in August they grew by 96.9%, after growing by 85.4% in July. If the export sector continues showing weakness, it is likely that international reserves will decline to much lower levels, although the possible increase in direct foreign investment could diminish the impact of lower exports on the capital account.

Political Developments

Ecuador has great potential for meeting the goals it set with the IMF for the public budget, inflation, and GDP growth, according to the IMF. The targets were an annual inflation rate below 20.0%, a real GDP growth above 4.0%, and a fiscal deficit no larger than 0.3% of the GDP. This IMF examination of the Ecuadorian economy is a necessary

step for an additional disbursement of \$48 million, expected by the first two weeks of October.

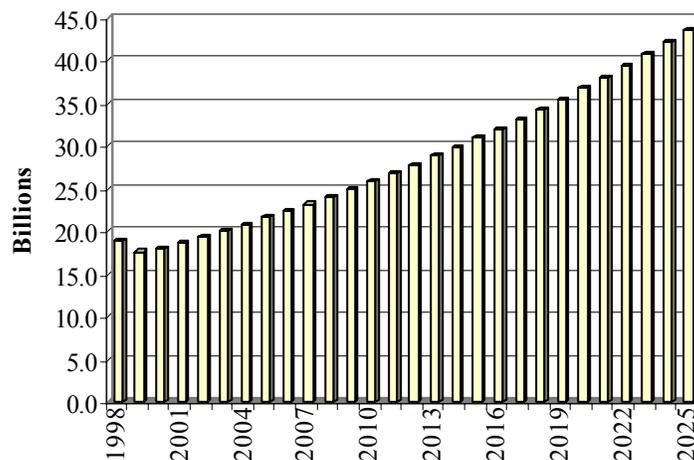
The increase in air transportation costs due to the terrorist attacks on the United States is affecting the airlines in Ecuador. The major airlines are planning to pass those costs on to consumers, increasing the shipping costs. The fishing and flower sectors, which generate \$50 million and \$300 million in export income, respectively, are the most affected, as they make up 99% of air cargo users. These sectors asked the government to intervene against an attempt by airlines to pass the costs on to them. The minister of external commerce, Richard Moss, announced a price reduction of 25% on jet fuel to try to diminish shipping costs. Exporters are promoting a policy of “open skies” to increase competition in air traffic to keep down air transportation costs.

The government decided it would not capitalize Filanbanco. Jorge Gallardo, the finance minister, explained that the bank needs \$175 million for the capitalization and argued that it does not make sense to capitalize a bank that will not be operative. The bank has enough assets to pay back its clients, as long as it collects pending debts to its debtors.

Mauricio Yépez will preside over the board of directors of the Ecuador’s central bank. Other members of the bank’s board are Sixto Cuesta, Juan Pitarque, and José Cordero. Cuesta stated that they will do everything in their power to recover the confidence of national and international investors in Ecuador and that the institution will work to strengthen the dollarization system.

The average price for the Ecuadorian crude oil reached the level of \$15.64 p/b on September 25, 2001. Although the prices recovered, the average has not gone over \$20 per barrel. The government decided to keep the proposed budget for 2002 unchanged, arguing that the current instability is only temporary and that oil prices will be, on average, above \$20 per barrel for the 2001 and 2002.

Real GDP, 1995 U.S. \$

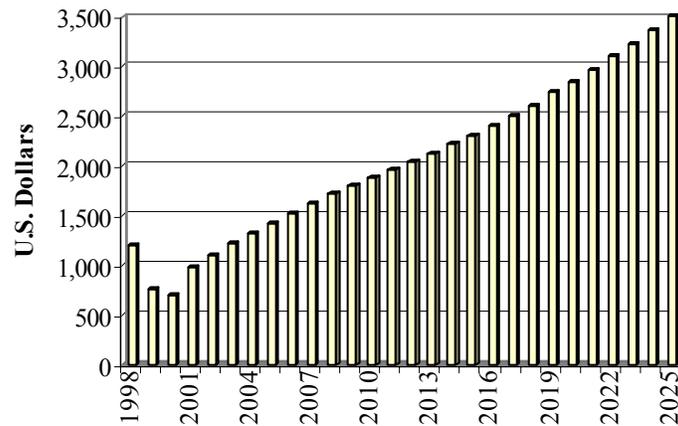


Forecast

Short Term

The finance minister is forecasting 5.5% real GDP growth for the current year. The institution is basing this forecast on a recovery of exports, particularly agricultural and crude oil exports. Nevertheless, the most recent export numbers are not showing a strong performance in nominal terms, not to mention the figures in real terms. On the other hand, the terrorist attack on the World Trade Center in New York could change the whole picture of world growth, and since Ecuador is an export country, this could affect it dramatically. Nevertheless, the major growth engine of this recovery is not exports, but investment expenditures. In terms of production, the sectors that grew at the fastest pace during the first quarter of 2001 were construction (24.7%) and commerce (13.9%). Other sectors (agriculture, mining, manufacturing, transport and communications, and services) grew at an average rate of 6.5% y/y. Sectors with sharp declines were financial services and government services, with declines of 11.6% and 9.8%, respectively, for the first quarter of 2001.

Consumption Per Capita
(U.S. Dollars per Person)



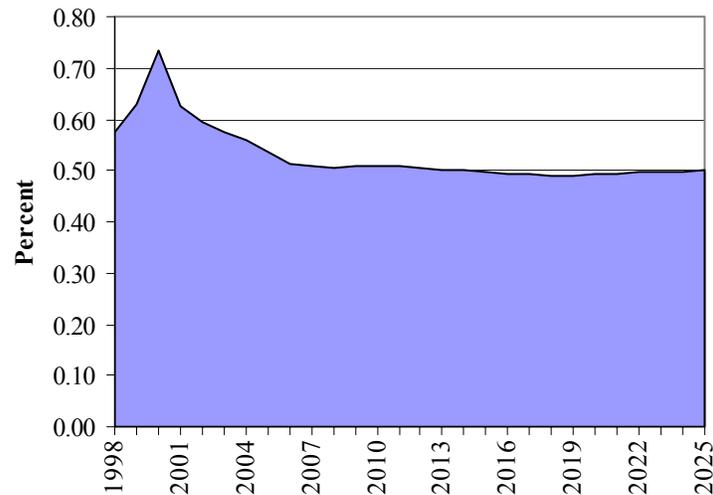
DRI•WEFA revised its forecast for 2001 upward, expecting a positive growth rate for real GDP around 5.3%, a bit lower than the forecast of the finance minister. Our revision is due to the impressive showing of investments during the first quarter of the current year and strong positive consumption and export growth. Nevertheless, this forecast depends heavily on how the country manages the tax reform problem, the level of the international oil prices for the rest of the year, and the sharpness of the world economic slowdown.

Long Term

The long-term outlook for Ecuador is surprisingly good. This is based on a positive outlook in the short term despite the turmoil that has beset the world economy in general, as previously described. Growth over the first ten-year segment of the forecast period will

average 3.7%, which is higher than the expected world GDP growth over the same period. Thereafter, we expect a moderately slowing of this rate to 3.5% per year.

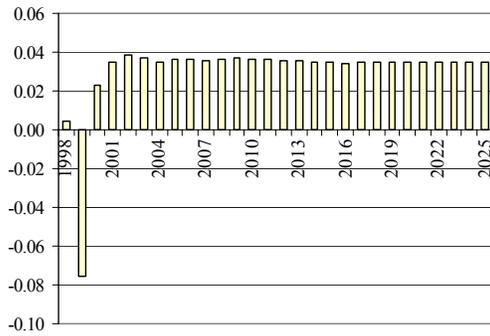
Total Trade share of GDP



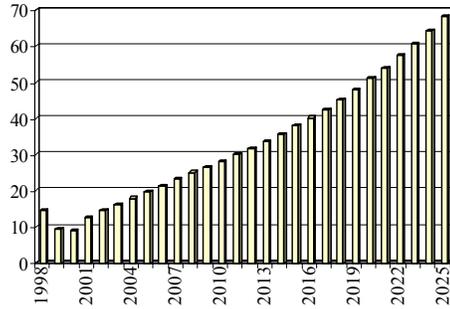
Per capita income in Ecuador reached an historical high of \$1,117 in 1998. Since then, it has fallen. However, the forecast, built upon assumptions of smooth economic growth, not jolted by political vicissitudes, shows steady growth through 2025, reaching \$1,300 in 2010 and double that amount in 2025.

Finally, Ecuador's reliance on trade, as a percentage of GDP, will decline as the economy picks up. We expect that an equilibrium percentage will be around 50%. This is on a par with the historical averages.

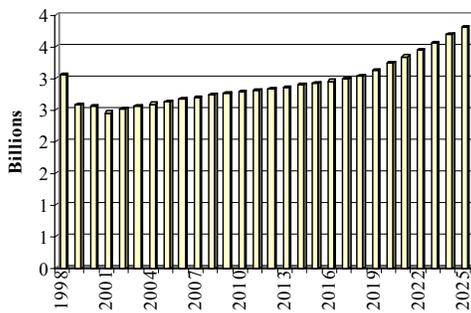
Real GDP Growth (%)



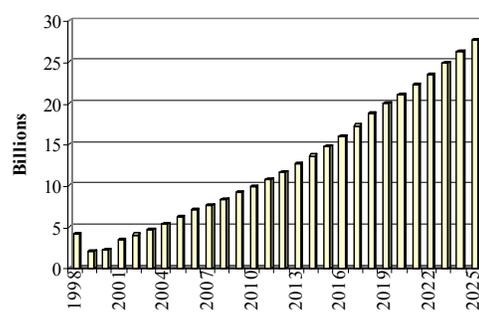
**Private Consumption
(Billion U.S. Dollars)**



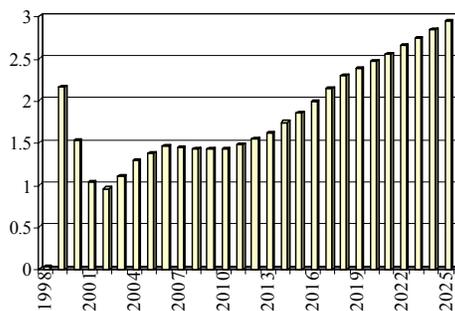
**Government Consumption
(Billion U.S. Dollars)**



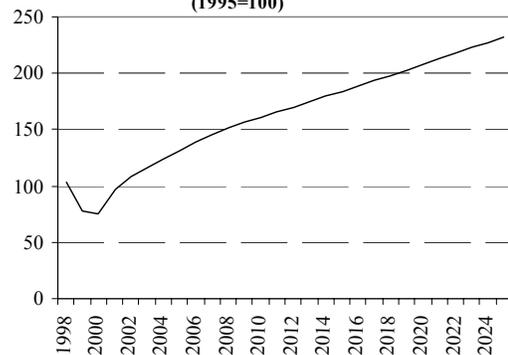
**Investment
(Billion U.S. Dollars)**



**Total Trade Balance
(Billion U.S. Dollars)**



**GDP Deflator
(1995=100)**



ECUADOR	2001	2005	2010	2025	Avg. Annual Compound Growth		
					2001-05	2005-10	2010-25
Real GDP, 1995 Billion \$US	18.65	21.59	25.89	43.64	3.7%	3.7%	3.5%
GDP, Billion \$US	18.12	28.43	41.68	101.54	11.9%	8.0%	6.1%
Real GDP, Percent Change	3.46	3.60	3.66	3.45	1.0%	0.4%	-0.4%
GDP Deflator, \$ based, 1995=100	0.97	1.32	1.61	2.33	7.9%	4.1%	2.5%
Consumption per Capita	975.96	1419.48	1872.20	3499.43	9.8%	5.7%	4.3%
Consumption share of GDP	0.69	0.69	0.68	0.67	-0.1%	-0.4%	-0.1%
Government Spending share of GDP	0.13	0.12	0.10	0.08	-2.2%	-2.6%	-1.4%
GDP per Capita	1404.86	2051.46	2764.59	5222.36	9.9%	6.1%	4.3%
Investment share of GDP	0.19	0.22	0.24	0.28	3.8%	1.9%	0.9%
GDP by Sector, Agriculture, \$bn							
GDP by Sector, Mining \$bn							
GDP by Sector, Manufacturing \$bn							
GDP by Sector, Utilities \$bn							
GDP by Sector, Construction \$bn							
GDP by Sector, W&R Trade \$bn							
GDP by Sector, Transport and Comm. \$bn							
GDP by Sector, FIRE \$bn							
GDP by Sector, Community and Social Svcs. \$bn							
Private Consumption, \$bn	12.59	19.67	28.23	68.04	11.8%	7.5%	6.0%
Government Consumption, \$bn	2.28	3.28	4.23	8.35	9.5%	5.2%	4.6%
Investment, \$bn	3.41	6.23	10.02	27.97	16.2%	10.0%	7.1%
Exports of Goods and Services, \$bn	6.11	8.06	10.81	26.32	7.2%	6.0%	6.1%
Imports of Goods and Services, \$bn	5.20	7.14	10.39	24.39	8.2%	7.8%	5.9%
Total Trade, \$bn	11.31	15.20	21.19	50.71	7.7%	6.9%	6.0%

Chile

Recent Developments

The central bank reported that the economy grew 2.8% year on year in July 2001, down from 5.1% in June 2001. Weak performances in the communications and industry sectors were behind the slowdown. In the meantime, the central bank lowered its forecast for GDP growth in 2001 from 4.3% to 3.7% because of the further slowdown expected for the U.S. economy. The monetary institution expects growth rates of 5.0% and 5.3% for 2002 and 2003, respectively.

For the first half of 2001, Chile's current account deficit was \$167.8 million, roughly \$20 million larger than the deficit posted in 2000. As a proportion of GDP, the current account deficit rose from 0.4% in 2000 to 0.5% in 2001. The deficit increased despite the export surge triggered by this year's currency depreciation.

Uncertainty in Argentina and low copper prices forced the Chilean peso to a historical low in August 2001. By mid-month, the nominal exchange rate was 692 pesos/dollar, leading the central bank to release important measures to stabilize the foreign currency market. The monetary institution decided to tone down dollar demand indirectly by raising the supply of *Pagarés Reajustables en Dólares (PRDs)* to \$4.5 billion for the remainder of the year. It also announced a direct intervention in the foreign currency market through the use of \$2 billion from foreign reserves for exchange market operations.

In June 2001, before moving toward a nominalization of monetary policy, the central bank reduced the benchmark rate for the fifth time this year. The interest rate was decreased from 3.75% to 3.50% in real terms. In July of the same year, when the institution made the transition to a nominal target of monetary policy, the benchmark lending rate was placed at 6.5%, with inflation expected to be 3%. The central bank ratified this interest rate level at its monetary policy meeting in August.

After having his senatorial immunity stripped by an appellate court, a ruling that was upheld by the Supreme Court, former dictator Augusto Pinochet was ordered to undergo medical examinations and interrogation before a trial could proceed. The results led Judge Juan Guzman to indict Pinochet on charges of participating in the kidnapping and murder of prisoners during his 17-year reign, and Pinochet was placed under house arrest.

Outlook

Consumer Markets

The central bank reported that domestic demand fell 2.8% in the second quarter of 2001. Most of the decline took place in consumer markets, where private spending remains low amid high unemployment and low-income expectations. Nonetheless, the progress shown by real retail and supermarket sales in the third quarter could be signaling a consumption

revival. According to the National Chamber of Commerce, real retail sales in August 2001 rose 3.3% y/y, above July's 0.4% increase. In January–August 2001, however, real retail sales grew 1.0%, below the previous year's 3.2% increment. In regards to supermarket sales, they jumped 4.0% in July of 2001 and 7.8% in August. During the first eight months of 2001, supermarket sales were up 7.4%. This rate compares favorably with the 7.0% expansion computed in January–August 2000.

Investment

The Chamber of Representatives approved the capital markets reform bill submitted by the Ministry of Finance in June 2001. The approval could boost business confidence, which was a bit shaky following the sanction on the labor reform. The legislation comprises an institutional project focused on the deregulation of capital markets and a fiscal project centered on the elimination of the stock capital gains tax. The institutional part provides insurance and mutual fund companies with a higher degree of investment flexibility. It also facilitates the internationalization of the banking system and improved the investment funds law. For the fiscal portion, the legislation strengthens voluntary savings and modifies the tax rate on short-term securities.

The business sector also received good news when the National Statistics Institute (INE) released the August 2001 number for the index of industrial production. According to the INE, industrial output grew 1.7%, marking a recovery from the 0.3% growth posted in July. The INE also reported that the mining index surged 6.7% in August in response to high copper production.

For 2002, DRI•WEFA expects the industry sector to lead overall economic growth. Manufacturing and mining, two key components of this sector, are expected to grow 3.5% and 4.8%, respectively. Mining, however, could receive some additional boost from the development of the Alumysa complex in Chile's II region planned by the Canadian group Noranda.

Foreign Trade

For the first half of the year 2001, exports decreased 0.8% and increased 7.6% in April–June. Imports have surged 7.8% and 5.5% in these periods, respectively.

The central bank reported that consumer imports fell 6.4% in July 2001 and 10.9% in August, y/y. It also informed that intermediate goods and capital imports dropped 12.5% and 12.4%, respectively, with respect to August 2000. DRI•WEFA revised down the forecast for both exports and imports. It foresees an export increase of 0.2% in 2001 and 7.7% next year. For imports, it anticipates 0.9% growth in 2001 and 8.8% expansion in 2002.

Policy

Fiscal Policy

At DRI•WEFA, lower-than-expected copper price and weak domestic demand led to the revision of the 2001 deficit forecast. At the end of 2000, we were expecting copper prices

and economic recovery consistent with a fiscal surplus equivalent to 0.4% of GDP. Since then, our economic growth forecast has been downgraded from 5.6% to 3.6%, and our projection on the average price of copper has been brought down from 84 to 73 cents per pound. In consequence, we revised the forecasted surplus to a deficit of 0.3% of total production. For the medium and long term, we expect Chile to be successful in applying its new fiscal strategy that sets the structural surplus at 1.0% of GDP.

Monetary Policy

During the first half of 2001, the central bank was unable to fully use monetary policy to improve weak domestic demand because it was faced with rising U.S. interest rates and high international oil prices. In August 2000, the central bank cut interest rates from 5.5% to 5.0% in response to controlled inflation and sluggish domestic demand. In January 2001, the bank opted to reduce interest rates again, from 5.00% to 4.75%, to help facilitate growth in the economy, which continued to struggle with weak domestic demand. The cut also came on the heels of the U.S. Federal Reserve Bank's 50-basis-point reduction to 6.0% a week earlier. The Fed cut interest rates by another 50 basis points at the end of January. This eased some of the pressures the central bank faced last year, allowing it to further ease monetary policy. Consequently, the benchmark lending rate was cut to 4.50% in February, 4.00% in March, and 3.75% in April of 2001 respectively.

In June 2001, before moving toward a nominalization of monetary policy, the central bank reduced the benchmark rate for the fifth time this year. The interest rate was decreased from 3.75% to 3.50% in real terms. In July, when the institution made the transition to a nominal target of monetary policy, the benchmark lending rate was placed at 6.5%, with inflation expected to be 3%. The central bank ratified this level of interest rate at its monetary policy meeting in August.

Inflation

Despite the interest rate cuts performed by the central bank and the fall of the domestic currency during the first half, DRI•WEFA expects CPI inflation in 2001 to be below the 3.8% rate posted in 2000. A slowing world economy and easing oil prices will curb upward inflationary pressures, leading to average inflation near 3.4% at the end of this year. This inflation forecast assumes a slow but steady recovery of domestic demand in the second half. To date, the 12-month inflation rate is ahead of our year-end forecast of 3.0%.

Employment

The success story that has been the FCD has led State Secretary Claudio Huepe to announce the continuation of employment programs for 2002. The early success of the FCD, however, does not guarantee that Chile's unemployment problem is already solved. On the contrary, FCD-type programs are not designed for the solution of long-term structural unemployment. Thus, government officials must not lose sight of what is important to permanently reduce unemployment, that is, labor market transparency, something they have been unable to deliver thus far. To date, the government labor strategy has centered on a controversial labor reform recently approved in Congress.

Exchange Rate

The peso should recover in 2002, as Chile's financial inflows increase amid the recent elimination of capital controls. Capital inflows, however, will be deterred if the world economic slowdown continues deep into next year. Other factors could have an impact on the foreign exchange market. Economic agents should keep an eye on contact between government officials and important business leaders, as this could be the triggering force behind a reversal of expectations, and thus a faster and stronger economic recovery. Finally, the market should be aware that copper prices could overturn the actual downfall if the world economy shows signs of recovery in the second half of the year.

Political Developments

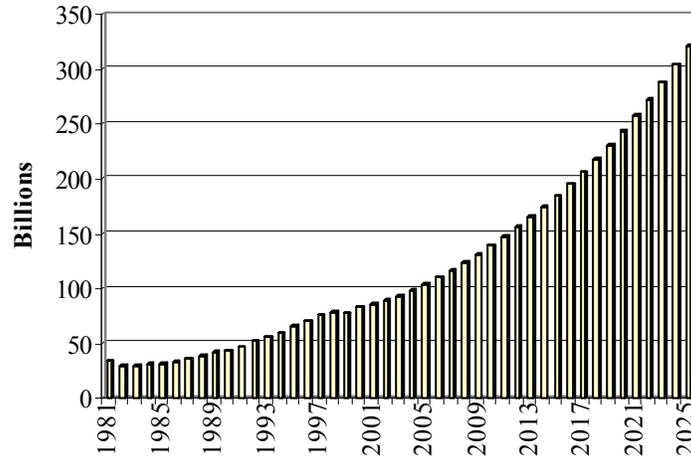
After having his senatorial immunity stripped by an appellate court, a ruling that was upheld by the Supreme Court, former dictator Augusto Pinochet was ordered to undergo medical examinations and interrogation before a trial could proceed. The results led Judge Juan Guzman to indict Pinochet on charges of participating in the kidnapping and murder of prisoners during his 17-year reign, and Pinochet was placed under house arrest. Pinochet's lawyers appealed on the grounds of a lack of evidence to indict Pinochet on kidnapping and murder charges and that Pinochet is too ill to stand trial. While the Santiago Court of Appeals ruled that Pinochet could stand trial for human rights abuses, it reduced the charges against him from kidnapping and murder to covering up the crimes following the 1973 coup. The reduction in charges by the appeals court, in turn, led Guzman to request bail eligibility for Pinochet at \$3,400, which was confirmed by the appeals court with conditions that Pinochet be fingerprinted and photographed with the local police. Civil Registry officials went to Pinochet's Bucalemu home but failed to fingerprint and photograph the former dictator, whom a doctor announced is in full rest.

In the meantime, Pinochet's lawyers demanded that the case be closed on grounds of the dementia diagnosis reached in the medical report submitted to the court. On the verge of a new fingerprinting and photographing attempt, the Appeals Court of Santiago ruled that Pinochet is mentally unfit to stand trial on charges of concealing political crimes. Although the prosecutor Council of State Defense challenged the rule, labeling it unconstitutional, Pinochet's age and the length of appeal and contest processes in Chile lead many to believe that Pinochet will never be judged in a Chilean court.

On the domestic front, economic risks have remained tied to the lack of consumer demand. Low-income expectations derived from a combination of poor growth and high unemployment have further contracted private spending. Weak consumer demand, however, has prevented inflationary pressure from taking over the consumer price index. This has allowed monetary authorities to cut the benchmark lending rate five times this year. Political risks have decreased sharply following the ruling of the Appeal Court of Santiago declaring former dictator Augusto Pinochet mentally unfit to stand trial on charges of hiding political crimes committed by the hit squad known as the "Caravan of Death" in 1973.

Forecast

Real GDP, 1995 U.S. \$



Short Term

The Chilean economy experienced a robust recovery last year, with GDP growth of 5.4%, after falling into recession in 1999. The expansion was led by a surge in exports, which grew 16% last year, mainly due to a rebound in international copper prices and the resumption of growth in the world economy. While imports rose 20% in 2000, they remained lower than the pre-recessionary levels in 1997 and 1998. Although the boom in the mining sector helped propel expansion, owing to its capital-intensive structure, it did little to decrease the high unemployment rate. Chile continues to struggle with high unemployment this year amid weaker growth rates in both the domestic and world economies. At the same time, consumer demand remains low as workers cope with the lack of jobs. This helped keep consumer prices in check, despite the freefall suffered by the Chilean peso this year.

With inflation under control, weak domestic demand, and a relatively high unemployment rate, the central bank cut the benchmark interest rate five times during the year. The effects of these cuts remain to be seen, as monetary policy takes somewhere between six months and a year to fully affect economic growth. In the meantime, exports should recover, prompted by the currency slide of the first half. The main risks for this short-term growth scenario are the slowdown in the U.S. economy and the danger of a regional collapse triggered by the Argentine crisis. Another important short-term risk is related to copper prices, which continue to fall in international markets. Chile loses approximately \$100 million in revenues from each one-cent drop in the average price of copper. In 2001, the country has lost approximately \$1.1 billion amid a \$0.11 decline in the average price of copper in world markets.

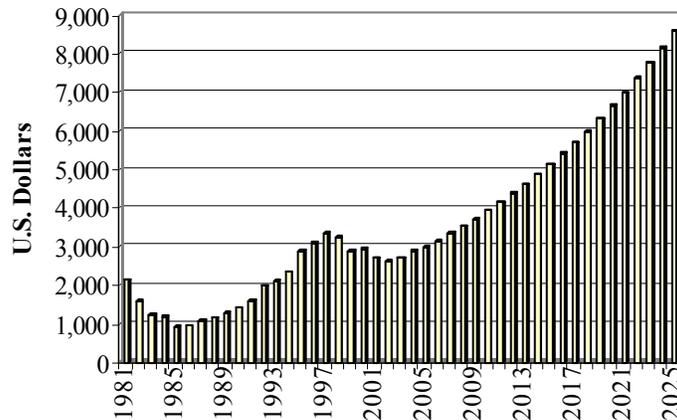
DRI•WEFA revised the output growth forecast for 2001 because of further deterioration in the global economy following the terrorist attacks on the United States. With a less

dynamic export sector, Chile should grow 3.6% in 2001, rather than the 4.0% foreseen before.

DRI•WEFA adjusted the growth forecasts for several economic sectors as well. It now expects 1.5% year-over-year growth in manufacturing, rather than the 3.7% output projection released June 2001. The expectation for growth in the construction sector was amended from 5.1% to 4.4%. Commercial activity, earlier regarded as one of the leading performers for 2001, was cut down 2.1 percentage points from the initial estimation.

Risks to our growth forecast result from the Chilean concentration on commodity and commodity-based exports. Although, copper prices are at a three-year low, further economic deceleration in the world could lead to even worse prices in 2002. To date, copper prices continue to fall in international markets. Consequently, Chile has lost approximately \$700 million in revenues. It is estimated that each one-cent drop in the average price of copper triggers a \$100 million revenue loss for the economy. One must admit, however, that Chile has tried to mitigate over the last years the impact of copper prices on the country's risk structure. In this sense, it has set up a stabilization copper fund to save part of the windfall gains when, for example, copper prices are unusually high.

Consumption Per Capita
(U.S. Dollars per Person)



Long Term

The longer-term future of the Chilean economy appears promising. Chile has fought and won the battle of credibility, a remarkable success for a relatively small, commodity-exporting nation. The country has a large pool of savings, effective and stable financial intermediation, rising education and income levels, and an economy that has gradually become more diversified through market incentives. A persistent effort to participate in international markets should continue to result in considerable export growth, greater efficiency at home, and diversified markets abroad. Although politics still has the potential to hurt confidence, the civilian government's authority and institutions are likely

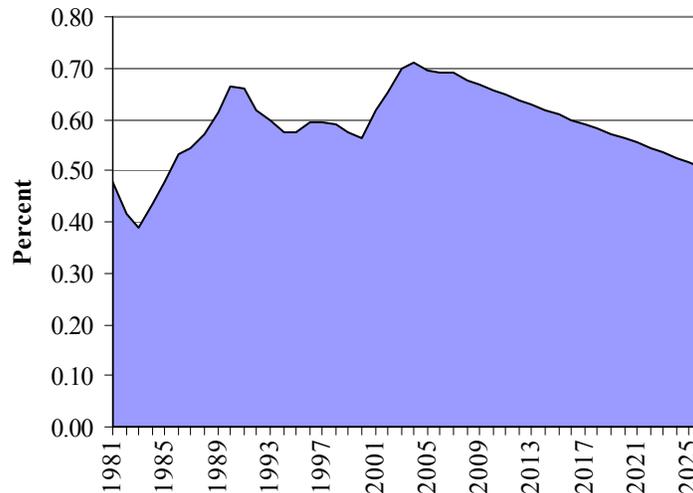
to strengthen over time. Under these conditions, Chile's real GDP growth is likely to be relatively stable, moving in the 5-6% range in the forecast horizon.

The outlook for Chile in the long term to 2025 is strong, building on the basic aforementioned facts. This forecast, of course, assumes no political disruptions or monetary policy influences that create recessions. The chart that follows shows the base case scenario for Chile's real GDP.

This reflects the underlying structure of the Chilean economy. The real growth rate will average 5.5 percent per year through 2010, followed by slightly higher growth in the final 15 years of the forecast horizon (5.7 percent per year). See Volume II for the worst case macroeconomic scenario and Volume III for the Positive Scenario.

The rate of change of the GDP deflator in Chile (i.e. general inflation) is expected to be flat to negative through 2010, followed by modest 0.6 percent average inflation through the end of the period.

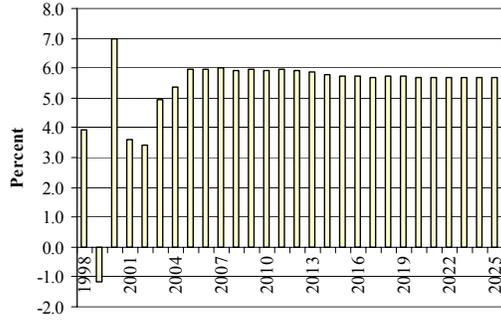
Total Trade Share of GDP



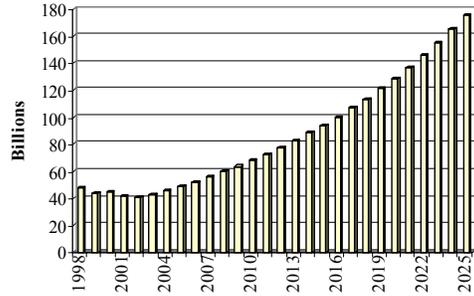
Consumption per capita is expected to rise steadily through 2025 reflecting solid economic growth although there is a fall-off due to the current recession, which is expected to extend into next year as well. The downturn in per capita consumption in 2001-2002 is an extension of the decline that started in 1999.

Chile's trade share of GDP shows different results depending on the scenario. The best case scenario calls for higher GDP growth rates, while Chile's international trade depends on factors external to itself. The Most Probable Case calls for this ratio to peak in 2002 when the economy is weak. But this ratio declines thereafter through 2025 as economic growth is strong and Chile's total trade (imports and exports of services) does not keep pace with the domestic growth. The patterns of this important measure are quite different in the worst and best scenarios (see Volumes II and III, respectively).

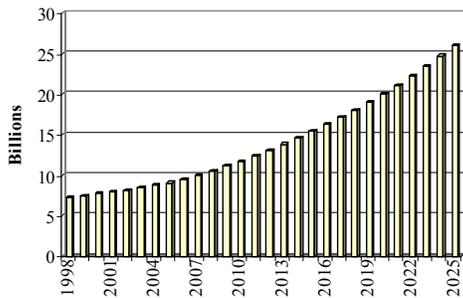
Real GDP Growth (%)



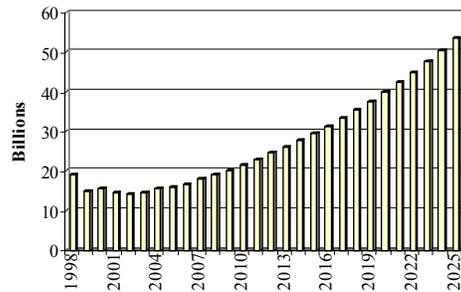
**Private Consumption
(Billion U.S. Dollars)**



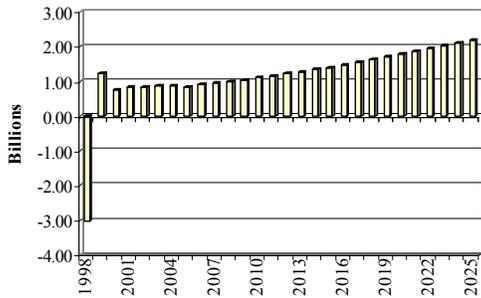
**Government Consumption
(Billion U.S. Dollars)**



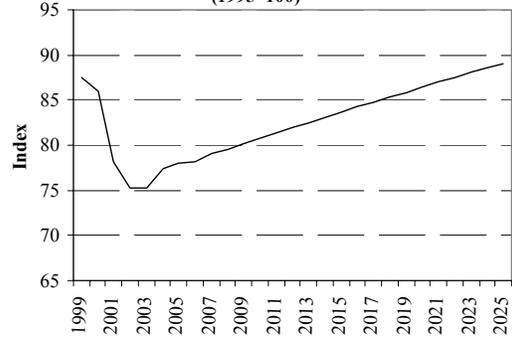
**Investment
(Billion U.S. Dollars)**



**Total Trade Balance
(Billion U.S. Dollars)**



**GDP Deflator
(1995=100)**



Chile	2001	2005	2010	2025	Avg. Annual Compound Growth		
					2001-2005	2005-2010	2010-2025
Real GDP, 1995 Billion \$US	85.67	103.80	138.61	320.71	4.9%	6.0%	5.8%
GDP, Billion \$US	66.94	80.91	111.98	285.74	4.9%	6.7%	6.4%
Real GDP, Percent Change	3.60	5.94	5.93	5.69	13.3%	0.0%	-0.3%
GDP Deflator, \$ based, 1995=100	0.78	0.78	0.81	0.89	-0.1%	0.7%	0.7%
Consumption per Capita	2,684.79	2,993.92	3,926.25	8,585.64	2.8%	5.6%	5.4%
Consumption share of GDP	0.62	0.60	0.61	0.61	-0.7%	0.2%	0.1%
Government Spending share of GDP	0.13	0.14	0.14	0.13	2.5%	0.1%	-0.3%
GDP per Capita	4,340.11	4,980.64	6,481.49	13,981.18	3.5%	5.4%	5.3%
Investment share of GDP	0.22	0.20	0.19	0.19	-2.2%	-0.5%	-0.2%
GDP by Sector, Agriculture, \$bn	3.34	4.04	5.59	14.26	4.9%	6.7%	6.4%
GDP by Sector, Mining \$bn	6.91	8.35	11.55	29.48	4.9%	6.7%	6.4%
GDP by Sector, Manufacturing \$bn	18.16	21.95	30.37	77.50	4.9%	6.7%	6.4%
GDP by Sector, Utilities \$bn	2.32	2.81	3.89	9.91	4.9%	6.7%	6.4%
GDP by Sector, Construction \$bn	4.46	5.39	7.46	19.05	4.9%	6.7%	6.4%
GDP by Sector, W&R Trade \$bn	8.64	10.44	14.45	36.87	4.9%	6.7%	6.4%
GDP by Sector, Transport and Comm. \$bn	4.85	5.87	8.12	20.72	4.9%	6.7%	6.4%
GDP by Sector, FIRE \$bn	10.28	12.43	17.20	43.90	4.9%	6.7%	6.4%
GDP by Sector, Community and Social Svcs. \$bn	7.92	9.57	13.25	33.81	4.9%	6.7%	6.4%
Private Consumption, \$bn	41.41	48.64	67.83	175.47	4.1%	6.9%	6.5%
Government Consumption, \$bn	8.41	11.25	15.61	38.06	7.5%	6.8%	6.1%
Investment, \$bn	14.46	16.01	21.58	53.58	2.6%	6.1%	6.3%
Exports of Goods and Services, \$bn	22.22	28.40	36.80	73.15	6.3%	5.3%	4.7%
Imports of Goods and Services, \$bn	21.39	27.56	35.70	70.96	6.5%	5.3%	4.7%
Total Trade, \$bn	43.61	55.96	72.50	144.11	6.4%	5.3%	4.7%

Part II: Commodity Trade Forecasts

Containerized Cargo

Corn

Soybeans

Manufactures of iron and steel

Coal and Coke

Chemicals, various

Fertilizers, various

Crude Oil

Lumber and Products (excluding plywood)

Refrigerated food products (excluding bananas)

Bananas

World Trade Overview

DRI•WEFA used the base case macroeconomic scenario presented in the first section of Volume I to generate base case trade forecasts for world sea trade, by commodity and by route. The base case projections, to 2025, for world sea trade, and for some other aggregate measures of world trade, are presented in this section of Volume I.

The low and high cases for world trade are presented, respectively, in Volumes II and III at the request of the ACP. Comparisons between the three scenarios are, therefore, not included in this report.

The DRI•WEFA Global Trade model was used for these projections. It was restricted to the forecasting only of seaborne trade. Unless otherwise indicated, all units are in metric tons.

World Sea Trade Totals

At the total world level, DRI•WEFA aggregated in tons:

- Total trade worldwide in goods and services
- Total trade in merchandise goods
- Total sea trade
- Total containerized cargo
- Total dry bulk trade
- Total liquid bulk trade

The forecast for each of these is described in the text that follows.

Total Trade – Goods and Services

Total world trade always grows faster than basic economic growth. This has been the pattern for years, and we expect that it will continue to hold in the future as countries open their borders to the movement of goods and services and as the mantra of free trade becomes codified in formal agreements among more and more countries.

Total Trade – Merchandise Only

Total world trade is projected to grow by only 0.6% this year (2001) in the face of a global recession. This recession will continue partly through 2002 as well, so growth next year will also be low by historical standards, at 1.5%. The growth pattern in the future is relatively smooth. In short, total world tonnage is expected to grow in line with economic growth.

Total Sea Trade - Tons

In 2000, the total tonnage shipped on the open seas (not counting internal national river transport or lake transport) topped five billion tons. It had been growing at 4.8% over

the previous five years. In 2001, total sea trade grew at only 0.7% in the face of the world recession, partially exacerbated by the terrorist attacks.

We expect sea trade to resume a more normal pattern of growth in the future, with the following growth rates.

This is an aggressive pattern, but it reflects the assumption that the world will become more and more open to international trade, as mentioned previously.

Total Containerized Trade - Tons

The world trading system has moved more and more goods into containers over the years. We expect this trend to continue, albeit at a slightly slower rate. As ports develop the infrastructure to handle containers, the penetration of containers will increase, which is shown in the forecast of container tons. In 1995, the percentage of sea trade that was containerized was about 9.4% (all of the bulks, both dry and liquid, or not put into containers), and by 2025, this percentage will grow to almost 17.0% in our forecast. By 2025, the 400-million tons of containerized cargo will grow to nearly 1.5 billion tons.

Containerized cargo will continue to show the highest growth rates of merchandise trade (second only to air cargo).

Total Dry Bulk Trade - Tons

Total dry bulk trade in 1995 was nearly 1.6 billion metric tons, and in 2000, it reached 1.8 billion tons. The 2001 recession will cause this level to fall slightly, but then we expect a pick-up thereafter. By 2025, world dry bulk shipments on the seas will reach 2.8 billion tons.

The historical growth (1995–2000) averaged 2.8% per year, and we are not expecting this rate to be reached again before 2025. Indeed, 2001 will see a decline of 0.2%, followed by growth of 2.0% through 2025. This is slower than overall economic growth in the world, which is consistent with historical patterns.

Total Liquid Bulk Trade - Tons

The outlook for liquid bulks, primarily crude oil, is depicted in the long-range chart that follows.

The chart shows steady growth, but there is less of a downturn in the 2000–01 period compared to dry bulks, as basic liquid oils and chemicals remain in demand. The longer-term growth rates slow down slightly near the end of the period.

In the following section of Volume I, each of the top-ten Panama Canal commodities is described and forecast to 2025. Comparisons between the base case, described in Volume I, and the low and high cases, described in Volumes II and III, respectively, can be made by examining the other volumes.

Containerized Cargo

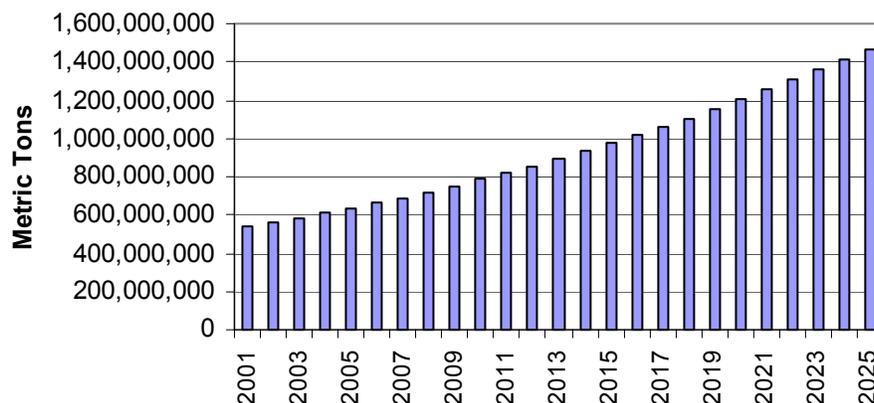
In the base case scenario, total worldwide trade in containerized cargo in 2001 will reach 542.0 million tons, an increase of only 1.3%, which is below the long-term trend. The top three destinations for containerized cargo are expected to be East Asia, accounting for about 22.7% of total trade; Europe, which will account for around 20.8% of the total; and the United States, which will account for about 17.1%. Trade in containerized cargo to East Asia will be primarily of local origination, which will account for 33.6%. Other important origins to East Asia include the United States, which will account for 20.1%, and South and Southeast Asia, which will account for 10.0%. In Europe, about 20% of the total containerized cargo will originate locally, followed by trade from East Asia, which will account for about 17% of the trade. Africa and the Middle East, South and Southeast Asia, and the United States will account for about 15% of the total trade to Europe. Trade in containerized cargo to the United States will originate primarily in East Asia, which will account for 36.0% of the trade, followed by containerized cargo from Europe, which will account for 29.4%.

Between 2001 and 2005, total trade in containerized cargo is expected to expand by 3.1% per year and reach 635.4 million tons in 2005. Total shipments to Europe will expand by 3.7% per year and are expected to reach 150.0 million in 2005. Total shipments to the United States will expand by 4.1% per year and reach 75.6 million tons by 2005.

Between 2005 and 2010, total trade in containerized cargo is forecast to escalate by 4.3% per year and reach 785.0 million tons by 2010. At the same time, total shipments to Europe will expand by 3.7% and will reach 180.0 million tons by 2010. Total shipments to the United States are forecast to expand by 4.1% and reach 92.5 million tons in 2010.

Between 2010 to 2025, total trade in containerized cargo is forecast to continue the 4.3% per year pace and reach 1.5 billion tons in 2025. The ranking in destination for the trade in containerized cargo will shift slightly, with East Asia accounting for 30.9% of the total trade, Europe accounting for 20.6%, and the United States at 11.2%. In addition, most of the trade will continue to be shipped on the same primary routes identified in 2001–05.

Container



Corn

Corn is one of the world's largest dry bulk commodities carried on the open oceans. In 2000, there were 79.0 million tons shipped. The base case forecast calls for this total to grow to 85.6 million tons in 2010, and to 88.9 million in 2025. This yields an average annual growth rate of just 0.4% per year over the full 2000–25 period. (See chart.)

The largest importer of corn is Southeast Asia and East Asia combined, importing 33.8 million tons in 2001 (estimated), or 43% of the world's exports shipped by sea. We expect this percentage to remain more or less constant (declining slightly) by 2025, even in the face of possible local production increases within the region.

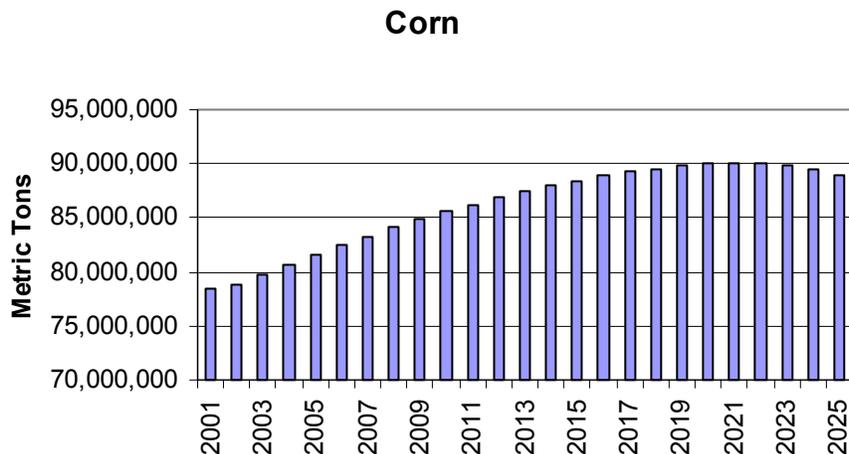
The imports of corn by region are shown in the following chart, where it is clear that East Asia is the largest importer.

The United States is the world's largest exporter of corn. In fact, in 2000, it exported 52.5 million tons of corn, and half of this went to East Asia. Another 2.4 million was delivered to Southeast Asia. The U.S. export volume was two-thirds of the world's seaborne shipments in 2000.

The U.S. export markets, in descending order of importance, for U.S. corn exports are shown in the following table.

Canada is not a major exporter, although its corn normally is shipped to Africa during period of famine.

Europe exported 11 million metric tons of corn in 2000, making it the second largest exporter of corn. However, over 10 million tons of this total is shipped to Europe itself, by sea



Soybeans

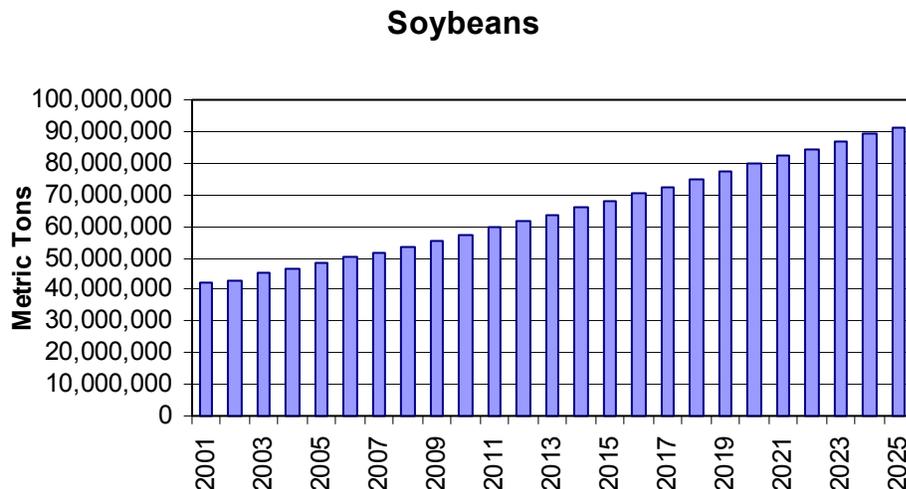
In the base case growth scenario, total worldwide trade in soybeans in 2001 will escalate to approximately 42 million tons. The top-three destinations are expected to be Europe, accounting for about 40.0% of total trade; East Asia, accounting for about 28.2%; South and Southeast Asia, which will account for about 12.0%. Central America and the Caribbean Basin, Africa and the Middle East, and the Latin American east coast will account for most of the rest of the trade, with 11.0%, 3.9%, and 2.7%, respectively. Trade routes, however, will vary. In Europe, most of the trade will come from Latin America's east coast route (principally Brazil), accounting for 53%, followed by trade from the United States, which will account for 37% of the total. Other regions will fill the remaining demand. In East Asia, most of the trade will come from the United States, which will account for about 75% of the total imports of soybeans into East Asia, followed by the Latin American east coast, which will account for 22% of the total. Other regions will fill the rest of the trade with East Asia. In South and Southeast Asia, trade in soybeans will be significant from the United States, which will account for 81% of the total trade, followed by the Latin American east coast, which will account for 13%.

Between 2001 and 2005, total trade in soybeans is expected to increase by 3.5% per year and reach 48 million tons. Total shipments to Europe will be expand by 2.9% per year and are expected to reach 18.9 million tons in 2005. Total shipments to East Asia will grow slightly, by 1.7% per year, and will reach 12.7 million tons by 2005.

Between 2005 and 2010, total trade in soybeans is forecast to escalate by 3.5% per year and reach 57.5 million tons by 2010. At the same time, total shipments to Europe will rise by 2.5% per year and will reach 21.3 million tons by 2010. Total shipments to East Asia are forecast to expand by 1.9% per year and reach 13.9 million tons in 2010.

Between 2010 and 2025, growth in total soybeans trade is forecast to accelerate to 3.1% per year and reach 91.5 million tons in 2025. The ranking for the major destinations for trade in soybeans in 2025 will change significantly. By 2025, Europe's share will be down to 30.8%, while East Asia and Central America and the Caribbean Basin will account for about 17.7% each.

The forecast for soybean volumes traded is shown in the following chart.



Iron and Steel

In the base case growth scenario, total worldwide trade in iron and steel in 2001 will firm to approximately 314 million tons.

The chart shows the relatively slow growth expected in this commodity worldwide under the base case assumptions. In fact, average annual growth through 2025 will be just 1.0%.

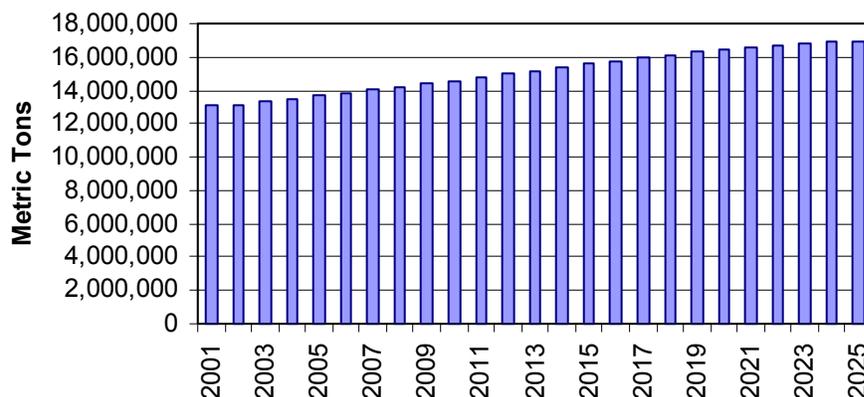
The top-three destinations are expected to be Europe, accounting for about 43.6% of total trade; East Asia, accounting for about 17.4%; and the United States, which will account for 14.3% of the total. Trade routes, however, will vary. In Europe, about 91% of the total trade is expected to come from intra-European shipping. In East Asia, intra-regional trade is also expected to be significant, accounting for approximately 60% of total trade. The largest trade routes to South and Southeast Asia are expected to be East Asia, Europe, and intra-regional trade, accounting for 45.2%, 25.7%, and 17.6%, respectively. This is the picture of this commodity worldwide in 2001.

Between 2001 and 2005, total trade in iron and steel is expected to grow by 1.1% per year and reach 327 million tons. Over the same period, total shipments to Europe will also rise, by 1.1% per year, and are expected to reach 144 million tons in 2005. Total shipments to East Asia will grow by 0.6% per year and will reach 56 million tons by 2005.

Between 2005 and 2010, total trade in iron and steel is forecast to climb by 1.1% per year and reach 349 million tons by 2010. At the same time, total shipments to Europe will rise by 1.3% per year and will reach 154 million tons by 2010. Total shipments to East Asia are forecast to expand by only 0.9% per year and reach 58 million tons in 2010.

Between 2010 and 2025, growth in total trade in iron and steel is forecast to accelerate to 0.9% per year and reach 397 million tons in 2025. The ranking for the major destinations for trade in iron and steel in 2025 will remain almost unchanged. By 2025, Europe's share will remain strong at 44.4%, while the share of East Asia will reduce to 16.1%. Nevertheless, the share of the United States is expected to increase slightly to 17.0% in 2025.

Iron & Steel



Coal and Coke

This is one of the largest commodities shipped on the oceans, amounting to 611 million metric tons in 2000. We expect this volume to decline slightly in 2001 in view of the global recession, but thereafter, growth will pick up. However, it is important to note that growth in the long run will be slow, averaging only 0.9% through 2025.

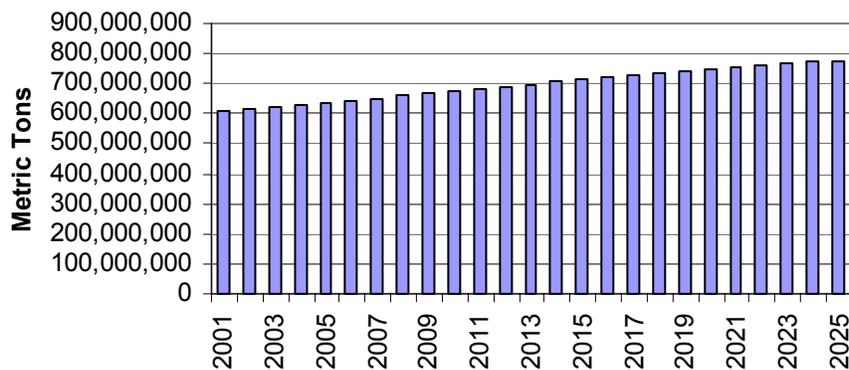
The major sources of international trade in coal and coke are shown in the following chart and are clearly listed in the following table.

It is clear that Australia is already the world's largest exporter of coal and coke, followed by Europe.

The world's largest importer is East Asia, at 250 million tons in 2000. This market obtains most of its coal from Oceania (nearly half), followed by Southeast Asia, where new deposits of hard coal have been discovered and were mined in the final decade of the last century. To this market, the United States is a comparatively small supplier, at 10 million metric tons (2000). This flow, from the United States to East Asia is forecast to grow at 2.0% per year on average through 2025. As such, the United States will make a small gain in market share, since the region's predicted growth in imports will be 1.9% per year.

Latin America's east coast imports about 17 million tons of coal and coke per year, with 5 million coming from the United States (not requiring a Canal transit), and another 5 million from Oceania, which generally does not call for a Canal transit unless it is headed for Venezuela.

Coal and Coke



Chemicals

World seaborne shipments of chemicals in 2000 were 203 million metric tons, a volume that will probably be lower in 2001, down to 201 million tons in view of the global recession.

The forecast in the base case is shown in the following chart, including some history.

The global chemicals trade tends to be more volatile than other basic materials, since prices can fluctuate wildly and supply sources can be easily shifted. Also, the global recession in 2001–02 will cause a drop of over two million metric tons in global shipments of chemicals. By 2025, total seaborne trade in chemicals will reach 358 million metric tons.

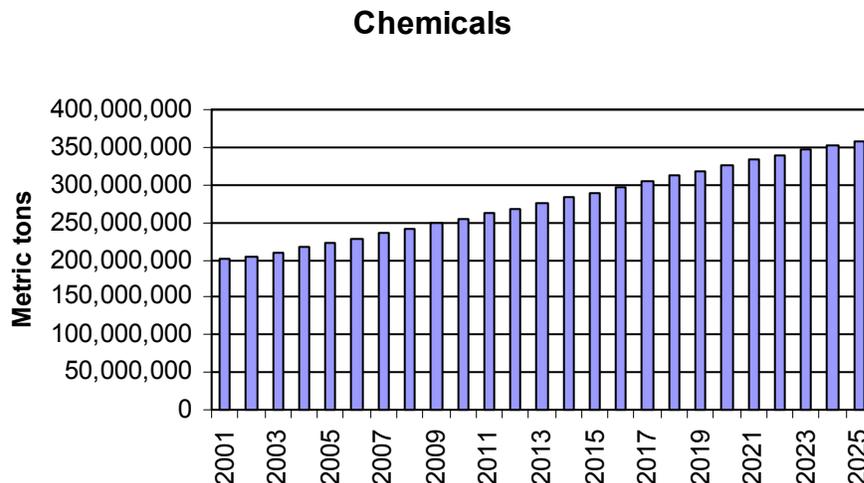
The principal routes are intra-Europe, which accounts for almost 34% of the seaborne tonnage shipped in the world (2001); intra-Asia, which accounts for 5%; Canada-United States, which accounts for 6% of world trade in chemicals; and intra-Southeast Asia, which accounts for another five million tons, or 2.5% of the total. In general most chemicals are produced as locally as possible. Only specialty chemicals are shipped long distances.

By 2010, worldwide shipments should reach 255 million tons, and by the end of the forecast period, the volume should reach 358 million tons. Chemicals are demanded across nearly every productive industry, so consumption follows general economic growth. The average annual growth of chemical shipments globally is expected to be 2.3% per year (taking into account the downturn in 2001), which is in line with global economic growth expected during the same period.

East Asia is expected to be one of the fastest growing exporters of chemicals, averaging 3.6% per year over the full forecast horizon; however, most of its exports will be to itself and Southeast Asia. Nevertheless, its 2025 volume of over 55 million tons will be 16% of the world's total seaborne shipments in that year.

The portrayal for current and future imports of chemicals can be seen in the following chart.

Chemicals will grow slower than containerized cargo, but faster than other bulks, such as corn.



Fertilizers

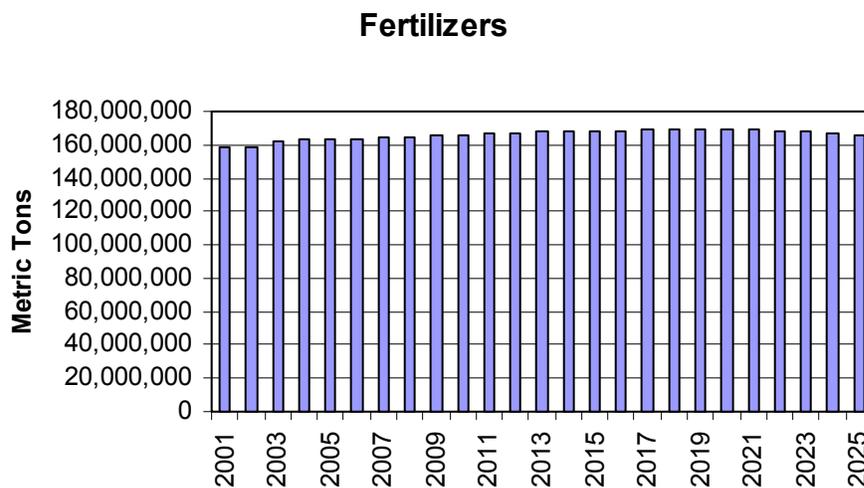
In the base case growth scenario, total worldwide trade in fertilizers in 2001 will firm to approximately 159.0 million tons. The top-three destinations are expected to be Europe, accounting for about 34.5% of total trade; South and Southeast Asia, accounting for about 18.5%; and East Asia, which will account for 14.5% of the total. Trade routes, however, will vary. In Europe, about 42% of the trade will come from Oceania, and 22% should come from intra-European ports. The largest trade suppliers to South and Southeast Asia are expected to be Africa and the Middle East, Europe, the United States, and East Asia, accounting for 26.6%, 13.1%, 12.3%, and 10.0% respectively. The primary suppliers of fertilizers to East Asia are the United States, Europe, and Canada, accounting for 32.3%, 14.7%, and 11.1%, respectively.

Between 2001 and 2005, total trade in fertilizers is expected to grow by 0.7% per year and reach 163.2 million tons. Total shipments to Europe will show no growth during this period, running at about 54.8 million tons. Total shipments to East Asia will increase by 1.0% per year and reach 24.0 million tons by 2005.

Between 2005 and 2010, total trade in fertilizers is forecast to grow by 0.3% per year and reach 165.9 million tons by 2010. At the same time, total shipments to Europe will decline slightly, by 0.5% per year, falling to 53.6 million tons by 2010. Total shipments to East Asia are forecast to expand by 0.5% per year and reach 53.5 million tons in 2010.

Between 2010 and 2025, growth in total trade in fertilizers is forecast to show now growth at all on an annual basis. The ranking of the major destinations for trade in fertilizers in 2025 will change. By 2025, Europe's share will be down to 29.2%, while the shares of East Asia and the United States will rise to 13.9% and 12.1%, respectively.

The following chart shows the global level of fertilizer trade and the leveling off in the outer years



Crude Oil

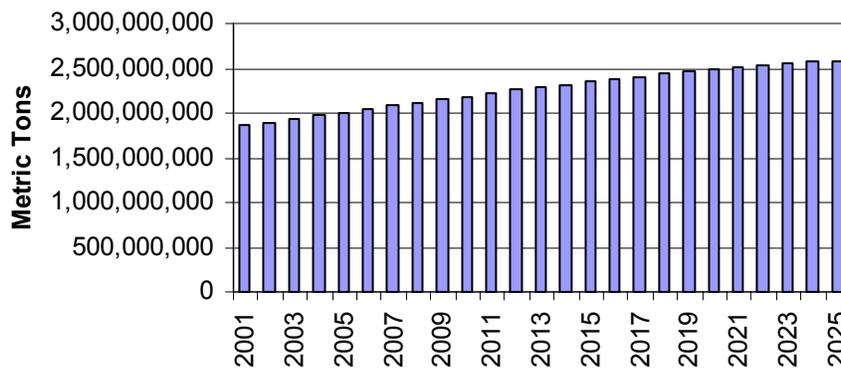
In the base case growth scenario, total worldwide sea trade in crude oil in 2001 will rise to nearly 1.9 billion tons. The top-three destinations are expected to be Europe, accounting for about 31.4% of total trade; the United States, accounting for about 23.9%; and East Asia, which will account for 21.7% of the total. Trade routes, however, will vary. Most of the trade in Europe is expected to come from intra-Europe (North Sea) and Africa and the Middle East, which account for 49.6% and 46.4%, respectively, of Europe's supplies. Trade routes to the United States are expected to be from Africa and the Middle East, accounting for 41.5%; Latin America, accounting for 15.3% (mainly Mexico); Central America and the Caribbean Basin, accounting for 14.7%; and Canada, which will account for 13.0% of the total trade. The largest trade routes to East Asia are expected to be from Africa and the Middle East and intra-East Asia, which will account for 82.4% and 10.0%, respectively.

Between 2001 and 2005, total trade in crude oil is expected to expand by 1.8% per year and reach 2.0 billion tons. Total shipments to Europe will rise by 1.4% per year and are expected to reach 621.0 million tons in 2005. Total shipments to the United States will expand by 1.1% and will reach 467.0 million tons by 2005. Total shipments to East Asia will accelerate also, by 3.2% per year, and will reach 459.0 million tons by 2005.

Between 2005 and 2010, total trade in crude oil is forecast to grow by 1.8% per year and reach 2.19 billion tons by 2010. At the same time, total shipments to Europe will rise by 1.1% per year and will reach 657 million tons by 2010. Total shipments to the United States are expected to increase by 0.8% and reach 486 million tons. Shipments to East Asia are forecast to expand by 1.1% per year and reach 657 million tons in 2010.

Between 2010 and 2025, growth in total trade in crude oil is forecast to slow to 1.1% per year and reach 2.58 billion tons in 2025. The ranking for the major destinations for trade in crude and petroleum in 2025 will change. By 2025, the shares of Europe and the United States will be down to 26.2% and 18.2%, respectively, while the share of East Asia will rise to 35.7%.

Crude Oil



Lumber Products

In the base case growth scenario, total worldwide trade in lumber products in 2001 will firm to approximately 107.0 million tons.

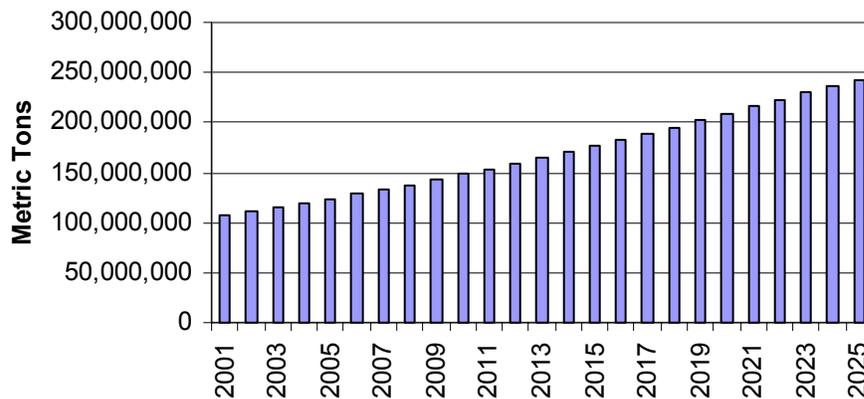
The top-three destinations are expected to be Europe, accounting for about 41.9% of total trade; East Asia, accounting for about 22.3%; and the United States, which will account for 18.2% of the total. South and Southeast Asia will account for about 7.4%, and Canada, Central America and the Caribbean Basin, and Africa and the Middle East will account for most of the rest of the trade, amounting to 2.9%, 2.7%, and 2.7% of total trade, respectively.

While average annual growth in lumber and products through 2025 will average 3.5% in the base case scenario, between 2001 and 2005, sea trade in lumber products is expected to average 3.3% per year and reach 124.0 million tons. Total shipments to Europe will also expand, by 2.8% per year, and are expected to reach 50.0 million tons in 2005. Total shipments to East Asia will step up also, by 4.7% per year, and will reach 28.8 million tons by 2005.

Between 2005 and 2010, total trade in lumber products is forecast to escalate by 3.6% per year and reach 148.0 million tons by 2010. At the same time, total shipments to Europe will rise by 2.4% per year and will reach 56.5 million tons by 2010. Total shipments to East Asia are forecast to expand by 4.8% per year and reach 38.4 million tons in 2010.

Between 2010 and 2025, growth in total trade in lumber products is forecast to accelerate to 3.4% per year and reach 243 million tons in 2025. The ranking of destinations for the major destinations for trade in lumber products in 2025 will change significantly. By 2025, Europe's share will be down to 31.8%, while the shares of East Asia and the United States will rise to 28.2% and 21.6%, respectively.

Lumber & Products



Reefer Commodities

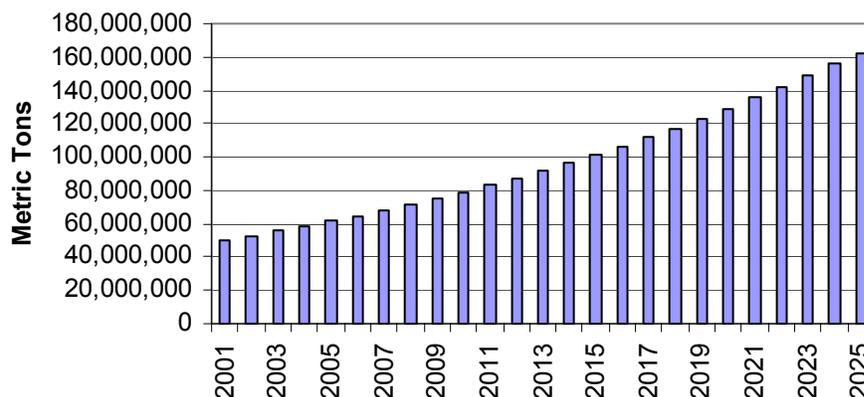
In the base case scenario, total worldwide trade in reefer commodities in 2001 will reach 102.0 million tons. The top-three destinations are expected to be Europe, accounting for about 55.0% of total trade; East Asia, which will account for around 14.0% of the total; and the United States, which will account for about 9.4%. The most active routes to serve the European market besides local trade, which accounts for 78%, will be the African and Middle Eastern region and the United States, which will account for 7.6% and 3.3%, respectively. The most active routes to serve East Asia besides the local intra-trade are expected to be the United States and Europe, which will account for 28.0% and 14.4%, respectively.

Between 2001 and 2005, total trade in reefer commodities is expected to expand by 5.7% per year and reach 127.8 million tons. Total shipments to Europe will expand by 5.8% per year and will reach 70.8 million tons in 2005. Total shipments to the United States will expand by 5.7% per year and will reach 12.1 million tons by 2005. Reefer shipments to East Asia will climb by 5.1% per year in the base case scenario and reach 18.0 million tons by 2005. The differences between the base case and the higher scenario are slight, as the reader will see by comparing these figures with those in Volume III.

Between 2005 and 2010, total trade in reefer commodities is forecast to grow by 4.8% per year and reach 161.2 million tons by 2010. At the same time, total shipments to Europe will expand by 4.1% and will reach 86.6 million tons by 2010. Total shipments to the United States are forecast to expand by 6.1%, a very strong showing, and reach 16.2 million tons in 2010 as a result of continued increases in personal income and consumption. Reefer shipments to East Asia will escalate by 5.4% per year and reach 23.3 million tons by 2010.

Between 2010 and 2025, total trade in reefer commodities is forecast to increase by 4.6% per year and reach 319.6 million tons in 2025. The ranking of destinations for trade in reefer will remain unchanged, with Europe accounting for 46.9%, the United States accounting for 12.4% and East Asia for about 15.3%. In addition, most of the trade will continue to move along the primary routes identified in 2001–05.

Reefer



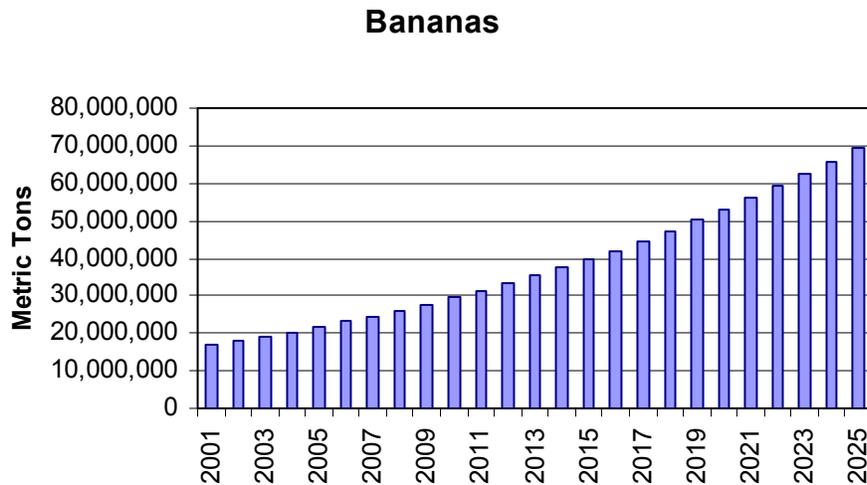
Bananas

Europe is the largest consumer of imported bananas in the world, bringing in 7.6 million metric tons of bananas in 2001, up moderately over 2000. Total world shipments in 2001 are 16.9 million tons, so Europe represents 45% of the world market for bananas.

Similarly, the United States is a major importer of some 5.1 million tons of bananas in 2001, representing 30% of the world total.

The principal suppliers of bananas are the west coast of South America, Central America, and Africa. Africa is still an important source of bananas for the Europeans, despite the Lome Convention. However, we assume that the Convention will eventually be adhered to and that alternative sources of bananas, such as the Latin American ones, will have greater importance to the European market. Also, Europe itself is a major supplier to Europe, since bananas are grown in the south. Therefore, Central America and Ecuador do not appear as major suppliers to Europe at this point in time.

By the final year of the forecast, we foresee Europe importing 26.5 million metric tons of bananas, with only 6.5% coming from African sources, compared to 8.0% now. The United States should import 23.6 million tons of bananas, mainly from Central America and the Caribbean, and from the west coast of Latin America, mainly Ecuador. These two regions, in fact, will account for 98% of all the bananas imported into the United States.



APPENDICES

APPENDIX A: DRI•WEFA's World Trade Model System

Introduction

A world trade model that covers a sufficient number of commodity and industrial flows provides a useful planning tool to governments, transportation service companies, and multinational corporations. Developing this type of model and related database, however, requires the analyst to cross a number of different thresholds, not the least of which is the assurance of a quality of data that can support this form of economic analysis. In reality, developing a world trade model demands a researcher to make a number of difficult choices and compromises to ensure that the result meets the test of reliability and sensibility.

What are these choices? At the start of the process of model development, model structure must be determined. Trade data is normally organized in terms of data reporting and trade partner country data. Given that the information is collected by statistical organizations in each country, there can be a significant degree of dissimilarity between data sources. A recent study by Alexander Yates at the World Bank suggests that bilateral trade data is a suspect measure of true trade. He finds that there is such a significant difference in reported trade of an exporter to an importer compared to an importer from an exporter to cast doubt on the validity of either direction of trade. Nevertheless, researchers have little choice but to rely upon statistical organizations to extract the truth from the flow of goods throughout the world. With the increasing volume of trade and the importance of it to countries, it is likely that the statistical reliability of the reporting will improve over time.

The question of model structure thus needs to be assessed in light of the problems associated with the data. How many countries and regions should be included? Should the model reflect the share of total imports and exports of each country or region or reflect the bottom-up approach? Should we assess trade in terms of a commodity flow and the resulting balance in worldwide demand and supply, or at the individual country level with the total for the commodity determined by the apportioning of the import demand among many competing products? If we follow the former course, then we have little way to control trade growth, since each flow is independent of each other. If we take the later approach, then we assume that exports are a reflection of choice within a budget constraint. While the concept of a budget constraint for poor countries is a reasonable one, such a constraint for the countries with convertible currencies (and free-floating exchange rates) is inappropriate.

In the world trade model, we have chosen the bottom-up approach, with a set of controls imposed. The bottom-up approach assumes that each commodity represents a universe of individual decisions by companies and consumers. It is a model that reflects the imperfectly competitive nature and the limited amount of information that may be available on potential suppliers worldwide. Trade moves along pre-defined routes, with only a modest ability to shift suppliers in short order. We can introduce competition between export sources by forcing forecast trade for each exporter to be equal to a

separately estimated import demand from a group of exporters as a whole. For example, if we separately estimated exports for each of the OECD countries to the United States and separately estimated the import demand of the United States from the OECD, one approach to this problem would be to scale the model developed forecasts to the “topline,” or OECD-wide, estimate of imports. Using this approach, differential price and production factors would be taken into account as a result of the scaling process since the market shares would be determined by the relative competitiveness of each exporter.

To build such a model the analyst need first determine the market to be served. It is possible that a set of broad trade aggregates may be ideal for some types of studies while for commercial clients there needs to be more detail both in commodity coverage and in the inter-regional relationships assessed. One decision that was made early on was to try to cover the entire trade of the world including the intra-LDC trade between countries and regions. Thus there is a significant amount of trade detail incorporated and the total for all partners and reporters adds up to world trade without double counting (by definition exports of all countries/regions to the world are exactly equal to imports of all countries/regions from the world).

What kind of economic model allows for a full range of possible country sizes and strengths? Can we assume that trade is not a reflection of specific country experience and not some generalized model that fails to take into account the exact pattern of investment and consumption? So far my experience is that the common or framework model that describes the long-term relationship between trade and economic growth using a cross-country sample rather than a time series offers a better approach to the problem in that it allows countries to adapt and change. Trade’s very volatility (there are many examples where the trade flows grow by 25-50% and then fall by the same amount the next period) makes a time series model less efficient in deciphering the underlying factors that are at work. A pooled data set combining country specific information over time and multi-country information offers a better “model” for assessing the factors that are at work. A poor country can, over time, become richer. As it moves through various stages of economic growth it experiences different needs.

Each commodity model of world trade model stands alone, defining the interrelationship between exporters and importers trading in a single commodity category. For each commodity we attempt to measure the global competitive balance between exporters and importers. Unlike other attempts at world trade model development these models do not begin with a top down estimate of total trade demand but rather are built up, in logical steps, from demand and supply to partner regions. For the most part econometric models define import demand and export supply potential. If separate econometric models are inappropriate due to the sparseness of the data available or a failure to find a statistically significant model using econometric techniques, parameter models are used in relationship with econometric models (for total demand from world for country i , commodity k , and partner j , as of time period t).

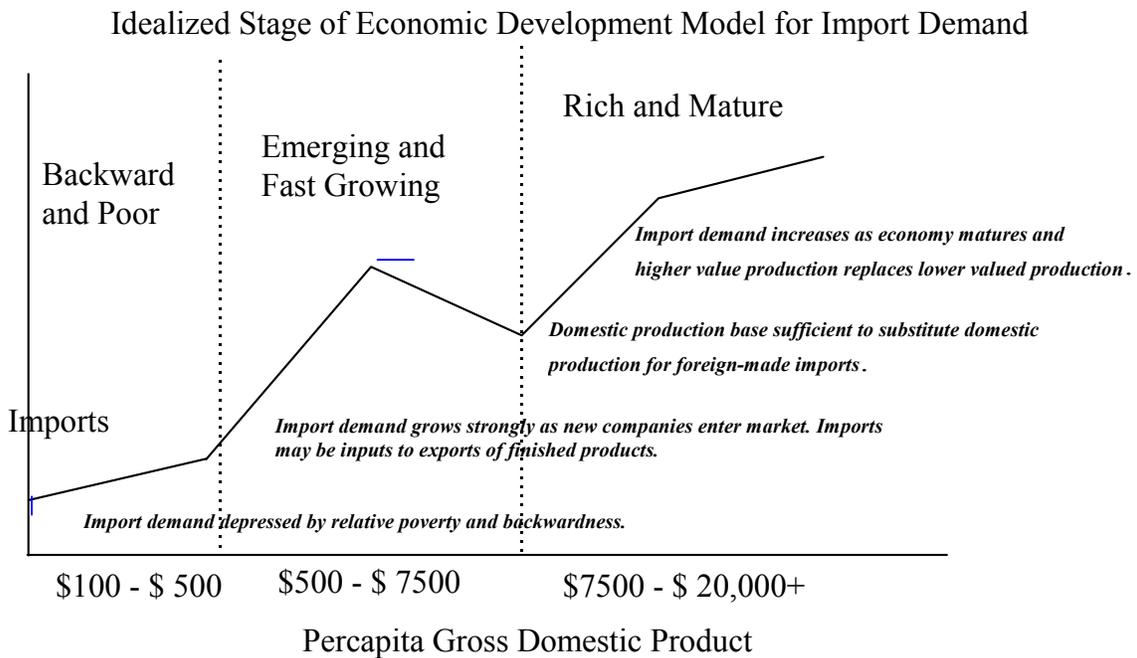
Trade data is drawn primarily from detailed, commodity specific, trade data covering 160 countries worldwide developed from United Nations trade information sources by Statistics Canada. This data reflects Statistics Canada’s estimates of bilateral flows. The data base covers a single direction of trade, i.e. UK imports from Japan are identical to Japanese exports to the UK. All trade models are specified as import demand models.

Export supply is derived from import demand from a specific region or country. A 70 country/region matrix of trading partners has been selected. There are approximately 48 countries and 12 additional regions. These countries and regions aggregate to the world (as defined by the initial 160 country set of trade data available in the Statistics Canada data set); and trade data is arranged in a symmetrical data set where there are an equal number of partner regions as reporter countries. Import demand equations are estimated based on macroeconomic data, price data, and exporter performance measures – relative wages and relative rates of productivity growth.

Theoretical Framework: International Trade Life Cycle

The strong growth experienced in the world economy over the period starting in the early 1980's and continuing through 1996 reflects the increasing internationalization of production. Increasingly international trade is less a function of national development as a function of international development. Trade flows are then a direct result of foreign investments and the increasing diffusion of technological information from the core or more advanced nations to the less advanced ones. As a result, understanding the factors that are driving this revolution and forecasting future patterns of growth must rely upon economic models that are not linear in orientation, i.e. that do not reflect a growth along a single production path, but rather reflect the multiplicity of production paths that are apparent. Countries continually leap frog as new investments are made and new enterprises develop.

Trade reflects economic maturity. Countries move through various phases from relatively poor and undeveloped, with imports constrained by capability and financial capital availability; to emerging growth, when imports may increase as they fill in gaps in domestic production that are often oriented towards exports; and through more mature emerging markets, when domestic producers substitute for foreign (import demand may then fall as more local production substitutes for foreign production). Eventually countries finally reach a mature stage in which imports increase as foreign producers replace domestic producers. This later stage reflects the maturity of the production base as it shifts from lower valued to higher valued production and from manufacturing to services.



Countries and markets tend to reach point of maturity when consumer markets become saturated. During this later stage there is a replacement of old with new, but little real growth. These more mature economies also tend to be slower growing ones in terms of population growth, but their absolute volume of demand is such that they buy “more” than others that are faster growing but are currently less well developed. Development stages also dictate the kinds of products that are consumed and the trade relationships established. Economies thus move through phases and these phases are predictable using models that relate these differing patterns of growth.

The Underlying Quantitative Model

Cross-country models reflect stages of economic development by utilizing information from more than one country in a joint estimation procedure. The advantages of the approach are many, and not the least, is the ability to model these longer-term trends. Short-term patterns, however, may require inputs of more country specific data. As a compromise between the short-term benefits of a time series model and the long-term power of a cross-country one, we have chosen a hybrid specification framework that mixes time series data with cross-country data. Thus all of our trade models are estimated using a pooled cross-sectional data set with 70 countries/regions and sixteen years of international trade data.¹

The underlying theoretical model is based on a very traditional international trade model form in which import demand is a function of aggregate demand and relative prices for imported products. Trade models are “import-oriented” models with export supply assumed to be rationalized across major regional groupings. An exporter’s success in selling depends critically upon their relative prices, productivity trends, and exchange rates. Import demand is determined by personal consumption expenditures, business investment, and consumption structure.

From a point of view of demand for traded products, nearly all import demand can be defined by domestic economic activity. A simple form of this type of model is:

$$M_{ijk} = (Y_i) = APM_{ijk} * Y_i = \frac{\hat{M}_{ijk}}{\hat{Y}_i} * Y_i \text{ where } \hat{M} \text{ is the mean imports over the period for country } i \text{ from region } j \text{ for product } k$$

and \hat{Y} is the mean income over that same period for country i . Y is income or GDP.

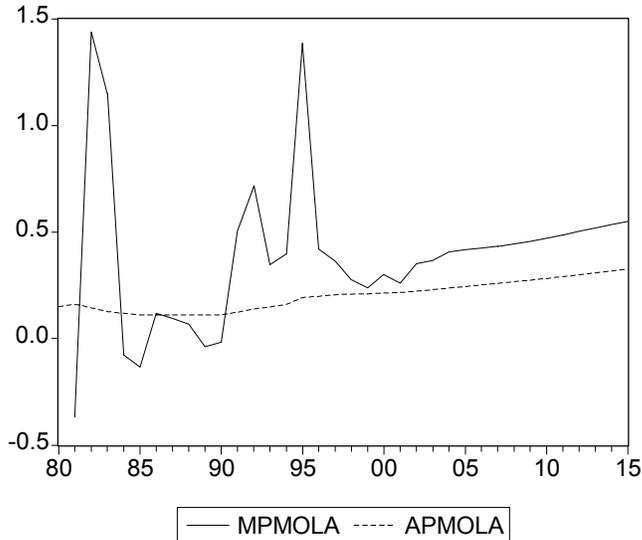
APM is the average propensity to import and it assumes that each additional dollar of income leads to a fixed share of additional imports. A more complex form would be to examine the marginal import demand relative to the marginal dollar of income. To do this we might take the first difference in imports relative to the first difference in income or:

$$M_{ijkt} = M_{ijkt-1} + MPM_{ijk} * \Delta Y_i \text{ where } MPM_{ijk} = \frac{M_{ijkt} - M_{ijkt-1}}{Y_{it} - Y_{it-1}} \text{ and } \Delta Y_i = Y_{it} - Y_{it-1}.$$

Neither APM or MPM are always entirely satisfactory. We can understand this by examining the example below drawn from trade of countries in Latin America. We can see that there is an extreme volatility in the marginal propensity to import relative to income. At the same time there is a slow growth in the APM showing that it is not a constant but changes over time.

¹ We have thus a 70 x 15 sample of data, potentially over 1,000 Phase II: System Information and Database observations and even with individual country intercepts we have more than 800 observations. Few time series models come close in terms of total number of observations. Since the statistical reliability increases as the number of observations increases, in most cases then coefficients are statistically valid even if the t-statistic is less than 2 (greater than 1.5 is generally acceptable).

The marginal propensity to import shows extreme variability the average propensity is relatively flat and rising. This makes using the "marginal" indicator difficult. It that small changes in imports may not be fully explained by small changes in GDP.



What then is a more robust theoretical model for determining international trade performance and forecasting it into the future? Over the years economists have used a variety of time series estimations to predict import demand. Some have been specific to commodities, some even have modeled groups of countries and cross-country or bilateral trade, but in general there have been few econometric models developed that have used a pooled-cross-sectional-time-series-model framework and are commodity specific and route specific. In developing a more sophisticated model we need to take into account structural parameters that impact trade propensities.

Over the period starting in the 1960's and continuing through the 1990's there was a steady increase in the average propensity to import. If we can understand what is behind this trend then we can understand why international trade has expanded rapidly since the early 1980's.

One way to understand what has happened is to divide APM into its component parts or:

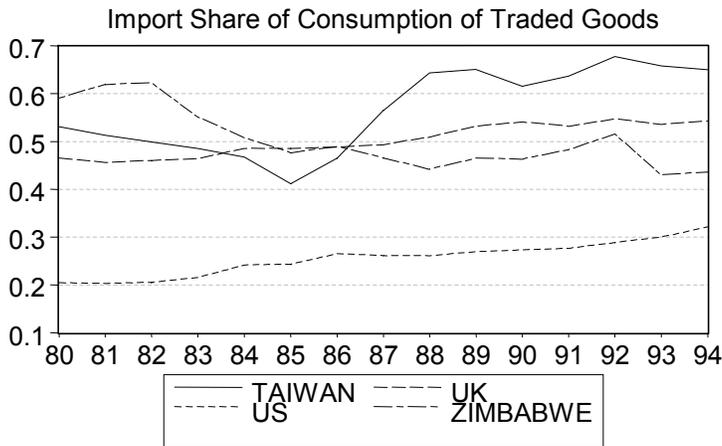
$$APM = \frac{CG}{Y} \times \frac{M}{CG} \text{ where } CG = PG - E + M,$$

where PG is the production of traded goods, E is exports of traded goods (possibly reduced by a factor to take into account the market-up of exports by the non-manufacturing sectors of the economy), and M for imports of traded goods.

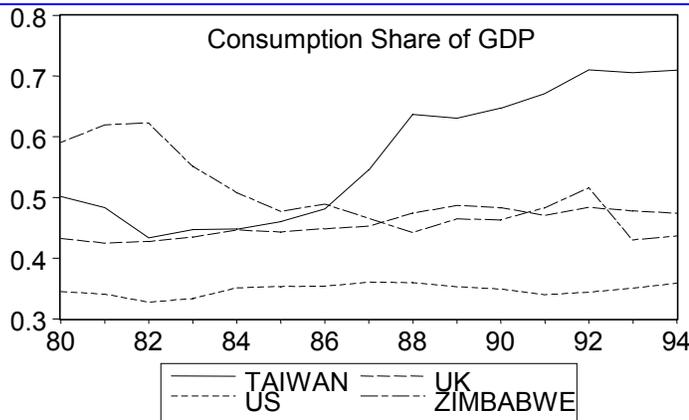
Trade intensity thus is now defined in terms of share of consumption of traded goods rather than share of total income. We know that CG/Y is slowly adjusting as consumption patterns adjust and change. We know that M/CG cannot, by definition, exceed 1.0

(although for some countries with significant inflows of transit and re-export trade the share may be quite high. In general small countries tend to have higher import shares than larger ones. This suggests that there is greater specialization.

There has been a gradual increase in the share of imports to consumption of traded goods. The increase is significant for the US, the UK, and Taiwan. Zimbabwe's share has fallen over time due in part to the embargo that limited its ability to buy from the world (when it was known as Rhodesia) and in part due to its poverty and lack of hard currency to buy foreign imports.



For more advanced nations, like the United Kingdom and the United States, the consumption share of GDP has been flat. An economy like the United States with a significant share of total gross output concentrated in services shows a relatively smaller share of output that can be impacted by foreign export sales or imports by local companies. Note that in the case of Taiwan, however, the rapid increase in imports and improvements in the quality of life parallel the increase in consumption of goods that can be traded internationally.



The two ratios thus represent limits. We expect that over time the CG/GDP ratio will be flat or decline as service trade takes a larger share. We expect that the MG/CG will reach an asymptotic limit less than 1.0. No country can be 100% specialized. Marginal adjustment in APM that changes in these two elements induce tend to slow as a country approaches its asymptotic limits. We know for most smaller countries in Western Europe, European Union integration has already led to trade intensity measures that are

approaching unity (1.0). Over the past thirty years nearly all trade growth has come in this ratio as the general trend for most countries for CG/Y is negative.

We next can divide income into two parts -- market size and wealth per capita. The shift in demand can be related to market size since larger markets tend to demand more of some products, and they also tend to be more competitive as foreign sellers find it less expensive to penetrate larger markets (the market potential is greater and thus the cost of entry per probable unit of sales is less). The wealth effect on trade is usually positive since wealthier markets attract more foreign suppliers. It may, however, be negative. Wealthier nations may find it impossible to produce lower valued products and thus will turn to imports. Even high technology products can be “low value” in terms of profitability. An increasingly global production base assures that each trading nation will export products that it has a comparative advantage in (either in terms of land, technology, knowledge, or the skills of its workforce) and import those products for which it has only a limited advantage in. Increasingly products are made in one country for export to another with parts produced in a third.

Using these relationships we can revise our simplified import demand model to be as follow:

$$\text{Mikt} = A_i \left[\frac{\text{CG}}{\text{Y}} \right]^{b_1} \left[\frac{\text{MG}}{\text{CG}} \right]^{b_2} \left[\frac{\text{GDP}}{\text{N}} \right]^{b_3} N^{b_4}$$

Where A is the constant intercept, CG/Y is the average consumption of traded goods to income, MG/CG is the trade intensity measure, N is market size (population), and GDP/N is per capita income or wealth.

This model is non-linear. Each of these “factors” has an impact on the others. We can estimate this equation using a log-log specification. The betas then become point elasticities measuring the rate of change in imports relative to the rate of change of each of the independent variables. The original constant APM occurs when the betas estimated are approximately equal to 1.0. The approximate size of the beta measures the importance of the effect. If trade intensity is of greater importance in explaining import demand then the beta will be greater than 1.0. When the beta is close to zero the net impact of this factor is insignificant and the entire change can be explained by the elements that are non-zero. If b1 and b2 each were equal to 1.0 ²then the average propensity to import would be exactly equal to

$$\text{APMikt} = \left[\frac{\text{CG}}{\text{Y}} \right]^{b_1} \left[\frac{\text{MG}}{\text{CG}} \right]^{b_2}$$

Export supply factors influencing trade should be summarized by the relative rate of expansion or contraction of production within the exporting region. We have tested a number of structural forms to reflect how changing export supply factors influence the size and direction of growth in regional trade. At the present moment, however, we have opted to model the relative rate of production growth in exporting regions alone. The

² Similarly if b3 and b4 were equal to 1.0 each then the product of Y/N and N would be identical to Y. As it turns out in few cases are these relationships homogeneous of a degree 1.0 which this condition implies. In nearly all cases the impact of economic structure, wealth and market size on trade in a specific, kth, commodity varies.

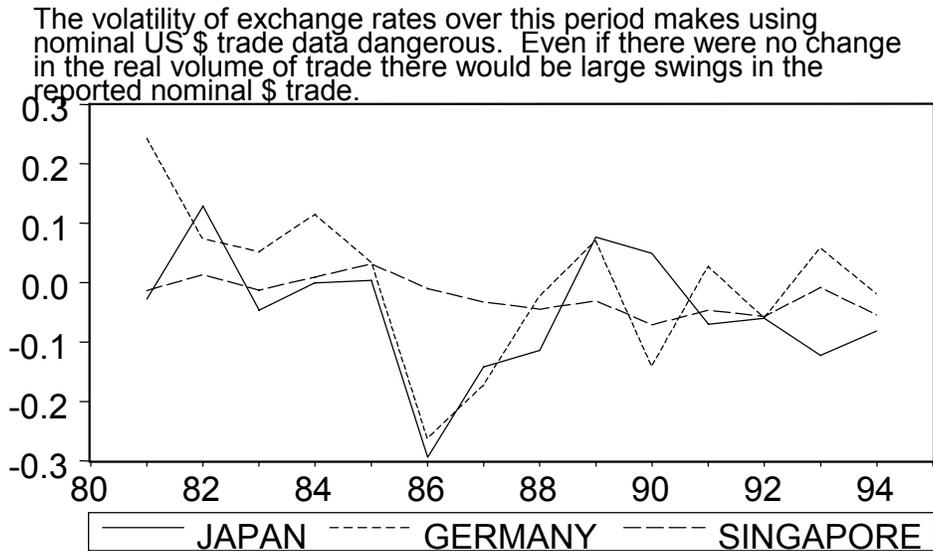
current version of the World Trade model embodies structural relationships for production in the exporting region.³

The import model, however, has been formulated to mirror the short term patterns in market demand as reflected by the demand for consumer products (personal consumption expenditures) and investment goods (business fixed investment spending). The relative price term adjusts import demand to reflect cross-price relationships between exporter and importers. Import price changes alone, however, are assumed sufficient to adjust import demand. Efforts to compare import prices to domestic prices tend to yield poor results primarily because of the problem of finding comparable price measures for both the exporter and the importer. Moreover, trade tends to “fill-in” thus small changes in prices of traded goods can lead to larger adjustments in trade. In general, however, price elasticities calculated using this approach are consistent with a priori expectations and fall within a range of -2 to 0.

Translating Nominal US Dollar Trade into Real Volume Trade Using Price and Exchange Rate Indices

One of the most vexing problems in international trade forecasting involves finding a useful common measurement for comparing real growth across countries and between regions. Econometric models are typically estimated in terms of real volume measures with prices assumed to be external or exogenously given. Given that nominal dollar amounts tend to reflect exchange rate changes that may, or may not, impact real demand for the products, there can be an extreme volatility in the nominal values where there is only a limited volatility in the real volumes. This differential becomes even more apparent when we compare Country A to Country B especially if exchange rates have changed radically over time.

³ We had originally wished to include relative wage and relative productivity measures in the supply potential portion of the analysis. These proved to be too difficult to interpret. By scaling export supply for all regions j to import demand from the world, a control can be imposed that will allow for export market shares among suppliers to shift over time.



Prices are both descriptive of the current value and also structurally important, describing the behavior of consumers as they change. To find a common denominator for all countries in order to do a proper comparison then two elements need be considered:

1. Commodity price changes; and
2. Exchange rates.

The United States dollar is typically used as a measure of trade and economic performance. Assuming that we price in US dollars we need to insure that we hold the dollar/local currency rate constant over time so that the volatile nature of the dollar's rise and fall is avoided. We can develop then a measure that reflects dollars converted as of a certain point in time. To do this we need to take out of the nominal dollar value of country trade the changes that have occurred since that time in both commodity prices and exchange rates.

A standardized approach to adjustment of trade value to volume has been developed that takes into account both commodity prices (in terms of US dollars as measured using SITC based export and import price indices) and cross-exchange rates. Individual country differences in price inflation relative to US prices are taken into account using export price indices. Two principals have guided our approach:

1. Real changes in commodity prices should be captured in any price index applied
2. Exchange rate changes should not be introduced mechanically, in order to avoid assuming the full effect of the change in international prices are passed onto buyers by sellers.

The lack of fully consistent, trade specific prices for commodities included in our studies has led to the development of a hybrid methodology using United States price statistics, exchange rates, and general export price indices for exporting countries and regions. These created measures are specific to OECD and selected emerging markets (with generally convertible currencies) but are not used to convert exports of other less developed

countries as these countries are assumed to be price takers, and their trade volumes reflect US dollar price adjustments only (not exchange rates).

Import demand price indices are based on United States Bureau of Labor Statistics trade price indices. These indices are developed using survey data from US importers and exporters; indices are commodity specific. They are not, however, specific to any one partner country or region. Forecasts are based on private forecasts derived from United States inter-industry models and reflect the macroeconomic developments and factors specific to related industries. To understand the impact of US dollar changes on Japan's exports to the world exchange rates and Japanese export price adjustments need to be taken into account as well. In the case of Japan, for example, export price trends have often been counter to exchange rate trends. Export prices in yen denominated terms have fallen as the yen/\$ rate has appreciated and if the rate of adjustment are of an equal amount (in opposite directions) then the net impact of the yen's appreciation in terms of export volume is zero. Thus, the volume exported from Japan reported might be greater than it would have been if only the exchange rate adjustment and commodity price changes had been applied to the nominal dollar trade value.

While the approach used in making international trade flow data consistent in real volume measures may appear to be somewhat abstract it offers the advantage of being consistent across countries and regions. It also allows for differential impacts associated with domestic price inflation (or deflation). Given the importance of the American market or competing against US dollar denominated exports, US commodity price trends appear to offer a consistent set of price indices for deflating nominal value data.

$$IX_{jk} = \frac{ICUS_k \cdot \frac{ITX_j}{IUS}}{IEXR_j},$$

where IX is the export price index for country j for commodity k;

ICUS is the commodity price index from US data for commodity k with a base 1987 = 1.0;

ITX is the country specific export price index (local currency) for country j with a base 1987 = 1.0;

IUS is the general price inflation index for the United States with a base 1987 = 1.0;

IEXR is the index of exchange rate for country j in LC / \$ terms with a base 1987 = 1.0.

We use IX to deflate the nominal dollar trade of the importing country. The nominal dollar trade reflects exchange rate adjustments in each importer. Thus the resulting real imports reflect a real, 1987 base, volume of trade taking out both exchange rate adjustments and commodity price trends.

$$M_{ijk} = \frac{NM_{ijk}}{IX_{jk}},$$

where

M is the real imports of country i from region / country j of product k;

NM is the nominal imports in US dollars of country i from region / country j of product k;

IX is the export price index for the jth exporter to all countries for product k.

When a currency appreciates relative to the dollar the export price index increases. If the importer's currency is also appreciating, so that the nominal dollar imports of that country are greater, then the impact of the appreciation on the exporter and the resulting rise in the price index is reduced. The higher dollar value of the reported imports and the greater value in the price index cancel out. The adjustment of the commodity price for product k is designed to relate the export price of the exporter to the US general price level. For example, when the mid-1980's the yen appreciated against the dollar the Japanese export price declined (in yen terms). The reduction in the export price countered the appreciation in the yen/\$ exchange rate (fewer yen per dollar).

For less developed country exporters we assume that each importer's own dollar (nominal dollar) volume may be properly deflated with the general price inflation in US dollars. This assumes that LDC exporters are price takers and that they regulate their exchange rates to insure that their exports remain competitive in terms of the general inflation rate in the American market. Thus when a local economy is inflating rapidly we assume that the export price in dollars adjusts as the country's own exchange rate devalues in line with the internal inflation rate. To the extent that this does not occur the exporter would find themselves priced out of the market unless they are prepared to subsidize exports. In either case they cannot sell their products at prices above the rate of US price inflation for the commodity in question.

The Structure of the Model

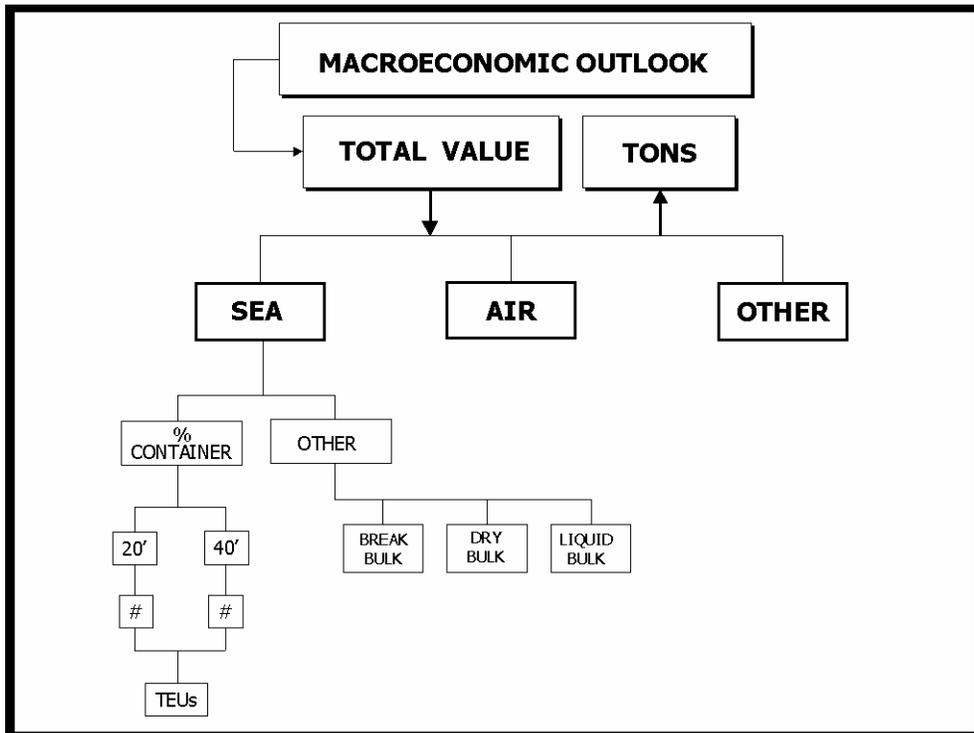
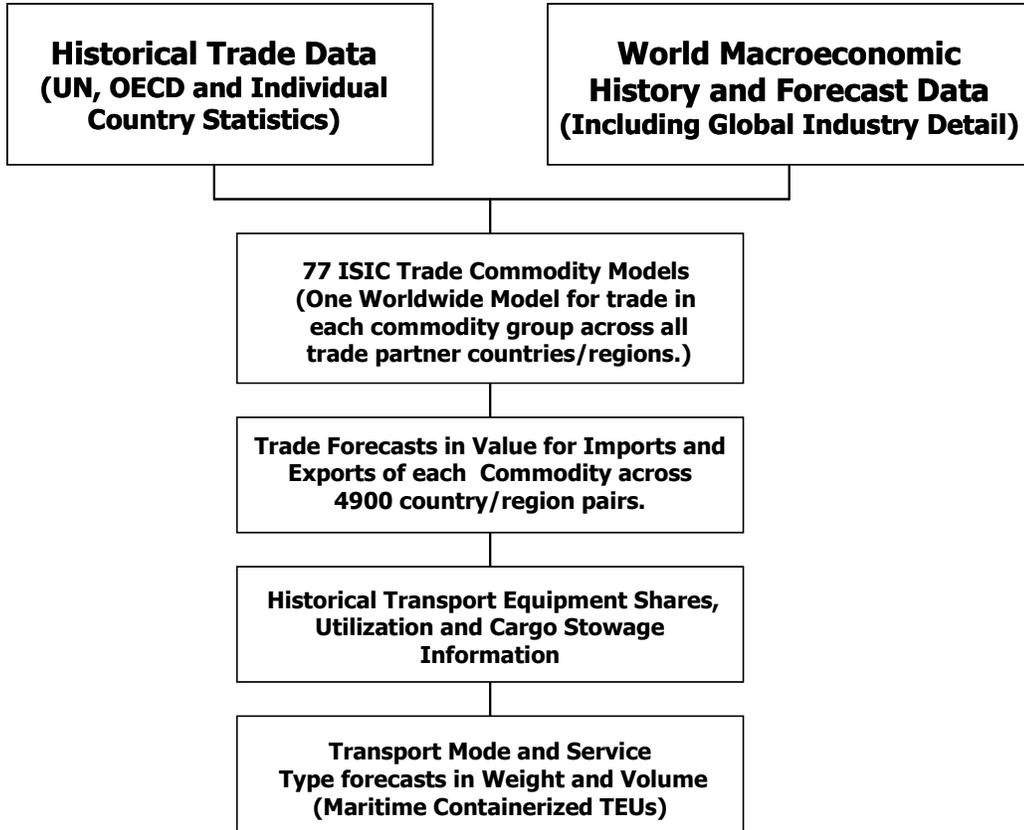
Each trade represents a single commodity trade flow. These are not top down models but rather are built up from the sum of their pieces. Total world trade is the result of the interaction of 3600 individual trade routes for each of the 82 commodities that make up the full sample. Each commodity's trade model is independently developed and for the most part importer-exporter relationships are independently forecast. At the commodity level, however, there are controls imposed to insure consistency with past periods and reasonable forecasts for future period growth.

Each model includes a fully described set of historical and trade data for the 70 countries and regions (54 countries and 16 regions). There are 70 reporter regions and countries and 70 partner regions and countries; thus, the resulting model reflects a bilateral matrix of world trade. Unlike earlier efforts, this model addresses all reported trade flows and is based on data derived from a 160 country sample of trade data (collected annually by the United Nations). These reports represent a universe of information drawn from sources that, oftentimes, conflict. To insure consistency DRI•WEFA has relied upon the basic core data supplied by Statistics Canada and reported as a unidirectional matrix of trade, i.e. only one direction of trade information is reported for each country pair (160 x 160).

The advantages of this are several. In developing models for international trade, consistency is important and trade data often is inconsistent. This is especially true with respect to bilateral trade where reported Chinese imports from France may not be fully consistent with French exports to China. It makes the development of a trade model less complex in that each flow is independent of each other.

Specific Modal Methodology

Trade is forecast for each commodity group across all countries and regions simultaneously reflecting domestic consumption and production as well as competitive international trade supply and demand. The trade value forecasts are transformed into mode-specific transportation cargo weights and volume measures using a system of unit value factors and shipping stowage (stuffing) factors. These conversions are controlled to observed modal weight, value and volume data observed in history, with allowances for future transportation method competitive shifts. The specific factors used to transform the value of trade forecasts are specific to individual commodities, directions of trade and trade route. (see illustrations following summary).



The Process: Multi-stage Approach to World Trade Forecasting

A pooled time series cross sectional data base is used for the econometric model development. Estimations depend upon a weighted Generalized Least Squares estimation using weights derived from the co-variance matrix estimated in the initial pass.⁴ Pooled cross-sectional time series models combine information on many countries while allowing for generally consistent estimators to be developed across a shortened time period. At the present time, however, we are using the full sample of data starting in 1980 through 1999⁵. There are 15 to 16 observations available for each country pair included in the trade model. In most cases there are a minimum of over 700 observations in the data sample for each pooled cross-sectional time series model estimated.⁶

In the cross-sectional model we look primarily at longer term trends in a country's demand for imports. Future trade of a poor country should roughly follow the path identified by the richer countries. Cross-country models tend to reflect the stage of economic development of the countries in the sample set and thus allow for a shift in demand to occur as countries pass from one stage to another.

Separate country intercepts reduce the degree of heteroskadasticity within the sample thus allowing each country to reflect its average size as a starting point.

There are three different types of variables:

1. Coefficients specific to that country or group of countries;
2. Coefficients common to the set of all countries; and
3. Specific intercepts.

In general the equation has the following form:

$M_{jk} = \Phi_k + BX + A_i X_i$ where "i" is the importing country for which there is a single intercept term for each (A), k is the product type and j is the partner region. The beta represents the generalized coefficients jointly estimated, while the Φ is the coefficient for importer and region specific variables. In general, we use region specific variables for differential price effects. We have found, for example, sometimes quite different reactions to changes in import prices among countries and regions.

⁴ The generalized least squares approach allows for individual series to be estimated efficiently in a pooled estimation. Individual country differences will remain a problem and these are taken care of through a set of individual country intercepts and using a weighted least squares approach. The weights for the second iteration are drawn from the initial errors. This correction for the implied heteroskadasticity insures that the estimators in the equation are generally unbiased by differences in individual country sample data.

⁵ At the present time Statistics Canada data is available through 1999 for all countries (with some exceptions). We have made consistent Statistics Canada 1999 data filling in holes in individual series to insure consistency. We have applied 2000 data from US Census Bureau database for the US trade routes. Each version of the trade model reflects more recent data, as it becomes available.

⁶ There are some flows that are sparse. For each flow a test of available data is applied and if the size of the data sample is insufficient alternatives to econometric estimation are used to forecast trade flows.

Econometric Specification for Import Demand Models

The econometric model specified utilizes the following key variables. These can be divided between structural variables that apply across all importers in a general way, macroeconomic variables that reflect short-term factors, relative price variables, and partner region production factors.

Independent Variable	Description of Variable	Type of Effect
CGSH	Apparent Consumption share of traded products relative to total apparent consumption. Total apparent consumption reflects gross output for goods and services less exports plus imports of traded goods.	Structural Parameter
MGCG	Import share of apparent consumption of traded goods. Reflects trade concentration of overall economy.	Structural Parameter
PCONPOP87	Personal Consumption Per Capita of Goods and Services in 1987 \$.	Demand Variable
INV87	Investment in 1987 \$.	Demand Variable
Import Price	Import price index reflecting cross-exchange rates and commodity price.	Price Variable
POP	Population	Market Size
Consumption/Production	Consumption of Commodity relative to growth in Domestic Production	Demand-Supply Relationship in Importing Market
Production of Commodity	Exporter's production of commodity. This reflects the supply potential of the partner or export region.	Supply Variable

The model we have chosen allows for separation of regional impacts. We have addressed this in two ways. One way assumes that there is a significant, but gradually adjusting, factor that serves as a linkage between two estimated coefficients. For example we have established a variable that gradually adjusts in relationship to the rate of growth in per capita income. When per capita income is less than \$ 20,000 (1987 \$) per year this variable

takes on a value between zero and 1.0. When per capita income is greater than \$20,000 the variable is equal to 1.0. This variable we call an income adjustment factor. By estimating coefficients that apply across all countries and also a separate coefficient that is pre-multiplied by this factor (from just greater than zero to 1.0 maximum) we differentiate the elasticity impact between poor and rich nations over time.

$$\begin{aligned}
 M_{ijk} = & A_{ijk} + b_1 \ln(I_i) + b_2 \ln(I_i) * IA_i + b_3 \ln(CGSH_i) + b_4 \ln(CGSH_i) * IA_i + b_5 \ln(MGCG_i) \\
 & + b_6 \ln(MGCG_i) * IA_i + b_7 \ln(PCONPOP87) + b_8 \ln(PCONPOP87)^2 + b_9 \ln(PCONPOP87) * IA_i + c \ln(P_{ij}) + \\
 & \sum_{m=1}^M c_m \ln(P_{ij}) * D_m + e_1 \ln(POP_i) + e_1 \ln(POP_i)^2 + f_1 \ln(CONSUMP / PROD)_{ik} + f_2 \ln(CONSUMP / PROD)_{ik} * IA_i \\
 & + g_1 \ln(PROD_{jk}), \text{ where}
 \end{aligned}$$

M is imports of the *i*th country from the *j*th partner region of the *k*th commodity/industry category;

I is the investment by business, government, and individuals in new capital equipment, buildings, and infrastructure;

IA is the dynamic adjustment factor based on the ratio of percapita GDP (Y/N). The variable is always greater than zero but may be equal to 1.0 when the percapita income of the country or region exceeds \$ 20,000. A moving average is used to insure a smooth transition.

CGSH is the consumption of traded goods share of total apparent consumption. Total apparent consumption is the sum of gross output for goods and services less exports plus imports of traded products.

MGCG is the imports of traded goods as a share of the consumption of traded goods, i.e. the trade intensity of the importer *i*.

P is the price of the exported commodity in the importing region or country, i.e. price of exports of commodity *k* from region *j* in importer *i*. It represents the combination of the US dollar commodity price of *k*, the exchange rate of the *j*th region, an adjustment to the commodity price to represent the differential inflation between the *j*th market and the US market, and the importer's exchange rate.

PCONPOP87 is the per capita consumption expenditure for the *i*th region.

PCONPOP87² The joint elasticity reflects the combination of $b_7 + 2b_8 * \ln(PCONPOP_i) + b_9 * IA_i$, where *IA* takes on a value of between just greater than zero and 1.0 depending upon the relative wealth.

D_m is a set of instrumental variables for the following price setting regions: US, Japan, Western Europe, Newly Industrialized Economies (Hong Kong,

Korea, and Taiwan), and Other Developed Economies. Each variable takes on a value of either zero or 1.0. This allows for a differentiation in the price effect between these markets with a general price impact assumed for the all other markets. The price elasticity is the sum of the coefficient $c+c_m$, where m represents one of the five regions.

CONSUM/PROD is the consumption of commodity k for country i (production less exports plus imports) over the production of commodity k for country i . When this ratio is increasing import demand should increase, when it declines domestic production may be impacting imports and reducing the relative rate of import growth.

PROD is the production of the j th country of commodity k . It measures the general strength of the domestic economy as an exporter.

The joint elasticity for personal consumption expenditures varies across countries and regions. For example the elasticity for radio, TV and communications equipment (basically dominated by trade in telecommunications equipment) for the United States varies between 1.6 and 1.5. The elasticity for China for this same type of imports is between 2.6 and 2.4. Zimbabwe, in Africa, has an import demand elasticity of between 2.35 and 2.2, while Costa Rica an elasticity of between 3.5 and 3.3. (The second number represents the elasticity as of 2015 based on the forecast for total personal consumption expenditure.) What is clear is that there is a wide range between countries and regions and that in this case the marginal rate of growth in import demand declines, thus for each additional 1% in personal consumption the resulting import demand growth will moderate as time passes and the size of the personal consumption expenditure pool becomes larger.

An Alternative Model for Forecasting Import Demand

For many trades there is no structural model that fairly measures trade performance. This problem may affect all countries in the report-partner (importer-exporter) pair or it may be specific to a set of countries within that pair for which there is insufficient data or where the econometric specification inaccurately portrays the pattern of actual trade.⁷ For trade routes that do not meet the test of accuracy expected an alternative model specification is applied.

A Parametric Market Share Model

The trade models cover about 3600 potential routes. It is thus not surprising that there are a significant number of these cells that are relatively sparse. For trade routes where the econometric fit of the equation is weak, alternative methods are used that relate the market share of each individual partner region or country with the import demand apparent from the world as a single region. A streamlined econometric approach is used to develop the

⁷ In many cases trade has been wildly erratic swinging up and down by often more than 50%. In such cases we prefer to introduce an alternative, less dynamic, approach that relies upon the relationship between the reporter-partner country trade and the reporter-world trade. The later is estimated in all cases by an econometric model, therefore it will reflect the "general" pattern of growth in the economy as a whole and from the world in general. Specific regional detail is taken into account in the trend variables, i.e. the changing share of the partner in terms of the whole region.

alternative estimates of import demand for each specific region. This approach utilizes information drawn from the pure econometric model. To do this effectively, for each partner country in the sample of trade data, a ratio is created which is the share for each reporter country of its imports from each partner region relative to its imports from the world. By definition, the market shares sum to 1.0.

$$MS_{ijk} = \frac{M_{ijk}}{M_{iwk}},$$

$$\sum_{j=1}^J MS_{ijk} = 1.0$$

where *i* is the importer, *j* is the partner region, *k* is the commodity, and *w* is the World Market.

If we can forecast the rate of growth in MS over time then we can forecast M_p , the propensity model forecast for imports *M* from region *j* of product *k*, by multiplying MS_{ijk} by M_{iwk} . The approach that we have taken is to transform MS into a logit function so that the share approaches the asymptotic limit of unity or zero more slowly.

$$\log\left(\frac{MS_{ijkt}}{1 - MS_{ijkt}}\right) = A_{ijk} + a_1 \log\left(\frac{MS_{ijkt-1}}{1 - MS_{ijkt-1}}\right) + b_i(\text{Time}),$$

where *A* is the constant term for each *i*th importer, $\logit(MS)$ is lagged one time period, and *b_i* is the individual time trend for each logit function for each importing country / region *i*.

The import demand forecast using the propensity model is then simply the forecast for MS and the forecast for M_w . We set limits on the projected rate of growth (from the logit model) in the MS variable at plus or minus 4% per year as a further check.

$$M_{pijk} = MS_{ijkt} \cdot M_{ikw}, \text{ where } -4\% \leq \dot{MS}_{ijkt} \leq 4\%.$$

Integration of Econometric and Propensity Projections: A Self-Adjusting Forecasting Approach

Because of the large number of trade flows forecast and their interdependence, it is critical that the world trade models incorporate internal tests and limits to insure that valid, reasonable forecasts are developed. Since logarithmic forms used in the econometric models are sometimes explosive, limits are imposed in the models assuring the quality of the forecasts developed.

The testing is done through a self-contained expert system. A set of decision rules continuously check the results against past trends in trade. Whenever a preliminary flow is found to be moving erratically, an alternative, more stable, method is substituted.

Generally, we have developed a hierarchy of choices. If there are sufficient observations, then econometric models are estimated. If, however, there are insufficient degrees of freedom for accurate statistical models to be developed, then alternative, non-econometric approaches can be used. Or if the volume of trade is particularly small or erratic, then non-econometric approaches may again be favored.

If an econometric model is sufficiently accurate, as judged by the Standard Error of the base equation (an initial test for statistical accuracy), then the equation's forecasting accuracy is tested against the actual experience within the historical period. This is done in order to determine for which countries and regions forecasts based on the cross-country model should be utilized and for which countries and regions alternative, parametric, specifications need be applied.

For use in the forecast accuracy testing, an average error over the period (the cumulative average percentage deviation of the forecast from the actual) for each reporter is estimated. The pooled cross-sectional model technique allows the easy separation of each of the 70-country/region reporters once the multi-country model is estimated.

$$\varepsilon_{ijk} = \frac{\sum_{1982-1994} (M_{ijk} - \hat{M}_{ijk})}{\sum_{1982-94} M_{ijk}}, \text{ where } n = \text{number of observations for the period } 1982 - 94.$$

If the error for country *i* from region *j* for product *k* calculated over the forecast interval (1982-94) is over a pre-determined limit – MaxError – then the propensity model forecast is used in place of the econometric forecast. When the standard error for the country is less than MaxError, but greater than MinError, then the non-econometrically determined estimate of trade is used. At the present time we are using a MinError of 2% and a MaxError of 4%. A formula is used to fix the weights:

$$\text{ADJUST} = (\text{Standard Error} - \text{MinError}) / (\text{MaxError} - \text{MinError})$$

From this formula we test the Standard Error for the equation. If it is low enough, then the majority of the influence will be derived from the econometric specification. If, on the other hand, the Standard Error is closer to the MaxError then the opposite is the case.

If the standard error of the equation is less than the MinError, then only the forecast is utilized. In this case the forecast then depends solely on the econometric results.

Final Adjustment and Testing

No model produces uniformly consistent results. Forecasting is an art as much as a craft. International trade data is usually quite volatile with swings of sometimes more than 50% in either direction. It has also been growing strongly for the last fifteen years with worldwide growth in the 6% range – more than twice the rate of growth in GDP. Differences in trade flows between partners can also be dramatic. This is especially true given the large number of partners that we are taking account of in our model procedures.

To insure that the forecasts reflect reality, we have imposed limits to smooth out the peaks and troughs experienced in the forecast interval. When growth exceeds 20% (+ or -), an adjustment factor is applied to reduce the implied growth. A smaller adjustment factor is applied when the forecast trade is greater than 12% but less than 20% (+ or -).

Summary

In summary the World Trade Model specification represents a compromise between sectoral detail and regional detail. It is based on a robust statistical model specification that provides a road map for projecting past and future trends in trade. It is, however, not a substitute for careful analysis of other factors that may be at work in explaining patterns of trade. Like other statistical models it relies upon outside information to provide factual support and adjustment.

There are many other factors that influence the direction of international trade—who will be the winners and who will be the losers in the global struggle for markets and market share. Some of these factors have little to do with traditional components of a successful program to expand market. One prominent theory is that natural resources and special endowments impact the pattern of international trade. There are as many examples of how this concept fails to explain trade as there are examples of success. Sometimes the lack of natural resources encourages the expansion of trade even in sectors for which natural endowments are typically a necessary element. Government subsidies and other, non-price, factors can distort the pure theory. Moreover, improvements in transportation can mean that natural resources are less costly to move than the availability of a growing and dynamic national market that will buy at least some of the output of efficiently sized plants. Changes in technology can also alter the balance. Low cost hydropower may encourage the development of a specialty steel industry where there is no iron ore or coal or even scrap metal.

The rapid change in business investments and business strategies also impact the pattern of international commerce and business that we observe. Many trade flows are “new” representing a changing mix of inter-regional and inter-company sales. There are typically non-economic factors that drive these new relationships. And while our models can anticipate some of these, they are not capable of predicting a new trade flow or anticipating the development of new industries where old industries did not then exist. To the extent, however, that they take into account the emerging industrial pattern (as represented by the exporter’s production of a traded commodity) they can project the direction that this future growth will take.

In summary, the forecasts developed using this approach reflect the current reality—the current period’s trade, the impact of past trends in trade and DRI•WEFA’s latest forecast for macroeconomic factors that influence that trade, and thus allow the models to project future growth. Unlike more traditional trade models that rely upon time series estimates, these models are based on a more generalized approach to trade forecasting. Thus they allow for greater flexibility for individual countries and partner regions. The potential to “grow” is there so long as the general factors that have historically described that growth across the full sample of countries and over the full time period support this type of trade growth or expansion.

Data Sources

<i>Model and Data</i>	<i>Purpose</i>	<i>Output & Derivative Output</i>	<i>Sources of Data</i>	<i>Current Status</i>
World Trade Models	Market Planning, Investment and Project Feasibility Studies	Detailed trade between 70 partners by ISIC <ul style="list-style-type: none"> • Maritime Shipping Service • Air Freight Service • Ship Requirements Forecast 	OECD Trade Service C, Eurostat, National Source, and United Nations trade data.	<i>Available: 70 countries by 70 trade partners.</i>
World Industry Model	Strategic planning and Market Sizing	Industry Sales & Apparent Consumption by ISIC Sectors (64) <ul style="list-style-type: none"> • End market reports by 422 Industrial Sectors 	OECD and UN primary data, indirect purchases from national I/O models.	Available for 68 countries and 64 primary, agricultural, and service sectors – from food to telephones.
World Employment Model	Strategic planning, IT market sizing	Employment by ISIC Sectors <ul style="list-style-type: none"> • Occupational categories 	OECD, UN, BLS, and ILO data	Available for 68 countries, 64 sectors, and 7 occupational categories.
World Investment Model	Strategic planning, Market sizing	Investments by ISIC sectors Sales of capital by type of equipment to purchasing sectors (64 ISIC). <ul style="list-style-type: none"> • Capital equipment purchases by industry 	OECD and UN data. Indirect purchases from US BEA Capital Flows matrix data.	Data available, developed on demand
World Consumption Model	Strategic planning, and market sizing	Purchases by 16 consumption categories <ul style="list-style-type: none"> • Detailed consumption patterns (332 sectors) 	World Bank, National sources, and US consumption pattern data.	Available for 68 countries and 16 private consumption categories.

APPENDIX B

APPENDIX B: DRI•WEFA's Theory and Properties of the DRI-WEFA Model of the U.S. Economy

by Roger E. Brinner and Mark J. Lasky

Theoretical Approach

Econometric models built in the 1950s and 1960s were largely Keynesian income-expenditure systems that assumed a closed domestic economy. High computation costs during estimation and manipulation, along with the underdeveloped state of macroeconomic theory, limited the size of the models and the richness of the linkages of spending to financial conditions, inflation, and international developments. Since that time, however, computer costs have fallen spectacularly; theory has also benefited from four decades of postwar data observation, as well as the intellectual attention of many eminent economists.

An Econometric Dynamic Equilibrium Growth Model: The DRI-WEFA-WEFA Model of the U.S. Economy strives to incorporate the best insights of many theoretical approaches to the business cycle: Keynesian, neoclassical, monetarist, supply-side, and rational expectations. In addition, the model embodies the major properties of the long-run growth models presented by James Tobin, Robert Solow, Edmund Phelps, and others. This structure guarantees that short-run cyclical developments will converge to robust long-run equilibria.

In growth models, the expansion rates of technical progress, the labor force, and the capital stock determine the productive potential of an economy. Both technical progress and the capital stock are governed by investment, which in turn must be in balance with post-tax capital costs, available savings, and the capacity requirements of current spending. As a result, monetary and fiscal policies will influence both the short- and long-term characteristics of such an economy through their impacts on national saving and investment.

A modern model of output, prices, and financial conditions is melded with the growth model to present the detailed, short-run dynamics of the economy. In specific goods markets, the interactions of a set of supply and demand relations jointly determine spending, production, and price levels. Typically, the level of inflation adjusted demand is DRI-WEFAven by prices, income, wealth, expectations, and financial conditions. The capacity to supply goods and services is keyed to a production function combining the basic inputs of labor hours, energy usage, and the capital stocks of equipment and structures. The "total factor productivity" of this composite of tangible inputs is DRI-WEFAven by expenditures on research and development, which produce technological progress.

Prices respond to gaps between current production and supply potential, and to changes in the cost of inputs. Wages adjust to labor supply-demand gaps (indicated by a demographically adjusted unemployment rate), current and expected inflation (with a unit long-run elasticity), productivity, taxes, and minimum-wage legislation. The supply of labor positively responds to the perceived availability of jobs, to the after-tax wage level, and to the growth and age/sex mix of the population. Demand for labor is keyed to the level of output in the economy and the productivity of labor, capital, and energy. Because the capital stock is largely fixed in the

short run, a higher level of output requires more employment and energy inputs. Such increases are not necessarily equal to the percentage increase in output, because of the improved efficiencies typically achieved during an upturn. Tempering the whole process of wage and price determination is the exchange rate; a rise signals prospective losses of jobs and markets, unless costs and prices are reduced.

For financial markets, the model predicts exchange rates, interest rates, stock prices, loans, and investments interactively with the preceding GDP and inflation variables. The Federal Reserve sets the supply of reserves in the banking system and the fractional reserve requirements for deposits. Private-sector demands to hold deposits are DRI-WEFAven by household disposable income, business cash flow, expected inflation, and by the interest yield on deposits relative to that offered on alternative investments. Banks and other thrift institutions, in turn, set deposit yields based on the market yields of their investment opportunities with comparable maturities and on the intensity of their need to expand reserves to meet legal requirements. In other words, the contrast between the supply and demand for reserves sets the critical short-term interest rate for interbank transactions, the federal funds rate. Other interest rates are keyed to this rate, plus expected inflation, Treasury borrowing requirements, and sectoral credit demand intensities.

The private sector may demand money balances as one portfolio choice among transactions media (currency, demand deposits, and some savings deposits), investment media (bonds, stocks, and short-term securities), and durable assets (homes, cars, equipment, and structures). Given this range of choice, each medium's implicit and explicit yield must therefore match expected inflation, offset perceived risk, and respond to the scarcity of real savings. Money balances provide benefits by facilitating spending transactions and can be expected to rise nearly proportionately with transactions requirements, unless the yield of an alternative asset changes.

Now that even demand deposit yields can float, to a limited extent, in response to changes in Treasury bill rates, money demand no longer shifts quite as sharply when market rates change. Nevertheless, the velocity of circulation (the ratio of money demand to nominal spending) is still far from stable during a cycle of monetary expansion or contraction. The simple monetarist link from money growth to price inflation or nominal spending is therefore considered invalid as a rigid short-run proposition.

Equally important, as long-run growth models demonstrate, induced changes in capital formation can also invalidate a naive long-run identity between monetary growth and price increases. Greater demand for physical capital investment can enhance the economy's supply potential in the event of faster money creation or new fiscal policies. If simultaneous, countervailing influences deny an expansion of the economy's real potential, the model will translate all money growth into a proportionate increase in prices rather than in physical output.

"Supply-Side" Economics: Since 1980, "supply-side" political economists have pointed out that the economy's growth potential is sensitive to the policy environment. They have focused on potential labor supply, capital spending, and the savings impacts of tax rate changes. The

DRI-WEFA model embodies supply-side hypotheses to the extent supportable by available data, and this is considerable in the many areas that supply-side hypotheses share with long-run growth models. These features, however, have been fundamental ingredients of our model since 1976.

Rational Expectations: As the "rational expectations" school has pointed out, much of economic decision-making is forward looking. For example, the decision to buy a car or a home is not only a question of current affordability but also one of timing; the delay of a purchase until interest rates or prices decline has become particularly common since the mid-1970s, when both inflation and interest rates were very high and volatile. Consumer sentiment surveys, such as those conducted by the University of Michigan's Survey Research Center, clearly confirm this speculative element in spending behavior.

However, households can be shown to base their expectations, to a large extent, on their past experiences: they believe that the best guide to the future is an extrapolation of recent economic conditions and the changes in those conditions. Consumer sentiment about whether this is a "good time to buy" can therefore be successfully modeled as a function of recent levels and changes in employment, income, interest rates, and inflation. Similarly, inflation expectations (influencing financial conditions) and market strength expectations (influencing inventory and capital spending decisions) can be modeled as functions of recent rates of increase in prices and spending. We do find, however, a small but statistically significant impact of current unemployment and interest rates on consumer expectations for future price inflation.

This largely retrospective approach is not, of course, wholly satisfactory to pure adherents to the rational expectations doctrine. In particular, this group argues that the announcement of macroeconomic policy changes would significantly influence expectations of inflation or growth prior to any realized change in prices or spending. If an increase in government expenditures is announced, the argument goes, expectations of higher taxes to finance the spending might lead to lower consumer or business spending in spite of temporarily higher incomes from the initial government spending stimulus. A rational expectations theorist would thus argue that multiplier effects will tend to be smaller and more short-lived than a mainstream economist would expect.

These propositions are subject to empirical evaluation. Our conclusions are that expectations do play a significant role in private-sector spending and investment decisions; but, until change has occurred in the economy, there is very little room for significant changes in expectations prior to an actual change in the variable about which the expectation is formed. The rational expectations school thus correctly emphasizes a previously understated element of decision-making, but exaggerates its significance for economic policy-making and model building. (The "Major Sectors" section of this Overview contains additional information on DRI-WEFA's expectations research.)

The DRI-WEFA model allows a choice in this matter. On the one hand, the user can simply accept DRI-WEFA's judgments and let the model translate policy initiatives into initial changes in the economy, simultaneous or delayed changes in expectations, and subsequent

changes in the economy. On the other hand, the user can manipulate the clearly identified expectations variables in the model, i.e., consumer sentiment and inflation expectations. For example, if the user believes that fear of higher taxes would subdue spending, he could reduce the consumer sentiment index. Such experiments can be made "rational" through model iterations that bring the current change in expectations in line with future endogenous changes in income, prices, or financial conditions.

Testing Theories and Properties: The conceptual basis of each equation in the DRI-WEFA model was thoroughly worked out before the regression analysis was initiated. The list of explanatory variables includes a carefully selected set of demographic and financial inputs. Each estimated coefficient was then thoroughly tested to be certain that it meets the tests of modern theory and business practice. This attention to equation specification and coefficient results has eliminated the "short circuits" that can occur in evaluating a derivative risk or an alternative policy scenario. Because each equation will stand up to a thorough inspection, the DRI-WEFA model is a reliable analytical tool and can be used without excessive iterations. The model is not a black box: it functions like a personal computer spreadsheet in which each interactive cell has a carefully computed, theoretically consistent entry, and thus performs logical computations simultaneously.

Major Sectors

The **DRI-WEFA** model captures the full simultaneity of the U.S. economy, forecasting more than 1600 concepts spanning final demands, aggregate supply, prices, incomes, international trade, industrial detail, interest rates, and financial flows. Chart 2 and Table 1 summarize the structure of the eight interactive sectors (noted in Roman numerals). The following discussion presents the logic of each sector and its significant interactions with other sectors.

Consumer Spending: The domestic spending (1), income (11), and tax policy (111) sectors model the central circular flow of behavior as measured by the national income and product accounts. If the rest of the model were "frozen," these blocks would produce a Keynesian system similar to the models pioneered by Tinbergen and Klein, except that neoclassical price factors have been imbedded in the investment and other primary demand equations.

Consumer spending on durable goods is divided into five categories: new light vehicles (which is further subdivided into autos and light trucks); motor-vehicle parts and used vehicles; computers; household furnishings; and "other." Spending on nondurable goods is divided into five categories: food; clothing and shoes; gas; fuel oil; and "other." Spending on services is divided into eight categories: housing; transportation; three household operation subcategories; medical; financial services; and "other." In nearly all cases, real expenditures are motivated by real income and the user price of a particular category relative to the prices of other consumer goods. Durable and semidurable goods are also especially sensitive to current financing costs, real household wealth, and consumer sentiment. The University of Michigan's Survey of Consumer Sentiment monitors this last influence, with the index itself modeled as a function of lagged and expected values of inflation, unemployment, and the prime rate.

Business Investment: Business spending includes six fixed investment categories (autos-which is further subdivided between new and net used autos, office equipment, "other" producer durables, public utility structures, mining and petroleum structures, and buildings and "other" structures) and five inventory spending categories (farm, manufacturing, wholesale, retail, and "other"). Equipment and (non-utility, nonmining) structures spending components are determined by their specific real effective post-tax capital costs, and desired net stocks. The cost terms are sophisticated blends of post-tax debt and equity financing costs (offset by expected capital gains) and the purchase price of the investment good (offset by possible tax credits and depreciation-related tax benefits). This updates the well-known work of Dale Jorgenson, Robert Hall, and Charles Bischoff.

Given any cost/financing environment, the need to expand capacity is monitored by recent growth in national output weighted by the capital intensity of the industries producing each unit of output. Public utility structure expenditures are motivated by similar concepts, except that the output terms are restricted to electricity and gas utility output rather than total GDP. Net investment in mining and petroleum structures responds to movements in real domestic oil prices and to the energy demands of the economy.

Inventory demand is the most erratic component of GDP, reflecting the pro-cyclical, speculative nature of private-sector accumulation during booms and decumulation during downturns. The primary forces DRI-WEFAving the four nonfarm inventory-change categories are changes in demand for inventory-using sectors' output, the ratio of these outputs to the corresponding actual inventory stocks, surges in imports, and changes in the real price of inventories (with a negative impact). Surprise increases in demand lead to an immediate drawdown of stocks and then a rebuilding process over the next year; while the reverse naturally holds for sudden reductions in final demand. The costs of not having enough inventory are lost sales and lost production: an inventory cycle can therefore be set in motion when all firms accelerate their accumulation during a period of strong growth, but then try to deplete excessive inventories when the peak is past.

Housing: Residential construction is typically the first sector to turn down in a recession and the first to rebound in a recovery. Moreover, the magnitude of the building cycle is often the key to that of the subsequent macroeconomic cycle. This is as true today as in past decades, although changes in financial market regulation have altered this sector's behavior. Up until 1980, surges in housing were produced by "disintermediation," i.e., cyclical losses and gains of deposits at thrift institutions (which were bound by the Regulation Q deposit-yield ceiling) to alternative investment media as market interest rates rose or fell. With the removal of such ceilings, mortgage lenders-as well as home-builders and buyers-can now obtain construction funds if they are willing to pay a competitive interest rate. Buyers are thus priced out of the market by a high yield, rather than rationed out by an absence of funds.

The housing sector of the DRI-WEFA model reflects this change, explaining new construction as a decision primarily based on the after-tax cost of home-ownership relative to disposable income. This cost is estimated as the sum of the after-tax monthly mortgage payment, operating costs, property taxes, and an amortized downpayment. "Lever variables" allow the model user to specify the extent to which mortgage interest payments, property taxes, and

depreciation allowances (for rental properties) produce tax deductions that reduce the effective cost.

Due to the change in financial regulations, the equations for single- and multi-family housing are based only on data from 1978 through 1996. The equations also include a careful specification of demographic forces. After estimating the propensity for specific age/sex groups to form independent households, the resulting "headship rates" were multiplied by corresponding population statistics to estimate the trend expansion of single- and multi-family households. The housing equations were then specified to explain current starts relative to the increase in trend households over the past year, plus pent-up demand and replacement needs. The basic phenomenon being scrutinized is therefore the proportion of the trend expansion in households whose housing needs are met by current construction. The primary determinants of this proportion are housing affordability, consumer confidence, and the weather. Actual construction spending in the GDP accounts is the value of construction "put in place" during each period after the start of construction (with a lag of up to six quarters in the case of multi-family units), plus residential improvements and brokerage fees.

Single-family starts are forecasted using a two-stage model. In the first stage, new home sales are estimated using the factors mentioned above. In the second stage, housing starts depend on current and lagged new home sales, as well as on the stock of unsold new homes. That is, builders will start more homes if they sell more, but fewer homes if they have a large backlog of unsold dwellings.

Government Spending: The last sector of domestic demand for goods and services, that of the government, is largely exogenous (user-determined) at the federal level and endogenous (equation-determined) at the state and local level. The user sets the real level of federal nondefense purchases (of government employee compensation, investment, and other goods and services), defense purchases (of government employee compensation, investment, and other goods and services), non-Social Security transfer payments (Medicare, federal employee retirement, and other transfers), and medical and nonmedical grants to state and local governments. The model calculates the nominal values through multiplication by the relevant estimated prices. Social Security transfers are determined by the eligible

population and the price level. Changes in net federal interest payments are determined by changes in the debt (the current deficit) and changes in the average interest rate as debt is expanded or rolled over.

The presence of a large and growing deficit imposes no constraint on federal spending. This contrasts sharply with the state and local sector, where legal requirements for balanced budgets mean that declining surpluses or emerging deficits produce both tax increases and reductions in spending growth. State and local purchases (which are subdivided into five categories: employee compensation, consumption of fixed capital, "other" consumption, construction, and purchases of equipment) are also DRI-WEFAven by the level of federal grants (due to the matching requirements of many programs), population growth, and trend increases in personal income.

Income: Domestic spending, adjusted for trade flows, defines the economy's value-added or gross national product (GNP) and gross domestic product (GDP). Because all value-added must accrue to some sector of the economy, the expenditure measure of GNP also determines the nation's gross income. The distribution of income among households, business, and government is determined in sectors I and III of the model.

Pre-tax income categories include private and government wages, corporate profits, interest, rent, and entrepreneurial returns. Each pre-tax income category except corporate profits is determined by some combination of wages, prices, interest rates, debt levels, and capacity utilization or unemployment rates. In some cases, such as wage income, these are identities based on previously calculated wage rates, employment, and hours per week.

Profits are logically the most volatile component of GNP on the income side. When national spending changes rapidly, the contractual arrangements for labor, borrowed funds, and energy imply that the return to equity holders is a residual that will soar in a boom and collapse in a recession. The model reflects this by calculating wage, entrepreneurial, interest, and rental income as near-identities (e.g., wages equal average earnings multiplied by hours worked) and then subtracting each non-profit item from national income to solve for profits.

Taxes: Since post-tax rather than pre-tax incomes DRI-WEFAve expenditures, each income category must be taxed at an appropriate rate; the model therefore tracks personal, corporate, payroll, and excise taxes separately. Users may set federal tax rates; tax revenues are then simultaneously forecasted as the product of the rate and the associated pre-tax income components. However, the model automatically adjusts both the effective average personal tax rate for variations in inflation and income per household and the effective average corporate rate for credits earned on equipment, utility structures, and R&D. Substitutions or additions of "flat" taxes and value-added taxes for existing taxes are accomplished with specific tax rates and levers. As appropriate, these are aggregated into personal, corporate, or excise tax totals.

With the exception of corporate profits and social insurance tax rates, state taxes are fully endogenous; the model makes reasonable adjustments automatically to press the sector toward the legally required approximate budget balance. The average personal tax rate rises with income and falls with the government operating surplus. Property and sales taxes provide the bulk of state indirect tax revenue, and reflect changes in oil and natural gas production, gasoline purchases, and retail sales, as well as revenue requirements. The feedback from expenditures to taxes and taxes to expenditures works well in reproducing both the secular growth of the state and local sector and its cyclical volatility.

International: The international sector (IV) is a critical, fully simultaneous block that can either add or divert strength from the central circular flow of domestic income and spending. Depending on the prices of foreign output, the U.S. exchange rate, and competing domestic prices, imports capture varying shares of domestic demand. Depending on similar variables, world trade openness, and the level of world consumption and investment, exports can add to spending on U.S. production. The exchange rate itself responds to international differences in price levels, interest rates, trade deficits, and capital flows between the United States and its

competitors. In preparing forecasts, DRI-WEFA's U.S. Economic Service and its World Service collaborate in determining internally consistent trade prices and volumes, exchange rates, and interest rates.

Services and eight categories of goods are separately modeled for both imports and exports. For example, export and import detail for business machines is included as a natural counterpart to the inclusion of the office equipment component of producers' durable equipment spending. The business machines detail allows more accurate analysis because computers are rapidly declining in effective quality-adjusted prices relative to all other goods, and because such equipment is rising so rapidly in prominence as businesses push ahead with new production and information-processing technologies.

Investment income flows are also explicitly modeled. The stream of huge current account deficits incurred by the United States during the 1980s and so far in the 1990s, and the prospects for continuing large deficits in the years ahead, have important implications for the U.S. investment income balance. As current account deficits accumulate, both the U.S. net international investment position and the U.S. investment income balance deteriorate. U.S. foreign assets and liabilities are therefore included in the model, with the current account deficit determining the path of the net investment position.

The reactions of overseas prices, interest rates, and GDP to U.S. development are robust and automatic. In the case of a dollar depreciation, for example, U.S. activity may expand at the expense of foreign activity and U.S. inflation may rise while the rate in other countries slows.

Financial: The use of a detailed financial sector (V), and of interest rate and wealth effects in the spending equations, recognizes the importance of credit conditions on the business cycle and on the long-run growth prospects for the economy. Interest rates—the key output of this sector—are modeled as a term structure, pivoting off the federal funds rate.

With regard to the federal funds rate, model users have three options at their discretion: 1) completely exogenizing the funds rate to a selected path; 2) allowing the funds rate to follow a historically estimated "reaction function" that models typical Federal Reserve reactions to variations in inflation and unemployment; or 3) setting nonborrowed reserves to the banking system exogenously, and then letting the funds rate respond to banking system pressures, given the contrast of deposit demand-DRI-WEFA's required reserves versus Fed-supplied nonborrowed reserves.

The first option, an exogenous path of the funds rate, may be a good choice if the user has strong opinions about near-term policy actions or if the user wants to freeze rates across alternative fiscal policy scenarios. The second option, the reaction function, is a good choice for forecasting "normal" Fed selections of rates to pursue inflation and unemployment objectives. DRI-WEFA has found remarkable stability in Federal Reserve reactions from 1972 through 1996; the only material outliers are unusual generosity during the Miller era, followed by greater-than-average reactions to the economy in the Volcker era.

The third option, setting nonborrowed reserves, is a more traditional choice for impact or "multiplier" analyses. As noted earlier, in this mode, short-term interest rates depend upon the balance between the demand and supply of reserves to the banking system and upon the prevailing rate of inflation. The supply of reserves is the principal exogenous monetary policy lever within the model, reflecting the Federal Reserve's open market purchases or sales of Treasury securities. Banks and other thrift institutions demand reserves to meet the reserve requirements on their deposits and the associated (exogenous) fractional reserve requirements. The private sector in turn demands deposits of various types, depending on current yields, income, and expected inflation.

In any of these modes, longer-term interest rates are DRI-WEFAven by shorter-term rates, as well as by factors affecting the slope of the yield curve. In the DRI-WEFA model, such factors include inflation expectations, government borrowing requirements, the term structure of federal debt outstanding, and corporate financing needs. The expected real rate of return varies over time and across the spectrum of maturities. An important goal of the DRI-WEFA model's financial sector is to capture both the persistent elements of the term structure and to interpret changes in this structure. Twenty-five interest rates are covered in order to meet client needs regarding investment and financial allocation strategies.

Inflation: Inflation (VI) is modeled as a carefully controlled, interactive process involving wages, prices, and market conditions. Equations embodying a near-accelerationist point of view produce substantial secondary inflation effects from any initial impetus, such as a change in wage demands or a rise in foreign oil prices. Unless the Federal Reserve expands the supply of credit, real liquidity is reduced by any such shock; given the real-financial interactions described above, this can significantly reduce growth. The process also works in reverse: a spending shock can significantly change wageprice prospects and then have important secondary impacts on financial conditions. Inspection of the simulation properties of the DRI-WEFA model (including full interaction among real demands, inflation and financial conditions) confirms that the model has moved toward the central positions in the controversy between fiscalists and monetarists, as well as in the debates among neoclassicists, institutionalists, and "rational expectationists."

The principal domestic cost influences are labor compensation, nonfarm productivity (output per hour), and foreign input costs; the latter are DRI-WEFAven by the exchange rate, the price of oil, and foreign wholesale price inflation. Excise taxes paid by the producer are an additional cost fully fed into the pricing decision. This set of cost influences DRI-WEFAves each of the 18 industry-specific producer price indexes, in combination with a demand pressure indicator and appropriately weighted composites of the other 17 producer price indexes. In other words, the inflation rate of each industry price index is the reliably weighted sum of the inflation rates for labor, energy, imported goods, and domestic intermediate goods, plus a variable markup reflecting the intensity of capacity utilization or the presence of bottlenecks. If the economy is in balance-with an unemployment rate near 6%, manufacturing capacity utilization steady near 80-85%, and foreign influences neutral-then prices will rise in line with costs, and neither will show signs of acceleration or deceleration.

Similarly, the inflation rate of each final demand price index is a reliably-weighted sum of the inflation rates of labor, energy, imported goods, and domestic intermediate goods. The relative weights on imported goods and domestic intermediate goods are allowed to change over time with the growing openness of the U.S. economy. In some cases, most notably construction, price inflation is also influenced by the rate of demand growth.

Supply: The first principle of the market economy is that prices and output are determined simultaneously by the factors underlying both demand and supply. As noted above, the "supply-siders" have not been neglected in the DRI-WEFA model; indeed, substantial emphasis on this aspect of the economy (VII) was incorporated as early as 1976.

In the DRI-WEFA model, aggregate supply (or potential GDP excluding the energy sector) is estimated by a Cobb-Douglas production function that combines factor input growth and improvements in total factor productivity. Factor input equals a weighted average of energy, labor and fixed capital (outside the energy-producing sector), and public infrastructure. Based upon each factor's historical share of total input costs, the elasticity of private nonresidential potential output with respect to non-energy labor is 0.62 (i.e., a 1.0% increase in the labor supply increases potential GNP 0.62%); the non-energy business capital elasticity is 0.27; the energy elasticity is 0.08; and the infrastructure elasticity is 0.02.

Factor supplies for the non-energy sector are defined by estimates of the full-employment labor force, the full Hours Worked per Week, employment capital stock net of pollution abatement equipment, domestic energy usage, and the stock of infrastructure. Total factor productivity depends upon the stock of research and development capital and trend technological change (Chart 3). The energy sector employs its own capital and labor. Potential GDP is the sum of potential private nonresidential output, general government, and housing, less energy imports.

Taxation and other government policies influence labor supply and all investment decisions, thereby linking tax changes to changes in potential GDP. An expansion of potential GDP first reduces prices and then credit costs, thus spurring demand. Demand rises until it equilibrates with the potential output. Therefore, the growth of aggregate supply is the fundamental constraint on the long-term growth of demand.

Inflation, created by demand that exceeds potential GDP or by a supply-side shock or excise tax increase, raises credit costs and weakens consumer sentiment, thus putting the brakes on aggregate demand.

Expectations: The contributions to the model and its simulation properties from the rational expectations school are as rich as the data will support. Expectations (Sector VIII) affect several expenditure categories in the DRI-WEFA model, but the principal nuance relates to the entire spectrum of interest rates. In earlier versions of the model, shifts in price expectations or the expected capital needs of the government (predicated on policy changes) were measured indirectly through a volatility index that appropriately altered the term structure. In the current version of the model, these influences are captured directly through price expectations and budget deficit terms, with the former affecting the level of interest rates

throughout the maturity spectrum, and the latter influencing intermediate and long-term rates, and thus affecting the shape of the yield curve. On the expenditure side, inflationary expectations affect consumption via consumer sentiment, while growth expectations affect business investment.

During construction of the 97A version of the DRI-WEFA model, we pursued substantial research regarding the formation of inflation expectations and the impact of these expectations on interest rates. Specifically, we examined the University of Michigan's time series on mean and median expected inflation and the role it might directly play in the new model.

With regard to the formation of expectations, we found that we could indeed very successfully model the Michigan time series of median expectations for their 500 households: expected consumer price inflation over the next year closely matched the momentum of inflation (estimated as a polynomial distributed lag of prior CPI inflation), plus expected adjustments to this momentum DRI-WEFAven by the levels of unemployment and the federal funds rate (as a public indication of Federal Reserve policy) (Table 2). Lagged inflation carried a coefficient very close to unity (a 0.95 cumulative coefficient, with a standard error of only 0.06 and a mean lag of 3 quarters) and is clearly the dominant factor explaining expectations. In addition, each percentage-point boost in the unemployment rate cut expected inflation by 0.5 point; each percentage-point boost in interest rates cut expected inflation by 0.2 point.

These estimated characteristics of the American public are remarkably close to the properties of the DRI-WEFA model. The unemployment coefficient in the wage equation is -0.48. The simulated impact of tighter credit reveals about a 0.25-point cut in inflation one year after an interest rate boost. We regard these results as a vindication of both the traditional DRI-WEFA model and of a well-implemented rational expectations approach. That is, a rational individual understands that inflation has substantial momentum, but that this momentum will shift in response to market slack or policy action. We also tested "perfect" forward-looking expectations. We did so by including actual inflation over the next year as an additional explanatory variable in the equation just described. It attracted a coefficient of only 0.17, albeit with a low 0.03 standard error, hence a t-statistic of 6.00. The overall regression standard error fell from 0.42 to 0.34. The coefficients for lagged inflation and current interest rates fell slightly with the introduction of this added, perfect-forecast variable.

Given these interesting results, we intensely explored the idea of replacing implicit price expectations terms within the wage, interest rate, and other key Model equations with the explicit Michigan survey values. However, when we tested such substitutions, the equations' explanatory powers were too often slightly weakened. Apparently, the Michigan series is not a sufficiently perfect measure of either labor or financial market inflation expectations to match the implicit expectations captured by the traditional set of lagged inflation, unemployment, and other variables. We will continue to pursue this avenue of research in ongoing, experimental versions of the DRI-WEFA model because we appreciate the utility of an explicit measure in a wide range of policy scenarios and theoretical investigations, but we did not include it in this first 1997 version. We will also seek a solution algorithm to include forward-looking inflation without unduly slowing down forecasting and policy simulation analysis.

Production: The size of the chain-type equations used to aggregate total industrial production from its detailed components and the need to incorporate relative price variables in order to accomplish this aggregation expands the model to a size where it exceeds limitations imposed by Windows 3.1. So, the 97A version of the DRI-WEFA model is composed of two pieces. The core model contains everything except manufacturing industrial production, the employment detail, and supporting relative price variables. Manufacturing capacity utilization and total establishment employment are in the core model. The industry model contains all of the core model variables as exogenous variables, as well as manufacturing industrial production and the employment detail.

The industrial production sector includes 80 standard industrial classifications (SIC). At the finest level of detail, each industry's production is a function of various cyclical and trend variables and a "generated" output term—an index of demand for that industry's output, constructed using coefficients derived from the input-output (1-0) table. Inter-industry demand is measured using the industrial production or generated output of customer industries, while final demand is represented by the relevant categories of GDP, with imports as a negative number. Each generated output is constructed using chain-type aggregation. Inventory change is not included in generated output, but instead enters the industrial production equations directly. The trend variables correct for changes in 1-0 coefficients that are implied by the shifting relationships between buyers and sellers. Broader industrial production indexes are created using chain-type aggregation.

This structure guarantees a reliable transformation from the basic final demand indicators into detailed, market specific production indicators. The industry portion of the model performs these calculations automatically, delivering immediately useful information for government policy analysis and business planning with minimal additional effort by the user. The industry portion of the model also contains industry employment detail, which is forecasted using the industrial production variables and the generated outputs of nonmanufacturing industries as DRI-WEFAvers.

Core Quantitative Properties

To demonstrate the interrelationships of the sectors and their responses to traditional policy initiatives, two basic policy changes were introduced into simulations of the 1998-2005 trend outlook: fiscal restraint and, alternatively, monetary restraint.

The fiscal package is a 5% federal spending reduction and 5% tax increase: all key real federal government purchases of goods and services, transfer payments to individuals, and state grant-in-aid programs were reduced to 95% of their trend forecast trajectories; the key federal tax rates (personal income, corporate profit, and payroll) were increased to 105% of their trend settings.

The monetary restraint package was constructed by cutting nonborrowed reserves (attributable to Federal Reserve sales of Treasury securities in the open market) to 88% of the trend settings. To avoid an extreme jolt, this was phased in linearly over five quarters. The 12%

sustained reduction in reserves was scaled to have, on average, the same full model impact on real GDP for the first four years of the simulations as the fiscal policy shock simulation.

The "cross-policy" effects are substantial. For example, pure monetary restraint raises real federal spending (interest costs and unemployment benefits) and substantially cuts federal tax receipts (lower nominal GNP and particularly weak profits). These impacts on the deficit are much greater than the savings from generally lower inflation. As a result, within two years, the credit restraint raises the federal government's annual deficit by \$91 billion. Fiscal restraint, on the other hand, produces a significant reduction in interest rates even though the Federal Reserve is presumed not to have increased the supply of reserves to the banking system through open market purchases of Treasury securities. Interest rates fall because private demand slackens, not because central bank provision of liquidity was presumed to increase. Moreover, the public's demand for money (often mistakenly referred to as "the money supply") is reduced (without any Fed action to change banking reserves), because the weaker income and spending discourages usage of currency and checks to a greater extent than the lower interest rates encourage such usage.

A switch to either restrictive monetary or fiscal policy produces a clear cycle in the economy (Chart 613). The peak impacts of the fiscal shock occur eight quarters after the policy change, while the peak impact of the monetary shock occurs in the 12th quarter. As summarized in Tables 3A and 313, the successive annual real GDP losses in the fiscal simulation are -1.4%, -2.3%, and -2.3% in the first three years, versus -1.1%, -1.9%, -2.0% in the credit simulation. By year five, the cost has been cut to 1.0% in the fiscal shock, but is sustained at 1.9% in the credit shock. By year eight, real GDP is a full 1% higher in the fiscal restraint case, but still 1% lower in the credit case, reflecting substantial differences in capital formation, and hence potential real GDP.

Recall that by construction of the experiments, both have the same magnitude, on average, over the first four years. There are notable short-term differences in the sectoral responses, however (Chart 6C and Table 3C). That is, the relative strength of specific GDP components is quite sensitive to the type of policy restriction.

Fiscal restraint has sharp and immediate negative impacts on consumption and imports; investment initially drops due to weaker output, but then recovers strongly in response to lower interest rates. Housing is first trimmed modestly due to lower income, but then leads the way to a general recovery in response to lower interest rates. Inflation is reduced slightly as the gains from weaker labor and product markets are offset by the costs of a lower exchange rate. The exchange rate declines as U.S. interest rates fall more than foreign rates.

Monetary restraint significantly curbs all sectors, with housing, business capital spending, and exports bearing the greatest burdens. Inflation drops in response to weaker demand, as well as a stronger foreign exchange value of the dollar (which peaks by the 10th quarter). Imports remain lower as weaker demand growth offsets the stronger dollar. By the eighth quarter (1999:4), nominal GDP is 2.6% lower, with less than one-third of this reduction due to lower prices (down 0.8%) and two thirds due to lower output (down 1.8%). The lower spending level implies nominal money and credit demand reductions that are roughly proportional to

the initial credit supply restraint; interest rates can therefore retreat back toward baseline levels and the real economy begins to bounce back. The gap between output in the baseline and monetary-restraint cases is cut in half by year eight (2005). Further gains are limited, however, because the loss of capital formation implies a potential GDP loss of a slightly larger size than the actual GDP loss at this point. Employment returns to its original level, but with lower productivity.

These patterns only partially support monetarist conclusions that real output losses due to monetary policy restraint--or gains due to monetary policy stimulus--are transitory, and that the price level will drop by about the same percentage as the decline in the nominal supply. Indeed, these findings are consistent with neoclassical growth models, in that capital formation losses will occur and imply persistent real production restraints, hence permanent real income losses.

The monetary restraint simulation also provides some suggestive insights into the dynamics created by a supply shock such as a value-added tax introduction or increase. The price level shock created by excise tax increases reduces real liquidity in the economy in a manner quite similar to monetary restraint, except that the real liquidity has been reduced by a price level increase rather than a nominal reserve decrease. Reduced real reserves and higher inflation boost short-term real and market interest rates. These begin a recessionary cycle affecting all spending and capital formation. To the extent the Federal Reserve offsets the price shock with extra nominal reserves, the real premium in rates is reduced and the recessionary cycle moderated. The cost, however, is a higher long-run price level.

An important goal of the DRI-WEFA model is the provision of policy insights and guidance. These two experiments clearly show that restrictive monetary policy is the strategy of last resort for slowing the economy, even if inflation is the highest-priority problem. The long-term consequences of restricted credit growth are clearly adverse: business investment and housing are significantly weaker, entailing a permanent reduction in the nation's capital stock, labor productivity, and living standards. Also important is the real appreciation of the dollar, leading to lost exports. The best cure for inflation is a carefully targeted reduction in federal spending, not only because such restraint cools the economy in the short term, but also because it eventually boosts the long-run supply potential of the economy. Even if the economy is in cyclical balance, policy adjustments may still be in order. In other words, even if full employment and low inflation prevail, long-run performance can be improved by policy adjustments that simultaneously ease credit and reduce government consumption spending. Such a mix of monetary stimulus and targeted fiscal restraint will not affect current employment or inflation: the short-run effects would be offsetting. But both would work to increase capital formation and raise productivity, thus permitting higher income and employment with the same level of price inflation.

Appendix C: Specific Sources of Data and Other References

Asia

China

China Statistical Yearbook.
China Statistical Information & Consultancy Service Center
Customs General Administration of China
People's Bank of China
Shanghai Securities Exchange
Shenzhen Stock Exchange

Hong Kong

Hong Kong Census and Statistics Department
Hong Kong Futures Exchange
Hong Kong Investment Fund Association
Hong Kong Monetary Authority
Hong Kong Rating and Evaluation Department
Hong Kong Stock Exchange
Hong Kong Tourism Association

Korea

National Statistics Office
Bank of Korea
Korea Automobile Manufacturers Association
Korea Foreign Trade Association
Korea National Tourism Corp
Korea Stock Exchange
Ministry of Labor

Taiwan

Directorate-General of Budget, Accounting and Statistics (BAS)
Central Bank of China
Department of Statistics
Ministry of Transportation and Communications
Taiwan Stock Exchange

Europe

United Kingdom

Bank of England
Office of National Statistics (ONS)
HBOS plc Group
DTLR –Department of Transport, Local Government, and the Regions

DTI Enquiry Unit, Department of Trade and Industry.
CBI Confederation of British Industries.

Germany

Deutsche Bundesbank (DBB)
Statistisches Bundesamt (STBA)
Statistischer Informationsservice,
IFO Institut
Bundesanstalt für Arbeit

France

INSEE
Chambre de Commerce et D'industrie de Paris
Ministère de l'Économie, des Finances et de l'Industrie
Banque de France
Direction de la Communication, Service relations
Direction régionale du Travail, de l'Emploi et de la Formation professionnelle CENTRE

Italy

Banca d'Italia Servizio Studi - Divisione Biblioteca e Pubblicazioni
ISTAT
Ufficio Italiano dei Cambi (UIC)
ISAE

Americas

Venezuela

Banco Central de Venezuela
Veneconomy
Central Office of Statistics and Information (OCEI)
International Monetary Fund

Ecuador

Banco Central del Ecuador
International Monetary Fund

Chile

Banco Central de Chile
Instituto Nacional de Estadísticas (INE)
Federation of Chilean Industry (SOFOFA)
International Monetary Fund
Reuters America, Inc

United States

U.S. Department of Commerce
U.S. Bureau of Labor Statistics
U.S. Treasury

U.S. Department of Housing and Urban Development
U.S. Bureau of Economic Analysis

Canada:

Bank of Canada
Statistics Canada-
Economic Division
Labor Division

DRI-WEFA also has an extensive network of proprietary national and international databases which are linked to the major financial institutions of the world.

Other publications by DRI-WEFA used for this report include:

- World Economic Outlook, DRI-WEFA.
- Industrialized Countries Monthly Monitor, DRI-WEFA.
- Middle East and Africa Economic Outlook, DRI-WEFA.
- Asia Monthly Monitor, DRI-WEFA.
- Latin America Economic Outlook, DRI-WEFA.
- Latin America Monthly Monitor, DRI-WEFA.
- Industrial Analysis Service Monthly Monitor, DRI-WEFA.
- Emerging Europe Economic Outlook, DRI-WEFA.
- Foreign Exchange Rate Outlook, DRI-WEFA.
- U.S Agriculture and World Trade Long Term Forecast and Analysis, DRI-WEFA.
- World Car Industry Forecast and Analysis, DRI-WEFA.
- International Livestock Market Report, DRI-WEFA.
- Canadian Provincial Economic Outlook and Forecast Tables, DRI-WEFA.

APPENDIX D: World Trade Service Countries and Regions

<u>Number</u>	<u>Code</u>	<u>Definition</u>
1	US	United States
2	CA	Canada
3	JA	Japan
4	GF	Germany
5	FR	France
6	UK	United Kingdom
7	IT	Italy
8	AU	Austria
9	BE	Belgium
10	DE	Denmark
11	FN	Finland
12	GR	Greece
13	IL	Ireland
14	NE	Netherlands
15	NO	Norway
16	PG	Portugal
17	SP	Spain
18	SW	Sweden
19	SZ	Switzerland
20	TK	Turkey
21	OWE	Other Western Europe
22	RU	Russia
23	BLT	Baltics
24	CSW	CIS West
25	CSE	CIS Southeast
26	PO	Poland
27	CZ	Czech Republic

28	SK	Slovak Republic
29	HU	Hungary
30	RO	Romania
31	BU	Bulgaria
32	AT	Australia
33	NZ	New Zealand
34	CH	China
35	TW	Taiwan
36	HK	Hong Kong
37	KO	South Korea
38	IN	Indonesia
39	PH	Philippines
40	SG	Singapore
41	MA	Malaysia
42	TH	Thailand
43	VT	Vietnam
44	ID	India
45	PK	Pakistan
46	OID	Other Indian Subcontinent
47	VZ	Venezuela
48	BZ	Brazil
49	AR	Argentina
50	OEL	Other East Coast of S. America
51	CO	Colombia
52	PE	Peru
53	CL	Chile
54	OWL	Other West Coast of S. America
55	MX	Mexico
56	CRB	Caribbean Basin
57	OCL	Other Central America
58	IS	Israel
59	SI	Saudi Arabia

60	EM	United Arab Emirates
61	OPG	Other Persian Gulf
62	OMD	Other Mediterranean Region
63	EG	Egypt
64	ONF	Other North Africa
65	KY	Kenya
66	OEF	Other East Africa
67	WAF	Western Africa
68	SA	South Africa
69	OSF	Other Southern Africa
70	OWW	Other Region

List of Country – Region Groupings

Country	PCA_Cty/RegionCode	PCA_Country/Region Description	PCA_Region	PCA_AggRegName
Argentina	AR	Argentina	EL	Latin America East Coast
Austria	AT	Austria	EU	Europe
Australia	AU	Australia	OC	Oceania
Christmas Island	AU	Australia	OC	Oceania
Cocos (Keeling) Islands	AU	Australia	OC	Oceania
Nauru	AU	Australia	OC	Oceania
Norfolk Island	AU	Australia	OC	Oceania
Belgium-Lux	BE	Belgium	EU	Europe
Bulgaria	BG	Bulgaria	EU	Europe
Bolivia	BO	Bolivia	WL	Latin America West Coast
Brazil	BR	Brazil	EL	Latin America East Coast
Canada	CA	Canada	CA	Canada
Antigua and Barbuda	CB	Caribbean Basin	CC	Central America and Caribbean Basin
Bahamas	CB	Caribbean Basin	CC	Central America and Caribbean Basin
Barbados	CB	Caribbean Basin	CC	Central America and Caribbean Basin
Bermuda	CB	Caribbean Basin	CC	Central America and Caribbean Basin
Virgin Islands (British)	CB	Caribbean Basin	CC	Central America and Caribbean Basin
Caribbean n.e.s.	CB	Caribbean Basin	CC	Central America and Caribbean Basin
Cayman Islands	CB	Caribbean Basin	CC	Central America and Caribbean Basin
Cuba	CB	Caribbean Basin	CC	Central America and Caribbean Basin
Dominica	CB	Caribbean Basin	CC	Central America and Caribbean Basin
Dominican Republic	CB	Caribbean Basin	CC	Central America and Caribbean Basin
Grenada	CB	Caribbean Basin	CC	Central America and Caribbean Basin
Guadeloupe	CB	Caribbean Basin	CC	Central America and Caribbean Basin
Haiti	CB	Caribbean Basin	CC	Central America and Caribbean Basin
Jamaica	CB	Caribbean Basin	CC	Central America and Caribbean Basin
Martinique	CB	Caribbean Basin	CC	Central America and Caribbean Basin
Montserrat	CB	Caribbean Basin	CC	Central America and Caribbean Basin
Netherland Antiles	CB	Caribbean Basin	CC	Central America and Caribbean Basin
Aruba	CB	Caribbean Basin	CC	Central America and Caribbean Basin
Saint Kitts and Nevis	CB	Caribbean Basin	CC	Central America and Caribbean Basin
Anguilla	CB	Caribbean Basin	CC	Central America and Caribbean Basin
Saint Lucia	CB	Caribbean Basin	CC	Central America and Caribbean Basin
Saint Vincent and the Grenadines	CB	Caribbean Basin	CC	Central America and Caribbean Basin
Trinidad and Tobago	CB	Caribbean Basin	CC	Central America and Caribbean Basin
Turks and Caicos Islands	CB	Caribbean Basin	CC	Central America and Caribbean Basin
Estonia	CIS	Former Soviet Union	EU	Europe
Latvia	CIS	Former Soviet Union	EU	Europe
Lithuania	CIS	Former Soviet Union	EU	Europe
Azerbaijan	CIS	Former Soviet Union	EU	Europe
Armenia	CIS	Former Soviet Union	EU	Europe

Country	PCA_Cty/RegionCode	PCA_Country/Region Description	PCA_Region	PCA_AggRegName
East Europe, NEC	CIS	Former Soviet Union	EU	Europe
Georgia	CIS	Former Soviet Union	EU	Europe
Kazakstan	CIS	Former Soviet Union	EU	Europe
Kyrgyzstan	CIS	Former Soviet Union	EU	Europe
Tajikistan	CIS	Former Soviet Union	EU	Europe
Turkmenistan	CIS	Former Soviet Union	EU	Europe
Uzbekistan	CIS	Former Soviet Union	EU	Europe
Belarus	CIS	Former Soviet Union	EU	Europe
Republic of Moldova	CIS	Former Soviet Union	EU	Europe
Slovenia	CIS	Former Soviet Union	EU	Europe
Ukraine	CIS	Former Soviet Union	EU	Europe
Russian Federation	CIS	Former Soviet Union	EU	Europe
Chile	CL	Chile	WL	Latin America West Coast
China	CN	China	EA	East Asia
Colombia	CO	Colombia	WL	Latin America West Coast
Costa Rica	CR	Costa Rica	CC	Central America and Caribbean Basin
Czech Republic	CS	Czech Republic and Slovakia	EU	Europe
Slovakia	CS	Czech Republic and Slovakia	EU	Europe
Germany	DE	Germany	EU	Europe
Denmark	DK	Denmark	EU	Europe
Faeroe Islands	DK	Denmark	EU	Europe
Kenya	EAF	Eastern Africa	AF	Africa and Middle East
Ethiopia	EAF	Eastern Africa	AF	Africa and Middle East
Eritrea	EAF	Eastern Africa	AF	Africa and Middle East
Djibouti	EAF	Eastern Africa	AF	Africa and Middle East
Somalia	EAF	Eastern Africa	AF	Africa and Middle East
Sudan	EAF	Eastern Africa	AF	Africa and Middle East
Uganda	EAF	Eastern Africa	AF	Africa and Middle East
United Republic of Tanzania	EAF	Eastern Africa	AF	Africa and Middle East
Ecuador	EC	Ecuador	WL	Latin America West Coast
Spain	ES	Spain	EU	Europe
Finland	FI	Finland	EU	Europe
France	FR	France	EU	Europe
Greece	GR	Greece	EU	Europe
Hong Kong (Special Administrative Region of China)	HK	Hong Kong	EA	East Asia
Hungary	HU	Hungary	EU	Europe
India	IA	India	SA	South and Southeast Asia
Indonesia	ID	Indonesia	SA	South and Southeast Asia
East Timor	ID	Indonesia	SA	South and Southeast Asia
Ireland	IE	Ireland	EU	Europe
Israel	IL	Israel	AF	Africa and Middle East
Italy	IT	Italy	EU	Europe
Japan	JP	Japan	EA	East Asia
Republic of Korea	KR	South Korea	EA	East Asia
Albania	MED	Mediterranean	AF	Africa and Middle East
Bosnia and Herzegovina	MED	Mediterranean	AF	Africa and Middle East

GLOBAL MACROECONOMIC AND TRADE SCENARIO VOLUME I
Most Probable Scenario

Country	PCA_Cty/RegionCode	PCA_Country/Region Description	PCA_Region	PCA_AggRegName
Croatia	MED	Mediterranean	AF	Africa and Middle East
Cyprus	MED	Mediterranean	AF	Africa and Middle East
Gibraltar	MED	Mediterranean	AF	Africa and Middle East
Jordan	MED	Mediterranean	AF	Africa and Middle East
Lebanon	MED	Mediterranean	AF	Africa and Middle East
Malta	MED	Mediterranean	AF	Africa and Middle East
Syrian Arab Republic	MED	Mediterranean	AF	Africa and Middle East
The Former Yugoslav Rep. of Macedonia	MED	Mediterranean	AF	Africa and Middle East
Yugoslavia	MED	Mediterranean	AF	Africa and Middle East
Mexico	MX	Mexico	CC	Central America and Caribbean Basin
Malaysia	MY	Malaysia	SA	South and Southeast Asia
Egypt	NAF	Northern Africa	AF	Africa and Middle East
Algeria	NAF	Northern Africa	AF	Africa and Middle East
North Africa n.e.s.	NAF	Northern Africa	AF	Africa and Middle East
Libyan Arab Jamahiriya	NAF	Northern Africa	AF	Africa and Middle East
Morocco	NAF	Northern Africa	AF	Africa and Middle East
Tunisia	NAF	Northern Africa	AF	Africa and Middle East
Netherlands	NL	Netherlands	EU	Europe
Norway	NW	Norway	EU	Europe
Cook Islands	NZ	New Zealand	OC	Oceania
Oceania n.e.s.	NZ	New Zealand	OC	Oceania
New Zealand	NZ	New Zealand	OC	Oceania
Niue	NZ	New Zealand	OC	Oceania
Tokelau	NZ	New Zealand	OC	Oceania
Belize	OCLA	Other Central America	CC	Central America and Caribbean Basin
El Salvador	OCLA	Other Central America	CC	Central America and Caribbean Basin
Guatemala	OCLA	Other Central America	CC	Central America and Caribbean Basin
Honduras	OCLA	Other Central America	CC	Central America and Caribbean Basin
Central American Common Market (CACM) n.e.s.	OCLA	Other Central America	CC	Central America and Caribbean Basin
Nicaragua	OCLA	Other Central America	CC	Central America and Caribbean Basin
Falkland Islands (Malvinas)	OELA	Other East Coast of South America	EL	Latin America East Coast
French Guiana	OELA	Other East Coast of South America	EL	Latin America East Coast
French Southern and Antarctic Territories	OELA	Other East Coast of South America	EL	Latin America East Coast
Guyana	OELA	Other East Coast of South America	EL	Latin America East Coast
Latin American Integration Association (LAIA) n.e.s.	OELA	Other East Coast of South America	EL	Latin America East Coast
Paraguay	OELA	Other East Coast of South America	EL	Latin America East Coast
Rest of South America n.e.s.	OELA	Other East Coast of South America	EL	Latin America East Coast
Suriname	OELA	Other East Coast of South America	EL	Latin America East Coast
Uruguay	OELA	Other East Coast of South America	EL	Latin America East Coast
Afghanistan	OINS	Other Indian Subcontinent	SA	South and Southeast Asia

Country	PCA_Cty/RegionCode	PCA_Country/Region Description	PCA_Region	PCA_AggRegName
Bangladesh	OINS	Other Indian Subcontinent	SA	South and Southeast Asia
Bhutan	OINS	Other Indian Subcontinent	SA	South and Southeast Asia
British Indian Ocean Territory	OINS	Other Indian Subcontinent	SA	South and Southeast Asia
Sri Lanka	OINS	Other Indian Subcontinent	SA	South and Southeast Asia
Maldives	OINS	Other Indian Subcontinent	SA	South and Southeast Asia
Nepal	OINS	Other Indian Subcontinent	SA	South and Southeast Asia
British Antarctic Territory	OREG	Other Regions	SA	South and Southeast Asia
Solomon Islands	OREG	Other Regions	SA	South and Southeast Asia
Brunei Darussalam	OREG	Other Regions	SA	South and Southeast Asia
Myanmar	OREG	Other Regions	SA	South and Southeast Asia
Cambodia	OREG	Other Regions	SA	South and Southeast Asia
Fiji	OREG	Other Regions	SA	South and Southeast Asia
French Polynesia	OREG	Other Regions	SA	South and Southeast Asia
Kiribati	OREG	Other Regions	SA	South and Southeast Asia
Democratic People's Republic of Korea	OREG	Other Regions	SA	South and Southeast Asia
Lao People's Democratic Republic	OREG	Other Regions	SA	South and Southeast Asia
Macau	OREG	Other Regions	SA	South and Southeast Asia
Mongolia	OREG	Other Regions	SA	South and Southeast Asia
Neutral Zone	OREG	Other Regions	SA	South and Southeast Asia
New Caledonia	OREG	Other Regions	SA	South and Southeast Asia
Vanuatu	OREG	Other Regions	SA	South and Southeast Asia
Micronesia (Federated States of)	OREG	Other Regions	SA	South and Southeast Asia
Papua New Guinea	OREG	Other Regions	SA	South and Southeast Asia
Pitcairn	OREG	Other Regions	SA	South and Southeast Asia
Tonga	OREG	Other Regions	SA	South and Southeast Asia
Tuvalu	OREG	Other Regions	SA	South and Southeast Asia
Ship Stores and Bunkers	OREG	Other Regions	SA	South and Southeast Asia
Free Zones	OREG	Other Regions	SA	South and Southeast Asia
Special Categories	OREG	Other Regions	SA	South and Southeast Asia
Wallis and Futuna Islands	OREG	Other Regions	SA	South and Southeast Asia
Developing Market Economies in East Asia (Middle East) n.e.s.	OREG	Other Regions	SA	South and Southeast Asia
Samoa	OREG	Other Regions	SA	South and Southeast Asia
Areas n.e.s.	OREG	Other Regions	SA	South and Southeast Asia
Mauritius	OSAF	Other South Africa	AF	Africa and Middle East
Mozambique	OSAF	Other South Africa	AF	Africa and Middle East
Reunion	OSAF	Other South Africa	AF	Africa and Middle East
Seychelles	OSAF	Other South Africa	AF	Africa and Middle East
Zimbabwe	OSAF	Other South Africa	AF	Africa and Middle East
Zambia	OSAF	Other South Africa	AF	Africa and Middle East
Angola	OSAF	Other South Africa	AF	Africa and Middle East
Comoros	OSAF	Other South Africa	AF	Africa and Middle East
Madagascar	OSAF	Other South Africa	AF	Africa and Middle East
Malawi	OSAF	Other South Africa	AF	Africa and Middle East
Andorra	OWE	Other Western Europe	EU	Europe
Greenland	OWE	Other Western Europe	EU	Europe
Iceland	OWE	Other Western Europe	EU	Europe

Country	PCA_Cty/RegionCode	PCA_Country/Region Description	PCA_Region	PCA_AggRegName
EEU n.es.	OWE	Other Western Europe	EU	Europe
Other Europe n.e.s	OWE	Other Western Europe	EU	Europe
St. Pierre and Miquelon	OWE	Other Western Europe	EU	Europe
Panama	PA	Panama	CC	Central America and Caribbean Basin
Peru	PE	Peru	WL	Latin America West Coast
Bahrain	PG	Persian Gulf	AF	Africa and Middle East
Iran (Islamic Republic of)	PG	Persian Gulf	AF	Africa and Middle East
Iraq	PG	Persian Gulf	AF	Africa and Middle East
Kuwait	PG	Persian Gulf	AF	Africa and Middle East
Oman	PG	Persian Gulf	AF	Africa and Middle East
Qatar	PG	Persian Gulf	AF	Africa and Middle East
Yemen	PG	Persian Gulf	AF	Africa and Middle East
Saudi Arabia	PG	Persian Gulf	AF	Africa and Middle East
United Arab Emirates	PG	Persian Gulf	AF	Africa and Middle East
Philippines	PH	Philippines	SA	South and Southeast Asia
Pakistan	PK	Pakistan	SA	South and Southeast Asia
Poland	PL	Poland	EU	Europe
Portugal	PT	Portugal	EU	Europe
Romania	RO	Romania	EU	Europe
Sweden	SE	Sweden	EU	Europe
Singapore	SG	Singapore	SA	South and Southeast Asia
Switzerland	SZ	Switzerland	EU	Europe
Thailand	TH	Thailand	SA	South and Southeast Asia
Turkey	TR	Turkey	EU	Europe
Province of Taiwan (China)	TW	Taiwan	EA	East Asia
United Kingdom	UK	United Kingdom	EU	Europe
Northern Mariana Islands	US	United States	US	United States
Marshall Islands	US	United States	US	United States
Palau	US	United States	US	United States
United States of America	US	United States	US	United States
US Miscellaneous (Pacific)	US	United States	US	United States
Venezuela	VE	Venezuela	EL	Latin America East Coast
Viet Nam	VN	Vietnam	SA	South and Southeast Asia
Burundi	WAF	Western Africa	AF	Africa and Middle East
Cameroon	WAF	Western Africa	AF	Africa and Middle East
Cape Verde	WAF	Western Africa	AF	Africa and Middle East
Central African Republic	WAF	Western Africa	AF	Africa and Middle East
Chad	WAF	Western Africa	AF	Africa and Middle East
Congo	WAF	Western Africa	AF	Africa and Middle East
Congo, D.R.	WAF	Western Africa	AF	Africa and Middle East
Benin	WAF	Western Africa	AF	Africa and Middle East
Equatorial Guinea	WAF	Western Africa	AF	Africa and Middle East
Gabon	WAF	Western Africa	AF	Africa and Middle East
Gambia	WAF	Western Africa	AF	Africa and Middle East
Ghana	WAF	Western Africa	AF	Africa and Middle East
Guinea	WAF	Western Africa	AF	Africa and Middle East
Côte d'Ivoire	WAF	Western Africa	AF	Africa and Middle East

Country	PCA_Cty/RegionCode	PCA_Country/Region Description	PCA_Region	PCA_AggRegName
Liberia	WAF	Western Africa	AF	Africa and Middle East
Mali	WAF	Western Africa	AF	Africa and Middle East
Mauritania	WAF	Western Africa	AF	Africa and Middle East
Niger	WAF	Western Africa	AF	Africa and Middle East
Nigeria	WAF	Western Africa	AF	Africa and Middle East
Other Africa n.e.s.	WAF	Western Africa	AF	Africa and Middle East
Guinea-Bissau	WAF	Western Africa	AF	Africa and Middle East
Rwanda	WAF	Western Africa	AF	Africa and Middle East
Saint Helena	WAF	Western Africa	AF	Africa and Middle East
Sao Tome and Principe	WAF	Western Africa	AF	Africa and Middle East
Senegal	WAF	Western Africa	AF	Africa and Middle East
Sierra Leone	WAF	Western Africa	AF	Africa and Middle East
Western Sahara	WAF	Western Africa	AF	Africa and Middle East
Togo	WAF	Western Africa	AF	Africa and Middle East
Burkina Faso	WAF	Western Africa	AF	Africa and Middle East
South Africa	ZA	South Africa	AF	Africa and Middle East