I. The Institute in 2002: An Overview

The Kiel Institute for World Economics at the University of Kiel (IfW) is one of the world’s major centers for international economic policy research and documentation. The Institute’s main activities are economic research, economic policy consulting, and the documentation and provision of information about international economic relations. The Institute’s publications and services are addressed to academics in Germany and abroad as well as to decision-makers in both the public and private sector, and to those people in the general public interested in domestic and international economic policy. The Institute’s Library is one of the world’s largest libraries for economics and social sciences, and the Institute’s Economic Archives have a comprehensive collection of newspaper cuttings.

The Institute, founded by Bernhard Harms in 1914 as the Königliches Institut für Seeverkehr und Weltwirtschaft, has its roots in the Staatswissenschaftliches Seminar at the University of Kiel, which was established in 1899. In 1934, the Institute was given its present name, the Institut für Weltwirtschaft. Today the Institute is affiliated with the University of Kiel, but is still an independent institution. It is a member of the Wissenschaftsgemeinschaft Gottfried Wilhelm Leibniz (WGL), which unites those institutes and service providers that are of supraregional importance.

In the field of academic research the Institute focuses on applied economic research. The Institute engages especially in the empirical analysis of current economic policy issues, the identification and theoretical analysis of newly emerging economic phenomena, and preemptive innovative economic thinking to find new solutions to economic policy problems.

In 2002, numerous research projects were initiated, followed up, and completed. The resulting publications were presented at several international and national conferences and were published in various studies and contributions to renowned economic journals. Further, due to improved online access, the services offered by the Library, which also functions as the German National Library of Economics, and the Economic Archives were increasingly taken advantage of by both domestic and foreign users.

The Institute attributes great importance to the advanced training of economists. It offers an international postgraduate program and encourages the regular exchange of research results by hosting conferences, workshops, and guest lectures. Numerous research associates at the Institute were engaged in work on their
doctoral dissertations, some on their Habilitation. Claudia Buch and Oliver Lorz concluded their Habilitation at the University of Kiel and were awarded positions as Privatdozentin and Privatdozent at the same university. During winter term 2002/03, Oliver Lorz taught economics at the RWTH University in Aachen. Jan Krancke, Hartmut Wolf, and Holger Brauer were awarded doctorates at the University of Kiel. Jörn Kleinert and Andrea Schertler submitted their doctoral dissertations.

In 2002, several economists from the Institute were awarded prizes for their outstanding endeavors. Katrin Springer and Ludger Wößmann were awarded the Institute’s Bernhard-Harms-Förderpreis für Nachwuchswissenschaftler for their dissertations “Climate Policy in a Globalizing World: A CGE Model with Capital Mobility and Trade” and “Schooling and the Quality of Human Capital.” Katrin Springer was also granted the Fakultätspreis der Wirtschafts- und Sozialwissenschaftlichen Fakultät der Universität Kiel. Daniel Piazolo’s dissertation “The Integration Process between Eastern and Western Europe” received the Ph.D. Dissertation Award of the European Association of Comparative Economic Studies (EACES). Horst Siebert was awarded the prize entitled “Das goldene Signal” in recognition of his outstanding service in defense of the free market economy by the Arbeitsgemeinschaft Selbständiger Unternehmer (ASU).

At the end of the year, the Institute had 276 employees, 57 percent of which were female and 28 percent of which were part-time employees. Of the total, 133 employees worked in the President’s Department, the Information, Editorial, and External Relations Department, and the five research departments. 115 worked in the Library, and 28 in the Administration. At the end of 2002, the Institute employed 81 academics and 195 nonacademics, four of which were trainees.
II. Research Activities

1. Main Areas of Research

The Institute’s central area of research is the international division of labor from a static and dynamic point of view. The Institute analyzes the sectoral and spatial allocation of goods, services, and factors of production. In particular, it analyzes the endowments of countries, including their environment, the changes in these endowments over time, and the international interdependencies between monetary and fiscal policies and between business cycles of various countries. In analyzing these phenomena, special emphasis is given to the consideration of institutional settings in national as well as international terms and to the incentive and political economy systems that are part of these settings.

Research in 2002 concentrated on the following topics:

— worldwide locational competition and the effects of globalization on national goods and factor markets;
— global regulatory systems and their reforms;
— trends, causes, and consequences of the “new economy”;
— the integration of developing countries, newly industrializing countries, and transformation countries into the international division of labor and the multilateral trade order;
— the effects of international environmental and climate policies;
— the analysis of currency and financial markets and international capital flows;
— European integration, with special emphasis on its eastern enlargement and the monetary policy of the European Central Bank;
— international variation in educational performance;
— reforms of labor markets and social security systems in industrialized countries, especially in Germany;
— national and international business cycle analysis and forecasting;
— structural adjustment problems in eastern Germany;
— fiscal policy and subsidies in Germany;
— regional growth and spatial structures;
— the efficient provision of network infrastructure in transportation, telecommunications, and energy sectors.

As many of these topics were closely related to one another, the Institute’s research departments worked together on several research projects.
2. **President’s Department**

The President’s Department focused its research in 2002 on international integration, including currency crises, the competitiveness of the German economy, its system of social security, unemployment, and the new economy. The Financial Markets Research Area, though affiliated with the President’s Department, is an independent research group.

Previous research on *international integration* was continued. Particular attention was given to the analysis of important aspects of trade integration, and the established international framework in which trade integration is taking place. The analysis of causes, patterns, and consequences of international financial crises, as well as the consideration of possible mechanisms to solve such crises in the framework of the International Monetary Fund, also received considerable attention. Furthermore, a critical analysis of the arguments advanced by the so-called globalization opponents was undertaken. In particular nongovernmental organizations (NGOs) have increasingly voiced their disapproval of the intensive integration of markets. This criticism is motivated mostly by the fear that increased trade and financial market integration will necessarily entail welfare losses and lead to a loss of power of sovereign states because they are increasingly constrained in their political choices by economic necessities. However, the arguments advanced by globalization opponents often fail to take into consideration essential economic relationships and historical experiences. History has shown that attempts at economic isolation also mean abandonment of welfare gains from the international division of labor. With the exception of the Democratic Republic of Congo, all developing countries today report higher GDP per capita rates than in 1975. Population-abundant countries such as China and India have sharply reduced their relative distance from the United States in terms of economic power. Nevertheless, countries’ ability to draw benefits from the international integration of markets is subject to certain conditions.

Another important topic addressed was the *competitiveness of the German export economy*. The causes of the decrease in market share, the slump in the number of work places in the industrial sector by a total of 2.5 million during the 1990s, and the considerable increase of the share of German foreign direct investment relative to net home investment were at the center of attention. Importance was also attributed to the concentration of the German export sector on middle technology ("mittlere Technologie"), i.e., the technological dimension of competitiveness. In a number of sectors the comparative advantage measured by the RCA coefficient has significantly decreased in the past two decades. The institutional framework for innovation, such as the educational framework, seems to
favor traditional technologies. The German “research landscape” is lacking the flexibility needed for the country to take a leading role in the development of high technologies. Banks, in particular state-owned ones, dominate the German capital market. This situation has for a long time hindered young innovative entrepreneurs in obtaining the capital needed for their growth-spurring endeavors. Strict protection against wrongful dismissal in the labor market has made it even more difficult for young enterprises to react flexibly to changes in market conditions. The consequence is that comparative advantages have emerged in areas where flexibility is less important: in the area of middle technologies.

On the basis of a theoretical analysis, the determinants of pass-through pricing and pricing-to-market in international trade were investigated in order to settle the question of the extent to which German exporters can set prices on export goods according to their cost structure and of the extent to which their prices and market shares depend on the conditions prevalent in the markets of the importing countries. It seems as if German companies’ ability to pass through costs has weakened, although there are considerable differences across sectors. Sectors with relatively high expenses on R&D exhibit a higher degree of pass-through. The empirical results indicate a significant relationship between changes in the real exchange rate on a labor cost basis and import and export prices.

Emphasis was also given to the aging society and the systems of social security. The aging population will bring about far-reaching changes in the economic conditions of consumption, production, growth, investment, innovation, trade, and the electoral behavior of the society. What is at stake in the case of the social security system is the financing of the system and the incentives the system creates. Since there is a clearly diminishing marginal product of labor, the welfare state, well established in the 1970s, will no longer be able to be financed by an aging society. In particular, the pension system constitutes an unresolved problem for big continental European countries. The question has to be posed whether the social systems themselves will develop into a threat to the economic basis. The institutional setup creates incentives for behavior of individuals that is counterproductive to the aims of the system (disincentives or cobra effect).

Such disincentives in the labor market were thoroughly scrutinized. In particular, the impact of high contributions to social security as a tax on the factor labor, the role of labor market rigidities, and the influence of unemployment benefits and social assistance on the labor supply were examined. Three main points of leverage for a successful employment policy could be identified (apart from the need for increased human capital investments in order to increase labor productivity): First, the distortionary effects of the social security system on the factor labor have to be addressed by increasing the system’s efficiency and reorienting it to-
wards greater risks. Second, the equilibrium mechanism in the labor market has to be strengthened by reorganizing the institutional setup. What is involved are legal changes that give individual employers or companies in accordance with their staff the opportunity to disregard the collective contracts established by unions, such as in the case of the “Günstigkeitsprinzip.” Such approaches would allow for a greater differentiation in wage structures. Third, the demands for government subsidies have to be reduced, because the socially guaranteed minimum income has distortionary effects on the labor supply of transfer recipients, i.e., the intensity of their attempts to find employment and their willingness to take a job. On the whole, the fight against unemployment requires a new philosophy which strengthens the market forces more than has been the case so far so that an equilibrium between demand and supply on the labor market can be ensured. An important focus of the research of the department—also connected with the president’s position in the German Council of Economic Advisors—was on structural reforms aimed at reducing unemployment and creating a stronger dynamic for the economy.

Research work on the “new economy” was conducted in the context of two projects. The project on international trade of communication services: requirements for a multilateral framework and reform of the GATS was completed. The project on the economic analysis of open source software was continued, with a new focus on the analysis of incentive structures in the development of free software. The goal of this project is to model the incentives of individual developers as well as the motivation of established companies to engage in open source development and its distribution, and to identify the conditions for a market equilibrium. Building on a positive analysis of the institutional and legal framework, normative statements about the design of concrete rules (such as patent protection and copyright) that could improve the efficiency of this market are to be deduced.

A project in the field of banking regulation, which analyzed the effects of minimum capital requirements on risk, capital, and efficiency of banks, was also continued. According to the buffer theory, banks hold capital in excess of minimum capital requirements. This buffer insures banks against negative capital shocks and, thus, a potential breach of the regulation which would lead to costly interventions by supervisors. As current minimum capital requirements are risk-based, banks can also comply with regulations by lowering portfolio risk. In line with the buffer theory, empirical studies show that U.S. banks which approach the minimum capital requirements raise capital and lower risk simultaneously. In contrast, U.K. and Swiss banks raise capital, but do not adjust risk. One possible explanation for the different adjustment patterns could lie in higher costs of portfolio adjustment in Europe.
The aim of the project is to develop a theoretical framework which allows the relationship between minimum capital requirements, risk, and capital to be analyzed and assessed empirically. The theoretical part will allow adjustment costs and capital costs as determinants of banks’ risk and capital decisions to be analyzed. The empirical part focuses on German banks, for which no empirical studies exist. It will assess the question whether German banks behave in a similar way as European or U.S. banks when they approach the minimum capital requirements. Evidence for European behavior could be interpreted such that adjustment costs in Germany are high. The empirical part will be prepared in cooperation with the German Bundesbank, who will also provide the required data.

Financial Markets Research Area

The Financial Markets Research Area (headed by Claudia Buch) deals with the determinants and effects of the globalization of international financial markets. Research addresses both the determinants of financial integration from a microeconomic perspective and the impact of financial integration on the macroeconomy. On a microeconomic level, for instance, international activities of commercial banks are analyzed, and lessons concerning barriers to the integration of markets are derived. In addition, the changing structure of international capital flows is analyzed, especially with regard to changes in the financing pattern of domestic firms. An additional microeconomic research project deals with the development of venture capital markets in an international context. On a macroeconomic level, the impact of financial globalization on the volatility of the real economy and on the optimal choice of monetary policies are analyzed.

The determinants of the international activities of commercial banks were studied from different angles. The international merger activity of banks was found to be shaped both by regulations and by information cost proxies. This project will be extended to capture the risk effects of international bank mergers as well. A second project studies the determinants of the home bias in the international investment portfolios of commercial banks. Moreover, in a joint project with the research department of the Deutsche Bundesbank, Research Department I at the Institute, and the University of Kiel, microeconomic evidence on the behavior of German firms and banks abroad is being analyzed.

In addition to studying the determinants of the degree of integration of international capital markets, the Research Area is also investigating the determinants of the structure of international capital flows. It is analyzing how the structure of cross-border capital flows depends on the financing patterns of firms, and how the ongoing integration of international capital markets in turn influences exist-
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ing national differences in the financing patterns of firms. Using theoretical approaches from corporate finance, the Research Area has shown that access to different types of private international capital flows must be expected to depend on the extent to which information asymmetries and agency costs at the firm level can be limited. The Research Area plans to expand on this research by empirically studying the links between firms’ financing patterns and the structure of cross-border capital flows.

Another project is focusing on a capital market segment that has developed very dynamically in recent years. While venture capital was first used mainly in the United States, venture capital markets have also expanded considerably in many European countries. However, differences between the United States and Europe are still substantial. This project aims at explaining national differences in venture capital activity. Using a theoretical model, the hypothesis of path dependencies in venture capital markets has been developed. Path dependencies are the result of two stylized facts of venture capital finance. The first stylized fact is the accumulation of stage- and technology-specific experience of venture capitalists. The second stylized fact is the reputation building of venture capitalists, i.e., the need to build reputation in order to reduce asymmetric information and thus transaction costs between outside uninformed investors and venture capitalists. These path dependencies can explain why some countries successfully develop venture capital markets, while others experience difficulties in the development of these markets.

In order to test some of the implications of the theoretical model empirically, a panel data set of European countries has been created in order to analyze the driving forces of venture capital activity. In a first step, explanations for differences in venture capital activity discussed in recent literature, such as liquid stock markets for fast-growing firms and intensity of human capital, have been analyzed. Liquid stock markets affect positively the level of venture capital activity because venture capitalists can more easily signal their quality to other market participants such as outside investors. The intensity of human capital is an important determinant of the number of high-technology enterprises demanding venture capital. First results show that the liquidity of stock markets as a percentage of GDP as well as the intensity of human capital (approximated by the number of research and development employees as a percentage of the total labor force) affect the level of venture capital activity positively. In future work, the hypothesis of path dependencies will be tested.

A macroeconomic research project of the Financial Markets Research Area is seeking to answer the question whether the globalization and integration of international financial markets may have negative consequences for the volatility of
real economic activity. To this end, the Research Area is studying theoretically and empirically whether a link between the degree of financial openness and the degree of financial development of an economy and the volatility of output, consumption, and investment can be detected. Theoretically, the sign of this link may be either positive or negative. In general, the implications of financial market integration for macroeconomic volatility depend upon the nature of shocks and upon the macroeconomic aggregate analyzed. For example, the effects of a monetary policy shock on output tend to increase as financial markets become more integrated. In contrast, the volatility of consumption tends to be inversely linked to the degree of financial market integration. These results are backed by both traditional models of macroeconomic fluctuations in open economies and “modern” dynamic optimizing macroeconomic models of open economies. The empirical part of the research project is devoted to a detailed analysis of the impact of international financial market integration for real economic volatility. First results of this research indicate that the ongoing integration of financial markets that has taken place since the 1990s has had a dampening effect on the volatility of output.

A second macroeconomic research project is seeking to analyze the consequences that the integration of international financial markets may have for macroeconomic policies in general and for monetary policy in particular. The motivation for this research project is the observation that the effects and the effectiveness of monetary policy strategies in an open economy depend to a significant extent on the degree of international capital mobility. To analyze the impact of capital mobility on the effectiveness of monetary policy, fully micro-founded dynamic general equilibrium sticky-price models of open economies are used. Using these models, the impact of international financial market integration and also of financial market frictions on the effects of monetary policy are being analyzed. First results show that the impact of the degree of international capital mobility on the effectiveness of monetary policy depends upon the magnitude of the elasticity of substitution between goods produced at home and goods produced abroad. In particular, the effectiveness of monetary policy is an increasing function of the degree of capital mobility only if this elasticity of substitution is large enough for the Marshall–Lerner condition to be satisfied. This result is not only interesting for monetary policy makers. It is also interesting for macroeconomists because it reveals that interesting parallels between modern optimizing macroeconomic theories of open economies and traditional reduced-form theories of macroeconomic fluctuations of the Mundell–Fleming–Dornbusch type exist.
3. Growth, Structural Change, and the International Division of Labor (Research Department I)

The research agenda of the Growth, Structural Change, and the International Division of Labor Department, headed by Henning Klodt, focuses on the integration of the world economy and related structural adjustments in developed, internationally open economies. In particular, international flows of goods and production factors, the transition from the industrial economy to a service and information economy, the causes of international growth differentials, and the performance of labor markets are analyzed. Special emphasis is laid upon the impact of European integration and the design of the social security system.

In the year 2002, important research fields were the determinants of foreign direct investment and of intra-industry trade flows. Further topics were the taxation of e-business and the consequences of eastern enlargement of the EU for structural policies and for trade and migration. Several long-term projects on multinational firms, on venture-capital markets, on the transition to the new economy, and on the redesign of unemployment insurance were finished. Work on the consequences of technological change for the health care system and the microeconometric analysis of structural unemployment were continued. In all these areas the department was concerned with long-term economic development and with the implications of the ongoing integration of the world economy for economic policy.

Structural Change and Growth

The Structural Change and Growth Group (headed by Henning Klodt) finished its final report on the project The New Economy: Characteristics, Causes and Consequences. The project was carried out in cooperation with several other research groups and departments at the Institute. The Group was responsible for project coordination and for the analysis of changes in the production structure in the course of the transition to an information-based economy. It was shown that this transition has not been interrupted by the burst of the speculative bubble at stock markets, but is still going on. The number of internet users continues to rise, and modern information and communication technologies increasingly penetrate both new and old industries. Structural change towards the new economy should not be misinterpreted as a sectoral phenomenon, but rather as a fundamental transformation of production processes which eventually encompasses the whole economy.
As an important consequence of this transformation, the organizational structure and the boundaries of firms are also in motion. Hierarchical structures are increasingly being replaced by networks, and firms are striving to reduce vertical integration and to strengthen the self-responsibility of subsidiaries. Simultaneously, horizontal integration is being increased by extending the market position in core competences. In a literal sense, the typical firm of the new economy is broader and flatter than the typical firm of the old economy.

Closely related to this topic are the analyses of the Group performed on the causes and consequences of mergers and acquisitions. In their analyses of M&A activities, the Group used the DOME database heavily. DOME, which stands for Database On Mergers in Europe, has been built up by the Group in the last three years. At the end of 2002, DOME contained 1,228 merger case decisions made by the European Commission from 1990 to 1999. The database is being extended and revised continuously. In order to make this data available to other researchers as well, DOME has been placed on the Internet, at http://www.uni-kiel.de/ifw/forschung/dome.htm.

Research has focused on differences in the adjustment paths of industries to different exogenous shocks. Companies in different industries differ in the degree to which they use M&As for their adjustment to exogenous shocks. The DOME data on M&A was employed in event studies of single M&A cases to infer responses of profitability and employment growth after the completion of an M&A deal. The effects of mergers on these performance measures are often very drastic, although in aggregate not significant, because they vary greatly with regard to the size of the target company, other company-specific characteristics, and for different industries.

The Group finished a project on the Role of Multinational Enterprises in Globalization. The theoretical analyses for this project used a general equilibrium framework to explain the pattern of increasing integration of economies. This framework has been developed from theoretical models of multinational enterprises (MNEs), since MNEs play a central role in the globalization process. Because of their great importance, internationalization decisions on the company level are modeled explicitly in this framework. Companies choose between exports and production abroad to supply the foreign market. In the model, globalization, i.e., the stronger integration of economies through these channels, is driven by falling distance costs. Falling distance costs can change decisions about the optimal internationalization strategy to use.

Generally, the analysis of the complex globalization patterns calls for the use of numerical solutions. However, to make the effects even clearer, a very stylized symmetric model was solved analytically. It demonstrates the effect of falling
distance costs on the internationalization strategy. Companies opt for exports when distance costs are very high as well as when distance costs are low. However, companies might find production abroad more profitable than exports in the case of intermediate distance costs. For very high distance costs, expensive intermediate goods which by assumption have to be imported from the home country increase the price of a foreign affiliate’s good. The quantities sold are low, too low to generate enough variable profits to pay for the additional fixed costs on the plant level which are incurred by producing abroad. For very low distance costs, the per unit savings from goods produced and sold abroad are not high enough to offset the additional fixed costs on the plant level. Internationalization of production is, therefore, only profitable for intermediate distance cost levels. Exports and (potential) foreign production rise with falling distance costs.

Empirical work in this area was based upon a newly available database from the Deutsche Bundesbank. This database contains extensive information about approximately 30,000 affiliates of German companies which are surveyed annually by the Bundesbank about their foreign activities. The data are available on a micro level. A first glance at the data confirms the view that foreign activities of German companies serve mainly to seek out markets. A complementary relationship between exports and foreign activities of German MNEs was found, which contradicts the hypothesis of exports of jobs. Although the project was finished, the internationalization strategies of German companies continue to be one of the central topics on the Group’s research agenda.

The Group’s future work will follow similar lines as in the year 2002. A new emphasis will be laid upon the impact of borders and geographical distance on trade, investment, and migration.

International Economics and Structural Change

The International Economics and Structural Change Group (headed by Jürgen Stehn) started a new research project that analyzes structural adjustments stemming from intra-industry trade. According to traditional theories of intra-industry trade, structural adjustment pressures resulting from intra-industry trade are relatively weak. Since intra-industry trade, by definition, comprises trade with goods produced with similar factor intensities, factor incomes and employment structures are not affected by intra-industry trade. However, it can be assumed that an upsurge in intra-industry trade does lead to changes in factor incomes and factor structures if a large part of reciprocal trade in single product groups is based on an exchange of goods characterized by different quality levels and if the home country specializes in the production of high-quality products. The Group conducted an empirical analysis of Germany’s intra-industry trade
with its major trading partners which supported this assumption: about 70 percent of Germany’s intra-industry trade could be characterized as vertical trade driven by the exchange of quality-differentiated product varieties. Moreover, Germany has specialized in the production of high-quality products on a large scale. This research will be widened and deepened in the coming year.

Another focus of the Group was on the economic policy consequences of the recent upswing in international trade in cyberspace. A first study analyzes the various possible approaches to turnover taxation in cyberspace and shows that the main challenge posed by the new economy is to effectively cope with business-to-consumer (B2C) transborder trade in digital online goods and services. However, the traditional systems of turnover taxation that are based on the country-of-destination principle, such as the transitional system of the European Union, the sales tax system, the community principle, and the VIVAT and CVAT approaches, give rise to several surveillance, efficiency, incentive, and identification problems in taxing B2C e-commerce. This is also the case with the more innovative proposals that have been made with regard to the taxation of B2C transborder trade in digital online goods, such as the German payment flow proposal, the U.S. e-card proposal, the modified country-of-origin proposal of the EU Commission, or the bit tax proposal. As a consequence, there are only two appropriate approaches with which to deal with the special characteristics of transborder trade in cyberspace: the country-of-origin principle combined with taxation of digital goods and services at the physical location of producers, and the community principle in combination with a withholding tax (WITHVAT).

Under the country-of-origin principle, exports are taxed at the rate of the country of origin and imports are free of tax. The taxation of goods turnovers at the physical location of the firms involved could at least partly prevent the transfer of Internet firms to low-tax countries. The main advantage of the country-of-origin principle is that it does not require any transborder tax adjustment and that it is also a suitable and effective approach for the turnover taxation of traditional offline and online goods. However, the country-of-origin principle requires an administratively burdensome central clearinghouse system in order to guarantee regional fiscal assignment according to the country-of-destination principle as demanded by the governments of the EU member states.

Under the WITHVAT system, exports of digital online goods are taxed at the rate of the country of destination and consumers are responsible for passing the tax funds on to their national tax authorities. In order to set incentives for consumers to correctly report their digital online purchases to national tax authorities, all suppliers of digital online goods would be forced to add a withholding tax that equals the highest VAT rate of all countries participating in the trans-
border VAT system to any sales to consumers. Consumers would get a refund according to the difference between the withholding tax and the tax rate of the country of destination if they presented their bills to their national tax authorities. The main advantage of the WITHVAT approach is that it does not need a central clearinghouse mechanism, because decentralized clearing is endogenous in the system. However, the WITHVAT approach may give rise to an unspecifiable obstacle to e-commerce and is not a suitable approach for the taxation of traditional offline and online goods.

A second study analyzes the reform pressures on social security systems stemming from the upsurge of crossborder B2B and B2C electronic commerce. It shows that decreasing transaction costs in international trade resulting from new information and communication technologies lead to a higher substitution elasticity between domestic and foreign employees and thus cause a growing demand for public social security services.

In cooperation with the Transportation Economics Group, the Group initiated a research project on the integration of the Eastern European EU applicant countries into the European division of labor. In view of the progressing accession process, the project is intended to explain the applicant countries’ emerging trade and capital flows in the course of economic transformation and integration; based on these results, it should become possible to sketch the probable contours of the division of labor in an enlarged Europe. Hence, complementary theoretical approaches will be introduced: On the one hand, the influence of institutional arrangements on regional trade patterns will be discussed in order to answer the question of what trade effects might occur in applicant and member countries as a result of the institutional settings of the Europe agreements and the probable terms of admission to membership. On the other hand, the explanatory power of path dependencies and hysteresis in international trade and investment relations will be examined to assess how far historical events could determine current and future European trade and integration patterns. Finally, the role locational determinants may play for the applicant countries’ participation in the European division of labor will be considered.

Against this theoretical background, a bundle of analytical concepts for assessing the applicant countries’ progress in integrating into the EU will be applied. Special emphasis will be placed on a variety of gravity approaches. Gravity models are widely used in various economics disciplines to assess and forecast the impact of distance on the intensity of economic relations. A gravity model utilized for a trade and integration analysis runs as follows: Gravitational forces causing economic interaction stem from high per capita incomes and population figures of trading partners, because these two features promise high revenues
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from business deals with numerous economically potent clients. Transport costs which vary with distance can be expected to impede the impact of the gravitational forces on the intensity of trade relations. In general, gravity models allow the impact of various forms of distance to be tested: among them are not only real geographical distances, measured either by space or time, but also “virtual distances” as exerted by tariff or nontariff trade barriers, different languages, diversities in business cultures, traditions, or economic systems. Such a standard gravity model will be used to estimate the trade flows of the Eastern European applicant countries. Furthermore, the Group intends to apply an extended gravity model to assess the impact of historical factors on current trade structures. By adding lagged trade and/or suitable dummy variables, it becomes possible to measure the influence of historical events and path dependencies on current trade patterns. In addition, a further extended gravity model will be designed to analyze FDI activities and will serve as a cross-check for the trade analysis. The gravity models will also be used to conduct simulations of the future division of labor in an enlarged Europe.

Complementary to the gravity analyses, further empirical tests will be conducted to measure the quality of trade integration and to identify integration areas with groups of countries trading more intensely with each other than with outsiders. Trade entropy indicators and cluster analyses will serve as appropriate empirical tools.

In a pilot study, the regional integration efforts of the Baltic EU applicant countries—Estonia, Latvia, and Lithuania—were examined. In contrast to all the other Soviet successor states they have good prospects of becoming EU full members in the foreseeable future. An analysis of Baltic regional trade patterns revealed that during the 1990s, the Baltic states made significant progress integrating primarily into the Western European division of labor. Gravity model estimates showed that Baltic trade flows increasingly follow the gravitational forces that generally shape trade relations: they suggest that Baltic imports and exports are receptive to the appeal of incomes and population of trading partners and decrease with growing distances.

But residual problems in the estimates also revealed that the gravitational forces are not yet absolutely dominant, which means that specific explanations are needed. One of these specific explanations is the temporal proximity to close trade relations in the past. The results demonstrate that the involuntary integration in the Soviet division of labor after World War II continues to have a substantial and lasting influence on Baltic trade patterns despite the shrinking shares of CIS trade. In this context, it may be suggested that historical trade relations contribute to the explanation of current Baltic trade patterns: current devel-
opments are reminiscent of the period immediately following World War I when the Baltic states became independent from Russia and started an integration process directed towards Western Europe. In this respect EU integration means reintegration into regional markets to which a historical affinity exists. Another explanation is a special kind of geographic proximity: dummy estimates show that the Baltic Sea is an area without any substantial geographic expanse, taking into account: (i) the intensely utilized system of Baltic Sea maritime transport, (ii) the by far lower unit transport costs in maritime transport than in land or air transport, and (iii) the rather short traveling times across the Baltic Sea. This means that trade relations of the Baltic states with their Baltic Sea neighbors appear to be as intense as if these countries were located just a nautical mile off the territorial waters of their trading partners on the Baltic Rim.

As a result, direct regional integration is still much more important for the Baltic states than is normally the case. It becomes obvious that European integration of these countries has a regional center of gravity located in the Baltic Sea region. In accordance with these findings, the process of EU association was not reflected in the regression across the board. Instead, regional determinants clearly dominated the results despite the expectation that the trade agreements with the EU would have fostered Baltic–EU trade flows as a whole. Apparently, trade with the non-Baltic Sea members of the EU was much weaker than with Baltic Sea members, even after controlling for market size and distance.

Another focus of the research group was on structural change in the labor market. The aim of an empirical analysis was the comparison of requested reservation wages of unemployed persons to potentially offered wages. On the basis of the Socio-Economic Panel 1987–1998 for Western Germany, different estimations for reservation wages and for wages after unemployment were calculated, taking into account possible endogeneity in explanatory variables. Under the assumption that the wages after unemployment of successful job-searchers represent an upper limit for the potentially offered wages of unemployed persons, a prediction of wages potentially offered to unemployed persons was attempted. An examination of these predicted offered wages and the requested reservation wages with special focus on unemployment duration shows that the reservation wages of unemployed persons are generally too high to be fulfilled. The gap between reservation wages and potentially achieved wages is widened with unemployment duration because of constant reservation wages and decreasing potentially offered wages with unemployment duration.

In order to analyze these aspects in more detail, statistical methods for analyzing wage distribution were developed. Because of the ex ante assumption that reservation wages of unemployed persons exceed their offered wages and that wages
of successful job searchers exceed the reservation wage—the wage distribution is truncated. Thus, so-called truncated or switching regression models should be used to examine the validity of the theoretical search model assumptions and the empirical findings. Research on these aspects will be continued in the coming year.

Another study examined the reasons for the differences in the mismatch unemployment between different qualification groups in Western Germany. In particular, possible causes for the high level of mismatch within the group of the low-skilled, which shows a disproportionate increase in the 1980s and 1990s, were analyzed in more detail. Because formal qualification requirements, by definition, cannot constitute barriers to entry into the labor market for the group of the low-skilled, qualification-specific mismatch can be ruled out as a cause. In addition, no convincing indications of measurement-related reasons for this development were found. Thus, differences between the qualification groups with regard to regional mismatch, the registration rate or the fluctuation on the labor market can be rejected as possible causes for the high level of mismatch within the group of the low-skilled. In contrast, differences do exist between the qualification groups with regard to labor-market-relevant personal characteristics and particularly with regard to mismatch associated with wages. Social-qualification and wage-related factors thus constitute the most plausible explanations for the high level of mismatch and its development within the group of the low-skilled.

An empirical analysis of the willingness of unemployed persons to make financial or other concessions to obtain a new job was conducted on the basis of the “Arbeitslosenbefragung 2000” (IAB/infas, Survey of Unemployed) and in cooperation with the IAB in Nuremberg. The results show that unemployed persons are partly willing to accept worse conditions of employment to obtain a new job. In eastern Germany, this general willingness is more distinct than in western Germany. However, the willingness to accept lower wages as well as the mobility of labor is rather low. Unemployed persons with low re-employment possibilities have particularly unrealistic reservation wages, which seems to be one reason for the persistence of high unemployment in Germany.

Technology and Growth

The Technology and Growth Group (headed by Michael Stolpe) continued to work on its long-term research project on European financial markets, venture capital, and high-tech firms. The focus of this project has been on comparative empirical analyses of the efficiency of Europe’s markets for venture capital. The purpose was to quantify the factors which determine the efficiency of venture
capital investments, measured by the difference between the price of initial public offerings and their subsequent first quotation in the stock market, known as “underpricing” in the literature. The project is part of a larger research collaboration on European integration, financial systems and corporate performance, in which the Institute has joined forces with the Institute for New Technologies at the United Nations University in Maastricht, the Finance and Trade Policy Research Centre at the University of Oxford, the Centre for European Research at the University of Rome, and the Business School at Warwick University in Coventry. This collaboration is funded by the European Commission.

On the determinants of efficiency, the empirical findings reveal that initial public offerings backed by a venture capital firm have suffered significantly less underpricing than other initial public offerings on Germany’s Neuer Markt. This finding suggests that venture capital enhances the efficiency of raising capital by certifying the quality of investment opportunities to outside investors. Apparently, outside investors view an initial public offering of shares in a start-up firm as less risky when it is backed by a venture capital firm. Outside investors hence demand a lower risk premium for their participation in the initial public offering. However, the reverse was found to hold with France’s Nouveau Marché. There, venture capital backing tends to increase the level of underpricing suffered by initial public offerings, although this finding was not always significant when multiple regressions allowed for other theoretically valid determinants of underpricing. Moreover, the average level of underpricing was lower on the Nouveau Marché than for initial public offerings on the Neuer Markt.

In a related project, the theoretical determinants of underpricing in initial public offerings were analyzed within a more comprehensive theoretical framework in order to derive detailed policy conclusions. It was found that the priority for government policy should be to curtail the abuse of market power in the underwriting activities of private investment banks. This should be done by prohibiting the allocation of shares to insiders and by reducing the incentives to use underpriced shares for the purpose of cross-subsidizing unrelated areas of an investment bank’s business. Moreover, governments should seek to stabilize the market for initial public offerings by committing themselves to a long-term privatization program that issues a fixed number of shares in public enterprises at regular intervals—regardless of temporary market sentiments and stock market swings.

The Group continued its research on technological change in health care. This work focused on the efficiency of health systems in aging societies. The objective is to generate predictions for the evolution of costs and benefits of health
care under conditions of rapid demographic change. It is expected that distortions
due to moral hazard will increase because of the endemic uncertainty about
diagnoses, therapeutic possibilities, and prognoses of diseases in old people, who
are often chronically ill and may suffer from multiple causes of illness. This
special moral hazard problem will drive a wedge between the cost-benefit
calculation regarding specific medical interventions made by the individual
patient and by society as a whole, even if the individual’s willingness to pay for
live-saving measures does not exceed that of a young person.

The greater overall uncertainty in medical decision making due to population
aging is partly an endogenous problem. At any point in time, the level of un-
certainty depends on the number of available diagnostic tests and therapeutic
alternatives, and both of these are being steadily increased by technological
progress in medicine and pharmaceuticals. Medical decision making is therefore
becoming ever more complex, with often difficult-to-predict outcomes due to the
prevalence of sequential decision making in which not only the comparative
merits of individual alternatives, but also the sequence of choices influences the
final outcome. As for health policy, the distortions in the private incentives to
adopt new pharmaceutical and medical technology will soon become a top
priority in many countries. There are several policy issues which this research
intends to address. The research will help, for example, in re-assessing the merits
of recent proposals to introduce pre-funding into health systems as a response to
population aging and in finding novel strategies to improve the private incentives
for the adoption of new medical technology on the supply side. Here, the
challenge is to find a system that filters new technologies in order to prevent the
adoption of welfare-reducing medical technologies, such as certain ethical drugs,
whose social benefits may be positive, but fall short of the technology’s true
opportunity cost to society.

European Institutions

The next enlargement round of the European Union (EU) and its economic and
political consequences constituted the focus of the work of the European
Institutions Group (headed by Hugo Dicke). The Group conducted a study
dealing with the issue whether the twelve countries with which the EU is
negotiating their accession to the EU have already fulfilled the economic criteria
of Copenhagen. This issue was addressed using partial indicators of the quality
of institutions and of the legal-institutional framework. For this purpose, five
input indicators and one output indicator were used; the indices published by the
Heritage Foundation, Washington, and the Fraser Institute, Vancouver, were
among the input indicators, whereas an index of overall economic performance
was especially designed to be used as an output indicator in this study. The progress achieved hitherto by the candidate countries was compared with the status of reform in four (benchmark) EU member states (Greece, Ireland, Portugal, and Spain). The comparison showed that Cyprus, the Czech Republic, and Estonia had progressed much more than the average of the benchmark countries. Therefore, the latter countries are ready to join the EU, as are also Hungary, Latvia, and Lithuania, who performed worse than the average of the benchmark countries but still better than the weakest benchmark country (Greece). By contrast, six candidate countries, namely Bulgaria, Malta, Poland, Romania, Slovakia, and Slovenia, achieved only insufficient progress in the area of institutional reform, which is why these countries did not even match the status of reform in the weakest benchmark country. The methods and results of this research were included in a report which was prepared jointly with the Industrialization and Trade Group and the Stability and Structural Adjustment Group, both of which are in Research Department IV.

A project on the potential impact of the Eastern enlargement of the EU on migration in Europe was continued. A survey of the literature revealed that the bulk of economic research on migration can be associated either with labor market economics or with international economics. Particularly the labor-economics-oriented research yields a number of key insights into many of the microeconomic aspects of migration. This notwithstanding, the labor economics approach leads to analyses that neglect the fact that international labor flows are just one component of international economic relations, in addition to trade in goods and services and capital flows. This is why, and assuming that the determinants of migration are very closely related to the determinants of trade and capital flows, an extended version of the Ricardo model of international trade including factor mobility was chosen as the starting point for the empirical analyses in this project. The model was extended to include variables that seemed to perform well in the relevant literature. Preliminary panel data estimations indicate that income differences between countries only appear to explain part of the migration from Eastern Europe to Germany observed in the postwar period.

One focus of research conducted by the Social Security and Growth Group (headed by Hans H. Gliemann) was the impact of institutions on economic growth. This analysis adds to the traditional theory of economic growth, which considers the growth rate of the working force, physical and human capital, and innovations to be the main determinants of economic growth. Traditional growth
theory, however, is silent on what drives these determinants. The central research hypothesis is that “institutions” are the missing link between traditional growth theory and economic reality and that private property rights are of extraordinary importance.

Empirical tests of this central hypothesis, with the help of an international cross-section analysis for 1975–1995, turned out to be successful. Based on a modified, human-capital-augmented model of economic growth, these tests indicate that secure and well-established private property rights have a significant positive impact on economic efficiency. Compared with the more traditional determinants of economic growth, this impact of private property rights is remarkably high. As could also empirically be demonstrated, rising income levels lead to further improvements in the quality of property rights. This implies that property rights and economic development are determined simultaneously. Hausman specification tests significantly support this relationship. The overall impact of property rights on economic development is considerable. In addition it could be shown that the property rights environment also impacts the accumulation of the factors of production. Better property rights significantly improve the accumulation of physical and human capital, whereas the growth rate of the working-age population is significantly decreased.

Given this additional area of influence, it seems reasonable to class property rights as an “ultimate” source of economic growth. In contrast, the more traditional determinants (physical and human capital accumulation, as well as population growth) should be classified as only being “proximate” sources. Obviously, in such a model of economic growth the relationship between property rights and economic growth is of central importance and would represent a “reduced form” of the model—whereas the other relationships mentioned above could be thought of as being “structural” equations.

Estimating the reduced form in an international cross-section for the 1975–1995 period indicates that, for example, a doubling in the index of property rights improves living standards (per capita income) more than twice. Thus, the empirical results of the property rights approach seems to lend strong support to Mancur Olson’s 1996 view that in the area of institutions “big bills left on the side-walk” can be gained, bills whose magnitude amounts to trillions of dollars.

In collaboration with the International Economics and Structural Change Group, the long-run research project on Reforming the German Unemployment Insurance System was continued. The underlying idea is that by making the unemployment system more efficient in economic terms, the international competitiveness of German producers will be improved. Two studies were completed. The first was concerned with history: In search of an efficient system of unem-
ployment insurance, four periods of German unemployment insurance were analyzed, namely those of 1871/1914, 1918/32, 1933/39, and 1949/2001. These periods differ greatly with respect to the levels of unemployment as well as with respect to the underlying political situation. It turned out that the German unemployment insurance of today has its roots in the year 1927. The main elements—i.e., the lack of insurance principles, the mandatory character, and the lack of actual or potential competition—have been upheld since then. These elements did not help ease labor market tensions in the years following 1927, similar to the revealed inefficiency of German unemployment insurance over the past 20 years.

In the second study the statistic fundamentals of a dual system of private unemployment insurance were calculated, using data for the year 2000. “Dual system” refers to an employment insurance system that provides incentives to work and to employ to all parties concerned, in order to reduce existing as well as newly arising unemployment. It was shown how much the individual employee would have to invest for a variety of unemployment payments and for a variety of individual “real” risks. In addition, it was demonstrated that each individual could reduce his/her insurance premium by simply declaring a higher degree of regional, professional, or income-related mobility. On the employers’ side, it was elaborated that, via autoregressive processes, employment increases, and that at the same time each employer reduces the rate of his firm’s unemployment tax.

4. **Environmental and Resource Economics**  
   **(Research Department II)**

Research activities in the Environmental and Resource Economics Department (headed by Gernot Klepper) focus on the allocation of environmental and natural resources. The factors influencing the increasing scarcity of natural resources are investigated and their impact on the allocation of factors of production and goods in the world economy is assessed. The research focuses especially on the evaluation of international and national aspects of environmental policy measures leading to proposals for a rational and efficient use of environmental policy instruments.

The research activities of the Department in the year 2002 concentrated on the environmental and natural resource aspects of the use of fossil fuels and other energy sources. Moreover, the efficiency of environmental policy instruments for influencing the use of fossil fuels and other environmental resources were investigated. In addition, research on the economic aspects of the use and the control of biological diversity was continued.
Environmental Economics

The Environmental Economics Group (headed by Gernot Klepper) focused its research on issues of allocating environmental resources and on the design of environmental policy instruments for the achievement of national and international environmental objectives. The major policy areas investigated concerned climate policy and the preservation of biological diversity.

International climate policy and in particular the Kyoto Protocol, which requires commitments to reduce the emissions of greenhouse gases, have constituted a central aspect of the research activity. For several years the Group has been using the DART model for policy analysis. The DART model is a multiregional, multisectoral, dynamic computable general equilibrium model which can be used to simulate long-term growth scenarios for the world economy. It was developed in the Environmental and Resource Economics Department.

Originally, the DART model was calibrated to the Global Trade Analysis Project (GTAP) database for the year 1993. By now new data are available, and thus the DART model was calibrated to the new data set and the structure of the model was adapted to these new data. The DART model now runs on a database for the year 1997 and thus is the most up-to-date model available. It can simulate each member country of the European Union such that detailed and disaggregated simulation studies for European aspects can be performed.

An important aspect of the Kyoto Protocol is the possibility of an international regime for emission trading with greenhouse gases, especially with CO₂. Since the follow-up conferences to Kyoto in Bonn, Marrakech, and New Delhi, it has become increasingly likely that in the near future a market for CO₂ certificates will be established. This is likely to happen among the Annex B countries that have committed themselves to emission reductions in the Kyoto Protocol. A proposal by the European Commission envisages the start of a European emission trading scheme already for the year 2005. The DART model was extended by a module which can analyze different types of emission trading. It was used to simulate the effect of the withdrawal of the United States from the Kyoto commitments and the impact of the eastern European countries on emission trading. These countries experienced a severe economic crisis in the beginning of the 1990s and are expected to emit much less greenhouse gases in the future than they are allowed to emit pursuant to the Kyoto Protocol. These unused emission rights are frequently called “hot air.” Their availability for emission trading influences the ecological effectiveness of the emission trading scheme as well as its allocation effects. However, it is an open question whether these countries—especially Russia and Ukraine, who possess most of the “hot air” in this region—will be able to use their market power and artificially reduce their supply of emission rights. The research on this issue comes to the conclusion that
these strategic supply aspects depend on the way in which the emission rights are allocated within these countries. It matters as to whether the government, private companies, or both can trade emission rights because their optimal supply behavior differs significantly. This also has repercussions on the prices for CO₂ certificates, as well as on energy prices in the other Annex B countries and the world economy overall.

The regional marginal abatement costs for CO₂ constituted another research focus. Many partial equilibrium models use such abatement cost curves for their policy analysis. By using the DART general equilibrium model, it was shown that such an approach is not without problems. Contrary to common belief, such abatement cost curves are not robust. Abatement costs in one country usually depend on the degree of abatement in the rest of the world. Hence, the withdrawal of the United States from the Kyoto Protocol not only influences the prices of emission certificates, it also changes the abatement cost curves, for example, in Europe.

An important aspect of climate and energy policies is the support for renewable energy sources. Biofuels as a substitute for fossil fuels are often considered a valuable alternative with which to reduce the pressure on the environment and relieve the apparent shortage of limited fossil energy sources. In cooperation with Research Department III, a research project on the use of ethanol and methanol from renewable resources in the chemical industry and in the transport sector was conducted. In a first step the institutional framework which is responsible for the production of the relevant raw material, which predominantly consists of sugar beet and cereals, was identified. In addition the national and international institutions governing the markets for the final products ethanol and methanol were also investigated. Both are highly regulated markets which are subject to European agriculture policies, with their system of market regulations and subsidies, European trade policy, which heavily protects the agricultural sector, the international trade order, and the German monopoly on alcohol, which regulates the German ethanol market and protects national producers. In addition, the German Bundestag has passed a law exempting all biofuels from the mineral oil tax and the European Commission has developed proposals for the promotion of biofuels.

The project came to the conclusion that the production of ethanol and methanol in Germany is costly compared to the prices of conventional fossil fuels, as well as compared to the production costs in other countries. Without significant political support and strong protection from international competition, ethanol and methanol produced in Germany is not competitive on national and international markets. The necessary protection from international competition, however, would run counter to the further liberalization of world trade, especially trade in agricultural products, and the reduction of the subsidy system in the
Common Agricultural Policy of the European Union. Therefore, it is unlikely that effective protection from imports coming from third countries can be maintained in the long run.

Another important aspect of the research project concerned the ecological effects and the welfare impacts of the substitution of ethanol and methanol for conventional fuels. For this purpose, energy balances and greenhouse gas balances were collected. The energy balances show a significant input of fossil energy in the production of bioethanol. The major fossil energy input takes place in the conversion of agricultural raw materials into ethanol and not so much in the agricultural production of the raw materials. If one assumes that one liter of ethanol can substitute for 0.65 liters of fossil gasoline, the net savings of fossil energy sources is as follows: Under today’s production and conversion technologies the energy balance for ethanol based on wheat is somewhat negative and in the production based on sugar beet it is slightly positive. Even though the issue of the exact relationship of substituting ethanol for fossil gasoline in engines is not definitely settled, welfare analysis indicates that if one considers all options regarding the saving of fossil energy sources and by substituting renewable resources for such sources, there are several policy options which are preferable to the production of biofuels, for example, the use of renewable energy sources for the production of electricity and heat.

The greenhouse gas balances show that the substitution by bioethanol produced from wheat or from sugar beet for fossil gasoline leads to only minor savings in emissions if current agriculture production and ethanol conversion technologies are used. This strategy of substituting biofuels for gasoline should not be part of an efficient climate policy, since the abatement costs of reducing greenhouse gases through the production of biofuels are much higher than the costs of alternative abatement strategies. For example, in the European Emission Trading Program, abatement costs of €20–€50/t CO₂ are expected, whereas the abatement costs of the bioethanol strategy are in the order of €300/t CO₂ and can be even higher for specific small-scale technologies and other agricultural raw materials.

Efforts to protect biological diversity have been at the center of international environmental policies for many years. Besides the implementation and the financing of globally important projects for the protection and the sustainable use of biodiversity by states, there is the question whether one can design an institutional framework in which private action and markets can be used for the protection of biodiversity. One important aspect is the question whether the commercial use of genetic material and the genetic information contained in such material can create incentives for further protection of biodiversity. This was a major topic of the Group’s research on biodiversity.
This research shows that the economic character of genetic information and of biological resources containing such information differs substantially in four different uses and leads to several types of market failure. The major common problems are the non-rivalry in the use of genetic information and the uncertainty concerning the economic value of that information. Both lead to the result that demand for resources is relatively small such that the contribution of the private use of genetic information for the protection of biodiversity is comparatively small. A preliminary analysis of empirical data seems to support that hypothesis. In a model of a market for genetic resources, additional market failures have been investigated, such as spatial externalities.

Especially on an international scale, the protection by state action, for example through the protection of endangered ecosystems through rules of access, is an important part of biodiversity conservation. It requires the cooperation among sovereign states who need to agree on transfers for a globally efficient protection of biodiversity which goes beyond the level that could be achieved from a purely national point of view. In cooperation with the Max Planck Institute for Comparative Public Law and International Law (Heidelberg) the existing transfer mechanisms embedded in international agreements have been analyzed. It turns out that the aspect of compensating for such protective measures is relatively unimportant in international environmental law and that the funds allocated so far are far below the required transfers for an optimal biodiversity policy.

Natural Resources

The Natural Resources Group (headed by Manfred Wiebelt) continued its analysis of sustainable development and the use of energy and non-energy natural resources. In research on ecological sustainability the chances of bioethanol as a renewable biofuel were investigated in cooperation with the Environmental Economics Group. In research on energy resources the energy balance for the state of Schleswig-Holstein was completed and the development of the German gas market was analyzed. In collaboration with Research Department IV, the Group continued its research on sustainable development strategies for developing countries, giving special emphasis to aspects of income distribution and poverty reduction as well as environmental impacts.

A pilot study on a sustainable policy design for structural adjustment in Bolivia was completed. The objective of this study was the analysis and evaluation of the current Bolivian strategy on poverty reduction, which is supported by the HIPC initiative of the International Monetary Fund and the World Bank. For this purpose the Group developed a computable dynamic general equilibrium model which was used to simulate these policies. Such simulation studies can be used to identify the reasons for the apparent lack of success in achieving the economic
An important feature of the model is its ability to provide a detailed and differentiated description of capital accumulation by different institutions which is an important factor for medium- and long-term growth processes. In particular, the model distinguishes between different options for economic actors to engage in financial and capital markets, for raising domestic and foreign capital, and for investigating the restrictions on obtaining an optimal portfolio. With these features, it is possible to investigate whether and how different net capital flows initiated by debt relief, development aid, foreign direct investment, or foreign portfolio investment can influence economic growth and reduce poverty as well as natural resource use. It is also possible to quantify the effects of a lack of access of poor income groups to the capital market and the impact on income growth. The model also recognizes a number of structural strategies on the commodity and labor markets which limit efficient adjustment processes and are detrimental to the objective of reducing poverty. Especially these rigidities are characteristic phenomena in poor and highly indebted countries like Bolivia.

The simulation studies clearly showed the need for additional structural reforms such as a tax reform and a further deregulation of labor markets in order to initiate a sustainable growth process. They also showed that additional measures are necessary to ensure that implementation problems will not prevent the reforms from achieving their social objectives. For example, the consolidation of the financial system in the 1990s mobilized additional savings for investment in the country, but implementation problems still reduce the access of farmers and small business men to credit markets and thus limit the opportunities to create additional income in these poor groups. Simulation studies with a reduced portfolio restriction for these households come to the conclusion that the additional demand leads to an increase in investment of these households and higher real incomes.

Even in the case of no debt relief and reduced foreign direct investment the above-mentioned structural reforms in Bolivia could achieve a growth potential of 4 percent comparable to the average growth in the 1990s. However, the objectives to reduce the poverty rate to 40 percent by the year 2015 would not be achieved, since the poor income groups do not participate in overall economic growth as expected. A similar effect takes place with the beneficial effect of debt relief if new financial flows are not earmarked for poverty reduction processes. Several simulation analyses show that the poverty reduction objectives can only be achieved if the new financial flows are invested in public goods—especially in agricultural research and in rural infrastructure. Again, access to the capital market is important for the mobilization of complementary investment.
5. Regional Economics (Research Department III)

Within the thrust of the Institute’s research—analyzing the international division of labor and its implications for economic growth and development—the Regional Economics Department (headed by Rüdiger Soltwedel) focuses on the spatial perspectives, on how centripetal and centrifugal as well as integrating and disintegrating forces are shaping the spatial division of labor. Hence, the analysis of patterns of regional specialization, of interregional trade, regional growth as well as the analysis of appropriate regional governance structures figure high on the Department’s research agenda.

In 2002, the focus of the Department’s research activity was on analyzing region-oriented innovation and technology policies, on the explanation of regional growth differentials in eastern Germany, on the liberalization and re-regulation of infrastructure network industries, and on the issue of the new economy, mobility, and the spatial structure of economic activity.

Regional Growth and Spatial Structure

The Regional Growth and Spatial Structure Group (headed by Dirk Dohse) focuses its research on region-oriented innovation and technology policy, the determinants of regional disparities in growth and income, and the regional impact of European integration.

The Group’s research on region-oriented innovation and technology policy compared prototype instruments of German technology policy (such as the BioRegio-Contest, the InnoRegio-Contest, and the Innovative Regional Growth Cores program) with regard to their theoretical background, their regional dimension, and their political goals. The common idea behind these rather distinct approaches seems to be to exploit regional differences within an economy to achieve the (national) goals of technology policy. In particular, they aim at improving the efficiency of regional innovation systems and at fostering the regional concentration of researchers in order to create and internalize knowledge spillovers. The Group’s assessment is that those approaches that avoid “closed shops” when competing for public funding and that are based on “hard” criteria (such as the existing technological potential of a region) achieved the best results. It was thus concluded that a policy of strengthening the strong and dynamic regions may be more promising for stimulating growth than a strategy of regional equalization.

As part of the Department’s research on the spatial implications of the new economy, the regional distribution of Neuer Markt companies in Germany was analyzed. The Neuer Markt is still the most important growth stock exchange in
Europe—although there will be a new segmentation of the German equity market in 2003—and even though the German new economy is not restricted to Neuer Markt companies, those companies can be considered to form the spearhead of the German new economy. It was revealed that Neuer Markt companies (as well as Neuer Markt employment and market capitalization) are more heavily concentrated than the activities of the traditional economy and other innovative activities, such as research and development or patent applications. This holds in particular for the NEMAX subsectors that comprise the new economy in its narrower sense, such as the Internet, IT services, software, media and entertainment, and telecommunications. Especially striking in this respect is the outstanding position of Bavaria and particularly the Munich area, while on the other hand Baden-Württemberg, Germany’s traditional technological heartland, fared surprisingly badly with regard to its Neuer Markt activities.

In cooperation with the Financial Markets Research Area a new project was started that is analyzing empirically the interplay between the spatial distribution of new economy companies and of venture capital companies. The spatially very differentiated availability of venture capital might explain why young high-tech companies and their employees in Germany are spatially more concentrated than R&D employees, patent applications, and other innovative activities. In order to push ahead with a thorough empirical analysis (being planned for next year), the Group has started to build an adequate, spatially disaggregated database.

Last year’s research on regional income and growth differences focused on eastern Germany. In a study for the German Federal Ministry of Finance the Group found that eastern Germany experienced different forms of convergence during the 1990s. First, there was a general convergence in per capita income and (labor) productivity between eastern and western Germany as a whole, although convergence came to a halt in the second half of the 1990s. Second, there was regional convergence among the eastern German regions. And third, there was local convergence among neighboring regions within eastern Germany: Poor regions with comparatively rich neighbors evolved faster towards the eastern German average than equally poor regions with comparatively poor neighbors. Likewise, rich regions with comparatively rich neighbors evolved more slowly towards the eastern German average than equally rich regions with comparatively poor neighbors. This specific form of spatial dependence is particularly interesting because it differs from the pattern of spatial dependence observed in “mature” industrialized market economies. In the United States, Germany, and the European Union, spatial dependence is caused mainly by growth shocks, i.e., the transmission of unanticipated shocks across space. The reasons for this difference are unclear as yet. One possible reason may be that local convergence is a specific feature of transition and developing countries, where the ongoing
formation of forward and backward linkages between firms located in neighboring regions is an important factor shaping regional growth.

Empirical results have shown that the presumed eastern German growth poles, namely Leipzig, Dresden, Halle, Jena, Erfurt, Chemnitz, and Berlin, have not fostered economic growth in their neighborhood to a larger extent than agglomerations in other regions. As a consequence, a concentration of regional development aid on these perceived growth poles, as has been suggested recently, might not yield the desired benefits to a larger number of surrounding regions.

The Group continued its research on the regional impact of the European integration process. The ongoing integration process raises fears that mainly the European core regions will benefit from integration, whereas peripheral regions will lose competitiveness and might suffer from de-industrialization and out-migration of jobs. In response, the EU Commission has continuously extended its structural policies and targeted them toward creating cohesion between countries and regions. For the purpose of analyzing the respective impact of integration on locational competition and the division of labor between European regions, the new economic geography offers a number of innovative research approaches. Preliminary empirical results indicate that structural readjustment as a consequence of integration seems to be smaller than some of these theories predict and that a sharp increase in interregional disparities is—given the preliminary empirical evidence—not very likely. Accordingly, there seems to be only limited need for a compensatory regional policy at the European level. Nevertheless, the impact of integration on the economic geography of Europe is far from being well understood. Hence, in view of the eastern enlargement of the EU, much more comprehensive research is necessary. Therefore, the Group embarked, in collaboration with six other research institutions from western and eastern Europe, on a 3-year research project within the 5th Framework Programme for Research and Technological Development of the EU Commission. The project aims at analyzing empirically the relations between industrial location, regional specialization, and regional income in the process of increasing European integration, and at identifying potentially winning and losing regions. To this end, the experiences of incumbent member states with previous enlargements of the EU will be evaluated to draw lessons for accession countries and the eastern enlargement. Finally, the challenges of eastern enlargement for regional policy at the European, national, and local level will be assessed.

Regional Economics and Institutions

The Regional Economics and Institutions Group (headed by Rüdiger Soltwedel) focuses its research on the implications of interregionally differentiated versus
uniform institutional rules, and of the centralization versus decentralization of competences for rule-making. Currently, particular emphasis is given to the efficiency of alternative assignments of competences for the competition and regulation policy for Europe’s network industries.

The Group continued its research on the allocation of competences for regulating Europe’s network industries. The far-reaching substantive changes in the European policy pertaining to the network industries of the transport, energy, and telecommunications sectors (liberalization and re-regulation, promotion of the establishment and development of trans-European networks) have been accompanied by important changes in the allocation of competences between the European Union and the member states, as well as by changes in the institutions and procedures for regulatory policymaking in the EU. The Group’s project focuses on employing institutional-economic and contract-theoretic considerations to derive normative criteria for an efficient allocation of regulatory competences between (and within) the EU and its member states, and for the institutional design of regulatory policymaking on the various vertical levels.

Specific contract-theoretic (partial) models provide a number of theoretical insights; the insights relate, for example, to the effects of the complexity of regulatory rules and of the informational requirements of their implementation and monitoring on the appropriate (federal) allocation of competences, as well as to the importance of alternative delimitations of competences between different regulators for the possibilities and the incentives to monitor both, the regulated firms and the regulator himself. Even though the specific results of these models depend on sometimes very specific assumptions and are generally quite sensitive to assumptions and parameters of the models, the contract-theoretic approach in general is nevertheless well capable of supporting some (preliminary) conclusions about an economic constitution for Europe’s network industries.

Theoretical results indicate that neither a complete centralization nor a complete decentralization of competences is appropriate for the liberalization and regulation of network industries. An effective liberalization and opening of national markets and networks requires not only the withdrawal of special and exclusive rights of established (“national”) suppliers, but also some harmonization and re-regulation measures that guarantee nondiscriminatory access of new competitors to the existing networks. The respective regulatory rules have to be flexible enough to be able to adequately account for important differences in national industry structures and market conditions and to adjust to changing conditions. In the light of differing “national interests,” it is hardly possible to credibly stipulate sufficiently flexible rules between the member states without a partial centralization of limited competences to interpret, adjust, and enforce the general
regulatory principles agreed upon between the member states. Efficient regulatory decisions within the network industries, for example, decisions on access and interconnection prices and conditions, frequently require detailed information about local demand and cost conditions, however. To make sure that sufficient local information is brought into the decision process, it seems necessary to credibly delegate real decision-making competences to national regulators; it is not enough to rely on information that European decision makers, within the framework of general advising processes, may obtain from market participants and members of national regulatory agencies.

Thus, the allocation of regulatory policy competences in the network industries should generally correspond to a system of “two-tier regulation” (as it already does in the EU, at least in principle). The formulation and adjustment of the basic rules of liberalization and re-regulation as well as the monitoring and enforcement of their implementation and application should take place mainly at the EU level. The implementation and application of the rules themselves, however, should take place mainly at the level of the member states. Compared to the current system of two-tier regulation in the EU, several modifications seem to be appropriate. In particular, the EU’s role in the implementation of regulatory rules for cross-border network access and interconnection problems (individual decisions) should be strengthened. There are two alternative ways to achieve this: (1) establishment of an independent regulatory authority at the EU level, and (2) stricter monitoring and regulation by the EU of rule implementation within the member states.

If and to the extent to which the implementation and application of regulatory rules are transferred to the EU level, there are important arguments for assigning these competences to an independent regulatory agency or commission (outside the European Commission). This would make it easier to Foreclose creeping (over)centralization of regulation and to guarantee clear alignment of regulatory decisions with the goals of increasing efficiency and promoting competition. Parallel competences between an independent regulatory agency and the European Commission (resulting from the Commission’s competition policy competences) may, in addition, help reduce the risk of opportunistic behavior on the part of the European authorities. If and to the extent to which competences for implementing regulatory rules are left with the member states even for cases with an important “European dimension,” the EU should be allowed to enact and enforce additional regulations on the institutional design of rule implementation by the member states. These regulations may relate to the establishment of “independent” national regulatory agencies (NRAs), the tasks to be delegated to these agencies, and their competences and resources, as well as to the transparency of regulatory rules and processes and the effective enforcement of the
NRAs’ decisions. Such regulations would help constrain opportunistic behavior of national regulators. Direct regulation of cross-border transactions by European authorities may thus become dispensable.

Research on competition and regulatory policies for the power sector was continued. In the field of positive analysis of electricity market reforms in other countries, emphasis was on the analysis of the California electricity market debacle. Based on an analysis of market developments, reasons for the failure of the Californian transition model were identified; microeconomic and political-economic lessons were derived from the debacle in California. It became clear that the failure resulted mainly from the political and not from the technical characteristics of the Californian power sector. The failure was thus a regulation failure which provides evidence for the thesis that both the design and analysis of liberalization policies must take the incentive constraints of political and regulatory agents explicitly into account.

In the field of normative analysis of liberalization options for the electricity market in Europe, emphasis was on the analysis of the developments on the European Union level. The Commission has proposed that competition and regulation policy competences should be shifted to a greater extent to the European level. Recognizing technical characteristics of the power sector, however, institutional-economic reasoning leads to quite different conclusions: the allocation of regulatory competences should allow competition between different regulatory designs to the greatest extent possible, thus for more or less regionally restricted experiments. A further emphasis of the normative analysis was on the application of insights, derived in previous studies, on alternative regulation models to small transition countries, exemplified by the case of Kosovo. Especially in small and less developed electricity systems, a dilemma for regulatory policy may emerge: the technical circumstances suggest the implementation of a model with few competitive elements, whereas political circumstances suggest the implementation of a competition-oriented model. During this analysis, it became clear that opening Kosovo’s power market internationally might provide a solution to the dilemma. Stable and credible political, legal, and economic structures would have to be the aim; without stability and credibility, the urgently needed private investments would not be forthcoming. One of the most important instruments for improving stability and credibility would be the forced integration of Kosovo’s electricity market into the surrounding region and the rest of Europe. This integration would encompass a reduction of state sovereignty over electricity regulation and a wide-reaching market opening for private investors and electricity traders.
In collaboration with the Transportation Economics Group and the Institute for Economic Policy and Economic Research of the University of Karlsruhe (TH), work on the project on evaluation and removal of infrastructure bottlenecks in air traffic was continued. The aim of the project, on the one hand, is to develop instruments for the rational evaluation of infrastructure projects in air traffic. On the other hand, mechanisms are to be discussed which would facilitate the implementation of these projects within the political process. Research in the Kiel Institute concentrates on the following points: The identification of basic alternative planning instruments (institutional arrangements) in infrastructure policy, the theoretically supported comparative evaluation of these institutional arrangements (for example, regarding the facilitation of planning objectivity and the risk of capture by interest groups), the supplementing of the theoretical analysis by empirical investigations of existing planning instruments in other countries and in other infrastructure sectors, and finally the discussion of the question of what institutional arrangement seems appropriate for planning, decision, and approval processes for infrastructure projects. In this regard, special attention will be given to the problem of appropriate allocation of regulatory competencies.

Transportation Economics

Research work in the Transportation Economics Group (headed by Claus-Friedrich Laaser) in 2002 focused on locational effects of changing spatial patterns of transaction costs and transport costs, in particular on the analysis of those changes in the spatial division of labor that will be brought about by the development of the new economy, and on the interregional differences in the effects of administratively imposed increases in transport costs.

As a point of departure, the Group’s work on the spatial effects of the new economy dealt with the question whether the broad implementation of e-commerce applications and other modern information and communication technologies (IT) as a sort of new general-purpose technology in production, product distribution, and marketing will, on balance, result in more agglomerative or more deglomerative tendencies and, thereby, in an increase or a decrease in the importance of urban centers. Theoretically, both tendencies seem plausible. Decreasing spatial transaction costs (including transport costs) will, other things equal, boost the exploitation of localization economies, enticing further agglomeration. On the other hand, such cost decreases will give incentives to better exploit regional factor price differentials, contributing to a dispersion of economic activity. In reality, complex agglomerative and deglomerative tendencies should come about: Economic activities which necessarily depend on “face to face” contacts will harness agglomerative tendencies, whereas activities whose transactions may be
governed without such contacts, i.e., ultimately even by means of IT networks, will tend to spread in space. One would expect, then, a change in locational structures which should lead to increased attractiveness of cities for human capital and R&D intensive activities (perhaps explaining to some extent the above-mentioned high regional concentration of the Neuer Markt enterprises), whereas activities in production and product distribution would leave the city centers even more often than they presently do.

The Group will try to empirically answer the question whether the differentiation between “face to face” and “remote control” activities is useful for the analysis of changes in locational structures. There is some evidence, especially from the United States, that the largest agglomerations are experiencing a growing share of “face to face” activities in the proliferation phase of IT technologies, whereas secondary and tertiary agglomerations are experiencing a more even distribution of both types of activities. Similar analyses will be carried out for German cities using a locally disaggregated set of employment data.

The second focus of the Group’s research was a project dealing with the consequences of an administratively imposed increase in transport costs for the spatial pattern of the division of labor. The new German Pigouvian-type tax on carbon dioxide emissions and, therefore, on environmentally sensitive activities like car and truck traffic (the Ökosteuer), or user charges in the form of a general or section-related road toll without fiscal compensation, might result in an increased impact of spatial distances on the locational decisions of enterprises and households, compared to the previous situation of secularly shrinking transport costs. Consequently, the relative attractiveness of locations could change. If such duties and fees should increase transport costs, thereby emphasizing the importance of distance, this could result, other things equal, in a deconcentration and disintegration of economic activities and, thereby, jeopardize traditional patterns of location. In the project, the relative importance of transport costs was estimated for a sample of regions by means of a simulation model. The model was, on the one hand, based on transport cost intensities derived from the national accounts, and on the other hand, considered the impact of distance as estimated from gravitation models. On the basis of the (relative) regional importance of transport costs, the impact of transport-related duties on regions was estimated in relation to regional value added. It turned out that the impact of transport cost is almost twice as high in regions at the national periphery (illustrated by districts in Schleswig-Holstein) as in central regions (illustrated by districts in the Rhine-Main area). A similar pattern results from the Ökosteuer as a supplement on the gasoline tax, or from the planned distance-related road toll for heavy trucks. Regional structures, therefore, will not be additionally distorted by such duties, but rather accentuated.
The Group started work on its contribution to the Second Report on Economic Progress in Eastern Germany (Fortschrittsbericht für Ostdeutschland), which was prepared under the responsibility of the Regional Growth and Spatial Structure Group. In this report, the quality of eastern German regions’ infrastructure will be assessed in comparison to western Germany. This will be done with respect to long-distance connections represented by the German Unification Transportation Projects (Verkehrsprojekte “Deutsche Einheit”), as well as with respect to local connections by investigating the connections of regions to supraregional transport networks.

6. Development Economics and Global Integration (Research Department IV)

In the Development Economics and Global Integration Department (headed by Rolf J. Langhammer), research is principally targeted toward identifying the economic prerequisites for the successful integration of developing countries and emerging markets, as well as toward analyzing the determinants and implications of differences in the speed of economic growth between these countries. In 2002, individual research projects focused on the theoretical underpinnings and the empirical evidence for direct investment into developing countries, labor market implications of globalization, on national, regional, and multilateral trade policies, on the measurement of quality in schooling as an important element in human capital formation, on stabilization policies in transformation and developing countries, and on the compatibility of structural adjustment programs with distributional objectives. Further, the Department’s research dealt with the reforms of the international financial architecture as well as the world trading order, the consequences of EU integration of Central and Eastern European countries for the transition process of the countries, and the interaction between regional monetary and financial cooperation on the one hand and regional integration on the other hand.

International Capital Flows

Research in the International Capital Flows Group (headed by Peter Nunnenkamp) focused on the determinants and effects of foreign direct investment in developing countries, the role of multilateral financial institutions in the international financial architecture, and the consequences of structural reform programs on the distribution of income in developing countries.
A widely held view maintains that economic globalization implies a shift of determinants of direct investment from market-related factors to cost-related factors. Yet, this view has hardly been addressed empirically. Several analyses conducted by the Group aimed at narrowing this gap. In a first step, survey results of the European Round Table of Industrialists were used to test for changes over time in the relative importance of traditional and nontraditional determinants of foreign direct investment in 28 developing countries. Correlation and regression estimates revealed that strikingly little has changed so far; market-related factors continue to be of overriding importance. This result was corroborated in an evaluation, performed in cooperation with a former staff member of the German Bundesbank, of the driving forces of German direct investment in developing countries and transition economies. It turned out that the distribution of German direct investment continues to be dominated by traditional factors such as the size of local markets in host countries.

Foreign direct investment in Central European transition countries may be expected to receive another push from the pending eastern enlargement of the EU. However, various indications suggested that foreign investors have largely anticipated the effects of enlargement. The future growth of direct investment may, therefore, prove weaker than hoped for by accession countries and frequently feared in current EU member countries. Additional direct investment in accession countries is, on the whole, unlikely to negatively affect present EU exports and labor markets. Nevertheless, increasing market integration in an enlarged EU may add to distributional conflicts in countries such as Germany.

The economic effects of foreign direct investment in developing countries were addressed from different angles. First, the Group discussed the widely held belief that direct investment can contribute significantly to fighting poverty in developing countries. To this end, poor countries would not only have to attract larger direct investment inflows, another precondition would also have to be met, namely that local conditions are conducive to economic spillovers from direct investment. It appeared that the growth-enhancing and poverty-alleviating effects of direct investment tend to be constrained by weak institutions and poorly developed markets exactly where development needs are the most pressing.

Second, building on previous research, the Group raised the proposition that the heterogeneity of foreign direct investment does not allow for easy generalizations concerning the economic growth impact of direct investment. The heterogeneity of direct investment is largely ignored in the recent literature. To overcome this deficiency, direct investment was differentiated according to investment motives and the distribution of direct investment across sectors, industries, and host countries was taken into account. The character and type of
direct investment was shown to vary significantly between Africa, Asia, and Latin America. In cooperation with the Centro de Investigación y Docencia Económicas in Mexico-City, the Group initiated a study in which the relevance of these differences for the economic growth effects of direct investment is tested econometrically.

As concerns the role of the World Bank and the IMF, the Group discussed the claim of globalization critics, according to whom the Bretton Woods institutions bear the major responsibility for worldwide poverty and recent financial crises. It was shown that the impact the World Bank and the IMF have on the economic policy and performance of their members is typically overstated. Yet, the success record of these institutions proved rather poor even by their own standards. With regard to the IMF, the Group recommended that ex post conditionality be replaced by ex ante agreed-upon prequalification criteria as far as possible. For the World Bank to fight poverty more effectively, it must be taken into account that development aid is instrumental to poverty alleviation only if focused on poor countries pursuing growth-enhancing economic policies. In contrast to World Bank claims, an evaluation of the distribution of World Bank aid revealed that the targeting of aid still leaves much to be desired.

The Group began work on the distributional effects of structural reforms. Rigidities in product and labor markets are considered to be at the roots of poor economic performance in many developing countries. To restore sustainable economic growth, international organizations such as IMF and World Bank have advocated highly standardized structural reforms. Critics, however, argue that rising poverty and inequality are also part of the deal. In a new research project, the Group began assessing the validity of this claim for the case of Bolivia.

First, a comprehensive stock-taking of the structural reforms that have been implemented was carried out. It was shown that, judged from the perspective of IMF and World Bank, Bolivia has been a showcase. Public interventions and competitive distortions in product markets were reduced, public companies were privatized, and the economy was opened up to international trade and foreign direct investment. Only with respect to labor market reforms does Bolivia still lag behind.

Second, the Group developed a macroeconomic model to simulate qualitatively the distributional effects of different policy measures. According to the model, structural reforms reduce economic rents on product and factor markets and increase demand for skilled workers. Both partial effects impair the income and employment prospects of the middle class, i.e., low-qualified formal-sector workers.
Third, the empirical testing of the model implications was begun. The data for the analysis comes from five household surveys conducted between 1989 and 1997. A decomposition of post-reform trends in wage inequality provided first evidence for the validity of the model. Further empirical analysis is required to identify the transmission mechanisms of each policy measure. This analysis will be carried out in cooperation with a Bolivian research group of the Instituto de Investigaciones Socio Económicas (IISEC), La Paz/Bolivia.

**Industrialization and Foreign Trade**

The Industrialization and Foreign Trade Group (headed by Matthias Lücke, on leave of absence in 2002) concluded its work, conducted jointly with the Stability and Structural Adjustment Group (see below), on convergence indicators for the Central and Eastern European accession candidates. Research on a new issue which deals with the interaction between regional integration (liberalizing current account transactions) and monetary integration was initiated. Several financial crises in Latin America have led to disinflation in free trade areas and customs unions by triggering the reintroduction of internal tariffs and postponement of further liberalization steps. The Group will analyze to what extent, for instance, polar exchange regimes raise trading costs within integration schemes and whether monetary integration can be successfully launched without having passed through some stages of regional integration, as is currently being discussed in East Asia.

Long-standing work on the trade-off between the multilateral trading order and regional or bilateral free trade zones which have mushroomed in recent years was continued. A detailed analysis which is supported by trade theory, however, suggested that rapid growth in the number of such zones overestimates their actual importance and that in particular integration schemes between developing countries only are likely to merge with larger schemes which are dominated by either the United States or the EU.

The Trade Liberalization and Market Access Research Area initiated a project, in its cooperation with the APEC Business Advisory Council (ABAC), which deals primarily with the mushrooming of antidumping measures (ADMs). The project—which could be considered to be an extension and deepening of the Pacific Economic Cooperation Council (PECC) study on nontariff measures in goods and services trade—focuses on the misuse of ADMs within and against the twenty-one APEC members. APEC economies have remained the largest target of ADMs over the past decade while at the same time having reduced their own share as initiators of ADMs. The PECC study notably concluded that recourse to NTBs has grown over time as tariff protection for domestic industries has fallen.
Thus, ADMs are obviously misused for protectionist purposes and threaten the success of further liberalization and increased market access.

To the extent that these measures are aimed at thwarting competition stemming from internationally agreed-upon liberalization steps, they can be seen as hindering economies from achieving the welfare gains expected from multilateral trade negotiations. By hindering an efficient allocation of capital to the most productive sectors, such measures not only cause downstream industries to become less competitive, since they must pay higher prices for their intermediate inputs, they accordingly cause also consumers to pay higher prices for goods and services.

The results of the project were presented to the Economic Leaders at the October APEC Summit in Mexico. The question was raised as to whether these results must actually be considered a step backwards, since the use of ADMs (or other nontariff barriers) means creating an international trading system which is less transparent.

An additional project was carried out in connection with the India-based Centre for International Trade, Economics, and Environment (CUTS). The specific project deals with the forthcoming elimination of quotas on the exports of textiles and clothing products from India. While much work has been done in recent years on dealing with the coming phaseout of the quotas on the importation of textile and clothing products into industrialized countries within the framework of the Agreement on Textiles and Clothing (ATC), in more recent studies the impact of China’s WTO accession has been incorporated into these analyses. While there does not seem to be a consensus opinion on what the impact of the ATC might imply, there is a growing consensus that the impact on global textile and clothing exports is going to be substantial.

In the case of the phasing out of quotas, there are fears that their elimination will be postponed. This fear seems all the more real in light of worsening overall economic conditions. As concerns the additional impact of China’s accession to the WTO, there would seem to be little reason to doubt that the implied massive shift of resources caused by the elimination of ATC quotas and the liberalization of tariffs will occur. This study highlighted the costs of the quota elimination for India and emphasized the steps which need to be taken to ensure that India can profit from inherent comparative advantages. These were earlier shown as the results of a CGE model developed jointly with the Economics Department of Erasmus University Rotterdam last year.
Human Capital and Growth

The Human Capital and Economic Growth Group (headed by Erich Gundlach) continued and extended its previous research on the microeconomic determinants of student performance in a number of projects. Overall, the research work focused on a theoretical analysis of the impact of various schooling institutions on the behavior of students and schools, and on empirical analyses of the impact of schooling resources, family background, and central examinations on student behavior. Furthermore, the often-observed positive correlation between class size and student performance was reinterpreted as reflecting, in many countries, the sorting of low performing students to small classes. A macroeconomic study provided second thoughts on the potential growth effects of full EU accession for the new member countries conditional on their seemingly high average level of human capital.

In a joint project with Cornell University on schooling institutions and student performance, the first step was to create a model that would allow for a better understanding of some previous empirical results on the impact of various schooling institutions on student performance. By using a simple principal-agent framework, it was shown how students choose their learning effort to maximize their net benefits, while the school (or the government) chooses educational spending to maximize its net benefits. In the jointly determined equilibrium, schooling quality was shown to depend on several institutionally determined parameters. The impact on student performance of institutions such as central examinations, centralization versus school autonomy, teachers’ influence, parental influence, and competition from private schools was analyzed. Among other things, the model can rationalize why positive resource effects may be lacking in educational production.

Another project used an extensive international micro database of nearly half a million students based on the Third International Mathematics and Science Study (TIMSS 1995) and the TIMSS-Repeat study (1999) to find out whether central exams help to achieve higher student performance. The study finds that students in countries with central exit-exam systems perform substantially better in their middle-school years in both math and science than students in countries without central exams. In quantitative terms, their advantage is 35 to 47 percent of an international standard deviation in test scores, or roughly the equivalent of one year of schooling. The beneficial effect of central exams increases as students advance through middle school. Moreover, good and bad students perform better in central-exam systems. Another finding of this study is that school autonomy in budgetary and salary decisions goes hand in hand with weaker student per-
formance in school systems without central exams but turns out to improve student performance in systems with central exams.

A third project focused on estimating the impact on student performance of **schooling resources and family background in selected East Asian countries**. Students from East Asian countries performed very well in recent international comparisons of cognitive achievement in mathematics and science. This fact may point to more effective schooling systems in East Asian countries than in other parts of the world. Since effective schooling is held to be one of the major determinants of the future international competitiveness of aging societies, it appears to be useful to understand the relative importance of various factors that determine student performance in some of the best-performing countries. Empirical estimates of education production functions for individual countries can quantify the relative performance effects of both schooling resources and family background and thereby reveal possible differences in schooling systems across the countries concerned. Using internationally comparable student-level data (TIMSS), the study finds that family background is a strong predictor of student performance in South Korea and Singapore, while students with different family backgrounds achieve more equalized educational performance in Hong Kong and Thailand. There is no empirical evidence that schooling policies focusing on smaller class sizes improve student performance in East Asia. But other schooling policies such as school autonomy in salary decisions raise student performance in most of the countries considered, which all employ central exams.

A further study, also based on the international TIMSS data set, examined for a sample of national school systems whether weaker students are more likely to be placed in smaller or in larger classes (in cooperation with the Kennedy School of Government at Harvard University). That is, whether the **sorting of students by performance into classes of different size** could result in a compensatory or a regressive pattern. With compensatory sorting, one would expect a positive correlation between student performance and class size, and a negative correlation with regressive sorting. The problem is that observed correlations between student performance and class could also be influenced by a possible causal effect of class size on student performance. To separate the causality effect from the sorting effect in the data, an empirical method was employed that was developed in a previous own study on the causal effect of class size. The empirical results indicate substantial compensatory sorting within and especially between schools in many countries. Strong evidence for a pattern of regressive between-school sorting was only found for the United States, a country with decentralized education finance and considerable residential mobility.
In a macroeconomic study largely based on previous studies of the research group on *schooling productivity and growth*, the possibilities for higher economic growth in the present candidate countries after full EU accession were reconsidered by focusing on their seemingly high level of human capital. Conventional indicators of educational input and output actually suggest that in terms of human capital, most pre-accession countries do not differ substantially from the EU average. However, the available measures may not capture the economically relevant stock of human capital, especially in formerly socialist candidate countries. Eastern Germany’s experience after EU accession provides some evidence that the stock of human capital in Central European economies could be grossly overstated by measures relying only on formal education and training. Hence most pre-accession countries may actually face a large human capital deficit that would hinder growth and economic development. The experience of EU countries indicates that human capital gaps cannot easily be closed. That is, policy measures to support human capital formation have often led to disappointing results in the past. In EU countries, for instance, short-run investments in human capital formation such as worker retraining programs have proved to be ineffective at best. Long-run investment in human capital formation would have to focus on schooling, but even large increases in educational expenditure have apparently failed to boost the quality of European schooling in the past. Effective long-run human capital formation may require efficient schooling systems. Having severely limited possibilities of increasing human capital formation in the short run, most pre-accession countries thus may have to expect the process through which their economies can catch up with those of the EU to remain slow even after full membership.

Stability and Structural Adjustment

The Stability and Structural Adjustment Group (headed by Rainer Schweickert) continued to focus on macroeconomic policies in economic development and on structural adjustment in low-income countries. With respect to *macroeconomic policies in economic development*, three research projects were conducted. The indicators developed by the Group on the convergence of economic performance and on the optimality of integrating into EMU, which had been developed earlier on the basis of a comparison between accession countries and a group of EMU reference countries (Ireland, Greece, Portugal, Spain), were extended and refined. In cooperation with the Industrialization and Trade and European Integration groups (Research Department I), an indicator for the readiness of the accession countries for entry into the EU according to the Copenhagen criteria was developed. The Group developed the indicator on macroeconomic stability and capital market development as an extension of the convergence indicator.
The results showed that all accession countries except Romania are ready for entry according to this indicator: only Romania performed worse than Greece, and the accession countries lag behind the other reference countries, above all Ireland and Spain, only in terms of capital market development.

Research on currency crises was continued with an analysis of the Argentine crisis. A comparison of the macroeconomic development of Argentina from 1994, when the Mexico crisis broke out, with macroeconomic development in Brazil, Chile, and Mexico demonstrated that, for all four Latin American countries, there is no significant correlation between exchange rate regimes, real appreciation, public deficits, and current account developments. This implies that structural reforms and monetary stability would have been more important for Argentina than austerity programs and a flexible exchange rate. Additionally, indicators for the evaluation of development perspectives were developed. These indicators showed in an international comparison that there are good development perspectives for Chile only. In contrast, the indicators revealed that there are high risks in the case of Brazil which are comparable to the risks shown for Argentina before the crisis and which are based on fundamental factors.

Earlier research on current account developments in emerging markets has also been continued. Five new approaches for evaluating the intertemporal approach of the current account empirically have been compared. Traditional approaches were not able to account for the volatility of the actual current account and to predict a reaction of the current account to country-specific shocks that is stronger than in the case of investment. The most promising approach distinguishes between transitory and permanent components of shocks but is not able to confirm the theory for all countries and periods. Therefore, future research will try to integrate better the intertemporal and intratemporal approaches.

The Group also continued its work on structural adjustment in low-income countries in two research projects. In collaboration with the Natural Resources Group (Research Department II) the investigation of short-run and long-run distributional effects of stabilization and structural adjustment policies in Bolivia were completed and summed up in a final report. This Group contributed a social accounting matrix which is tailored to the structure of the CGE model and which is necessary to implement the model. Further, the Group investigated the macroeconomic constraints to economic development, and the development of poverty and income distribution during the period of reform. All in all, the research group has shown that the persistence of poverty in Bolivia is largely due to the lack of export dynamics and mobilization of domestic savings as well as entry barriers to formal labor markets.
Another focus of the work on structural adjustment in low-income countries was on the *agricultural supply response in sub-Saharan Africa*. A project was continued that deals with the question of whether favorable price and nonprice incentives would lead to a dynamic response of agricultural output, or whether natural characteristics such as low soil fertility and irregular rainfall are a binding constraint for agricultural development in the region. The empirical analysis proceeded in two steps. First, the evolution of price incentives for agricultural production was examined. It turned out that, despite improvements over time, the discrimination of agriculture via pricing policies and macroeconomic distortions remained substantial in the 1990s. Second, the agricultural supply response was estimated econometrically. Both a cointegration analysis for selected countries and a cross-country study revealed that the price elasticity of supply tends to lie below unity but is significantly different from zero. Among the nonprice factors considered, the quality of infrastructure and the extent of adult literacy turned out to have a strong impact on agricultural supply. Altogether, the results indicate that improvements in agricultural productivity could be achieved if reforms in agricultural and macroeconomic reforms were combined with public investment in physical and human capital.

### 7. Business Cycles (Research Department V)

The Business Cycles Department (headed by Joachim Scheide) analyzes and forecasts the cyclical development in the world economy with a particular focus on Germany, the euro area, and other industrial countries. Furthermore, strategies for economic policy are analyzed in order to evaluate whether they can contribute to price stability, economic growth, and a more stable cyclical development of output.

One important area of research is the feedback from new theoretical developments which may enhance the analysis of the macro economy. In addition, modern econometric methods are used to improve the empirical basis for the forecasts and the assessment of economic policy. The Department uses several databases which are permanently updated by adding national and international data from official and nonofficial sources when analyzing the cyclical development and the situation of public finances.

Four times a year, the Department prepares business cycle forecasts which are published in the journal “Die Weltwirtschaft” and also as “Kiel Discussion Papers.” In addition, special topics related to business cycle research and macroeconomic policy are published. In the spring and in the fall, the forecasts are...
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presented with a particular focus on world economic events and issues related to the business cycle and economic policy in the euro area. These publications also serve as the basis for the traditional “Kieler Konjunkturgespräche” (Kiel Business Cycle Conference), a meeting at which national and international experts discuss the outlook for the world economy. In the fall and in the spring, the Department, together with the other five major economic research institutes in Germany and the rest of the world and on current issues of economic policy. This project, which is financed by the federal government, is then presented to the public.

The analysis of economic policy and the cyclical development in the euro area has been a focus of business cycle research. In 2002, the Department continued and intensified its cooperation, started several years ago, with other European research institutes, these being: CPB, The Hague; DIW, Berlin; ESRI, Dublin; ETLA, Helsinki; NIESR, London; OFCE, Paris; Prometeia, Bologna and Wifo, Vienna. This network of institutes, named EUROFRAME, prepares joint forecasts and policy analyses for the euro area and the European Union; furthermore, the network cooperates in the field of basic research on the macro economy.

Basic Business Cycle Research

As a central topic, the Basic Business Cycle Research Group (headed since July 1 by Kai Carstensen) analyzed inflationary shocks in Germany with the help of a cointegrated structural vector autoregressive model. By incorporating explicit long-run restrictions into this model, the Group was able to distinguish between shocks with permanent effects and shocks with only transitory effects. First results indicate that inflation is determined by both real and monetary shocks in the short and medium run, while it is determined by only two shocks in the long run: permanent supply shocks and inflation expectation shocks, which most probably reflect credible central bank announcements.

The structural stability of the demand function in the euro area has been questioned recently in the light of the high growth rate of M3. This stability is of crucial importance because of the central role of money in the ECB’s monetary policy strategy. Several econometric methods were used to test whether the money demand function specified as a relationship between broad money M3, the price level, real GDP, nominal interest rates, and inflation is stable. For the recent past clear signs of instability were found. This is in contrast to previous studies which analyzed the period before the year 2000 and almost unanimously accepted the hypothesis of structural stability. The current instability makes it difficult to assess the possible impact of the observed money growth on inflation. It is, however, too early to judge whether the instability is due to specific
In cooperation with the Institute for Statistics and Econometrics at Kiel University, a research project was initiated in order to develop improved estimation techniques for autoregressive models. These models are often used for prediction purposes, and thus accurate estimation is important. In spite of this, common estimation and testing procedures are based on asymptotic arguments which may turn out to be inappropriate for the short sample sizes often encountered in macroeconomic research. Therefore, improved methods which have been proposed in the recent literature were used and complemented with own procedures which employ so-called saddle point approximation and allow exact inference for any sample size.

The research project entitled “Growth and European Labor Markets,” conducted for the European Commission, was completed. Apart from the Kiel Institute, the Centraal Plan Bureau (The Hague), ET LA (Helsinki), EUI (Florence), OFCE (Paris), and Prometeia (Bologna) contributed to the project. Using a newly constructed labor market balance for the EU-15 a conditional forecast with a time-horizon until 2020 derived the following policy conclusions: In spite of the assumption of rising net immigration stemming mainly from the enlargement of the EU by Eastern European countries, labor will become an increasingly scarce resource. This will only be partly offset by a continuing rise in the participation rates of women and of the elderly. The increased scarcity of labor will lead to a faster real wage growth, which should be accompanied by a corresponding increase in labor productivity. To achieve this, considerable improvement in skills will be required, especially for the older part of the labor force—which has been heavily neglected in most of the EU-15 countries. Due to the expected future shortening of product life cycles, this might best be accomplished by providing on-the-job training which is provided by the enterprises themselves. In contrast, public training programs apparently will not be able to adapt fast and flexibly enough to the rapidly changing requirements of the product markets.

Participation rates of the elderly are rather low in many countries of the European Union compared to international standards. This is mainly a consequence of earlier retirement programs initiated in the 1980s and 1990s to hold down unemployment. In the future, such programs should be restricted to serious and exceptional cases on a sectoral and/or regional level which cannot be solved differently. A general increase in the legal retirement age should also be envisaged in view of the continuing rise in average life expectancy. At least in some EU countries the average duration of education, particularly in high schools and universities, could be shortened.
To facilitate and to improve the quarterly *estimates of labor supply in western and eastern Germany*, a model which contains all the important exogenous variables was built. The calibration of the coefficients of this model is based on long-run practical experience. Of special importance are the demographic background factors like crude birth and death rates, the age structure of the population, and across-the-border migrations. Moreover, the impact of the educational system, of public retirement schemes, and other measures of active labor market policy will be taken explicitly into account. The effect of changes in important exogenous variables on labor supply may then be simulated with the help of this model.

The German Business Cycle Group (headed by Carsten-Patrick Meier) analyzes and forecasts the *business cycle in Germany*. The year 2002 was characterized by an enduring cyclical weakness. While the recession of the previous year was overcome, the expected acceleration of production growth did not occur. The reason for this was a series of negative shocks which hit the German economy starting in spring. The euro appreciated considerably against the U.S. dollar, as well as against the British pound and the Japanese yen; consequently, the price competitiveness of German firms was diminished. In addition, there was a worldwide stock market crash that dampened world economic activity and reduced household wealth and financing opportunities for firms. Moreover, the danger of a military strike by the United States and the subsequent oil price hike affected the sentiment of investors and consumers further. Finally, production growth was also hampered by strikes and by the flood disaster in eastern Germany.

The group analyzed the *consequences of these negative shocks on the cyclical situation in Germany* in a number of projects. The effect of *euro appreciation* on the German economy was investigated using the group’s econometric models of German aggregate trade, which had been updated after revised national accounts data for the period 1970–1991 had become available. It could be shown that while exports vary proportionally with the indicator of external price competitiveness, no significant exchange rate effect on imports could be found. All in all, the effects of appreciation on the economy are thus limited and in line with previous findings of a lower exchange rate elasticity of exports.

The marked fall in stock market prices had an additional dampening effect on the German economy in 2002. How strong this effect would be was difficult to assess, however, given the lack of recent estimates of the magnitude of the *wealth effect on German private consumption*. To quantify this effect, the Group,
in a first step, estimated a consumption function for Germany in an error-correction specification, with disposable income and total household wealth as explanatory variables. The result was a long-run marginal propensity of 3.5 percent to consume out of wealth. This number conforms with estimates for France, Italy, and partly also for the United States; for the latter country, however, a number of studies have produced higher estimates. In a second step, the Group estimated that 7 percent of household wealth will be affected by the fall in stock prices, whereas one-third will be affected in the United States. Given these estimates, it was concluded that the wealth effect will be considerably smaller in Germany than in the United States. However, given the magnitude of the stock price fall, the effect on private consumption will nevertheless be considerable.

Together with the cyclical weakness of the German economy a slowdown of credit growth was observed, credit volumes even fell temporarily. In principle, slower credit growth is not unusual in a business cycle downturn or due to a sluggish demand; in addition, banks are more reluctant to supply credits due to higher insolvency risks. The Group, therefore, investigated whether the magnitude of the observed slowdown in credit growth was usual for the cyclical situation or whether it was stronger, thus indicating a structural reduction in credit supply by banks, for instance, in anticipation of the more risk-oriented equity rules envisaged in the Basle II Capital Accord. An analysis of credit growth over the past forty years showed that credits had already fallen before in real terms, mostly following a recession. Moreover, the trend deviation of credits in relation to the trend deviation of GDP (output gap) is at present not much higher than in previous periods of cyclical weakness. It was concluded that there were no signs of a significant structural change in credit supply or a “credit crunch.” An analysis conducted by the Deutsche Bundesbank later came to the same conclusion.

Improving the instruments for short-term forecasts remained one of the main themes of the Group’s work. Stimulated by a recent article in the literature, the Group analyzed the forecast performance of the two main indicators of business sentiment in Germany, the “Geschäftserwartungen” produced by the ifo-Institute, Munich, and the “Konjunkturerwartungen” produced by the ZEW, Mannheim. The difference between the two is that the former index comes from a survey of industrial managers and bosses, while the latter comes from a poll of business cycle experts, mostly from financial institutions. In the literature, it was found that forecasts of German industrial production based on the “Konjunkturerwartungen” had significantly smaller errors than forecasts based on the “Geschäftserwartungen.” The Group’s investigation showed that this result was due to an overly restrictive specification of the forecasting model used in the literature. Using a less restrictive model, it could be shown that the forecast errors are absolutely lower for both models than in the previous studies and that the
ranking of the two indicators is reversed; the “Geschäftserwartungen” now give rise to lower forecast errors.

The analysis of monetary policy remained another focus of the Group. A research project on the relation between monetary policy and unemployment in Germany was finished. The project concluded that the hypothesis of a constant natural rate of unemployment, which underlies typical new-Keynesian models, cannot be supported for Germany. The hypothesis that a large part of unemployment was due to a lack of demand which could have been avoided by a more expansive monetary policy is rejected. Using various econometric methods, the study established an upper bound estimate of the contribution of monetary policy to the unemployment rate of 3 percentage points (of a total of 9 percent in the 1990s), with alternative estimation techniques and sample periods all leading to lower estimates. The traditional view that unemployment in Germany is mainly structural was thus by and large confirmed, even though the study also found some effects of demand on unemployment.

In a new research project, the Group attempted to model the monetary decisions of the Deutsche Bundesbank between 1973 and 1998, that is, in the period of its monetary autonomy. A problem with modeling past decisions is that historical macroeconomic data available in databases today do not represent the information available to the policy makers at that time because of data revisions. To solve this problem, “real-time” GDP data for Germany were constructed using earlier statistical publications of the Bundesbank. In addition, the methods used to estimate production potential and the output gap were adapted so that they only used data available at the historical date of their decisions. First results show that these changes in methods lead to large changes in the estimated output gaps, while data revisions only play a minor role.

International Business Cycle

The International Business Cycle Group (headed by Klaus-Jürgen Gern) analyzed business cycles in industrial countries other than Germany. In addition, current economic developments in a number of emerging market economies in Asia, Latin America, and Central and Eastern Europe were examined. It was found that the shock of the terrorist attacks of September 11—as expected—dampened economic activity only temporarily. In early 2002, the world economy recovered markedly, partly due to an additional easing of monetary policy and in some countries also to a stimulus from fiscal policy. The expectation that there would be a continued upturn in the world economy was supported by a strong increase of important leading indicators. However, economic sentiment deterio-
rated again after the middle of the year, and the upswing has lost considerable momentum recently.

Reflecting the size of the U.S. economy and its remarkable strength in recent years, the economic developments in the United States continued to be of particular interest. A comparison of the performance of key economic indicators such as the profit share, the savings rate, inventories, and labor productivity revealed that its was unlikely that the U.S. economy would fall back into recession. This assessment continues to hold even after the recent pronounced decrease in stock prices, although, according to econometric estimates of the Group, the wealth loss will dampen private consumption considerably. The fall in equity prices by 20 percent is estimated to lead—other things being equal—to a reduction in the level of household expenditures by 1¾ percent. Notwithstanding this negative impact, private consumption can still be expected to rise at a reasonable pace. Overall the U.S. economy is forecast to expand moderately for the time being.

A further focus of the Group’s work was on analyzing economic developments in the euro area. Here, cooperation with other European economic research institutes was continued. The Group continued to contribute to the project on a business cycle indicator for the euro area, which allows the pulse of the economy to be taken up to two quarters ahead of the latest available official GDP figure. Much work was devoted to the analysis of monetary policy. Both the level of real interest rates relative to its long-term average and the development of monetary aggregates signaled an expansionary stance of monetary policy. An evaluation based on the Taylor rule even suggests that interest rates are significantly too low due to inflation being stubbornly higher than targeted. However, the expectation that the ECB was about to increase key interest rates was revised during the year. First, output in the euro area grew slower than forecast, with the consequence that there was a further reduction in capacity utilization, and the output gap is expected to widen also in 2003. Second, econometric investigation revealed that the money demand function is currently unstable. Consequently, the recent strong rise in M3 cannot be taken as an indication of future inflationary pressures. On the other hand, a further monetary easing does not seem to be necessary for the time being given that interest rates are already relatively low.

The cyclical downturn has been clearly visible in public finances. Increasingly, it became clear that fiscal consolidation during the period of strong economic growth was insufficient, particularly in the large countries. As a consequence, in 2003 Italy will be close to the deficit limit of 3 percent relative to GDP, while Germany, France, and Portugal will exceed it. In the opinion of the Group, the Stability and Growth Pact should be maintained and strictly enforced despite the
continued weakness of the economy. The recent empirical literature, including
the work of the Group, shows that credible consolidation strategies focused
on expenditure reduction have not necessarily dampened economic growth even
in the short term. On the contrary, in some countries the reduction in public
demand was more than compensated by an increase of private demand. An
important aspect of restraining expenditure, and social spending in particular, is
that growth will be strengthened in the medium term. By contrast, with a softening
of the stability pact, there would be a significant risk that financial markets
would be irritated and that there would thus be a sustained rise in interest rates.

In the Group, a project was carried out concerning public investment in OECD
countries. Since the end of the 1980s, there has been increased discussion in the
economic literature about whether the public capital stock is productive or not.
Empirical studies of the productivity of the public capital stock have been limited
to a small number of countries for which official estimates of the capital stock
are available, and to studies of the income effects of public investment as an
alternative. In the Group’s project, internationally comparable estimates of the
public capital stock were produced for 22 OECD countries for the period 1960–
2001. With these data, it is possible to approach a number of questions, including
the analysis of productivity of the capital stock in those countries for which
capital stock estimates have been missing. In addition, the data can be used in
panel regressions in order to evaluate the average income effects of public capital
in the OECD countries. Finally, it will be possible to analyze to what extent there
is an infrastructure gap or an overaccumulation of public capital in the individual
countries.

In cooperation with the German Business Cycle and Public Finance Groups, a
project was continued which is devoted to the question of to what extent macro-
economic policy can contribute to higher growth of potential output in the Euro-
pean Union, and specifically in Germany, through the improved coordination of
monetary policy, fiscal policy, and wage policy. The starting point was a theore-
tical distinction between the business cycle and the growth of the production
potential, and various estimates of the output gap were considered. It was shown
that the disappointing performance of the German economy—similar to some
other EU countries—is predominantly due to weak growth of potential output
and is not primarily cyclical. Therefore, the problem cannot be cured with ex-
pansionary demand side policies but has to be tackled by a medium-term strategy
designed to improve the supply conditions in the economy. In addition to struc-
tural policy measures that improve the institutional framework, that increase
the accumulation of human capital, that are conducive to innovations, that improve
the incentives to supply labor, and that increase the expected return on invest-
ment, there is also a role for such macroeconomic policy instruments as mone-
tary, fiscal, and wage policies. Monetary policy can contribute by maintaining price stability and keeping inflation variance small. Fiscal policy should not engage in demand management. Rather, it should foster medium-term growth by improving the allocative efficiency of the tax system and limiting the public share in the economy to its necessary level. Wage setting is of particular importance in raising the growth rate of potential output in an environment of high unemployment, as is the case in Germany but also the EU as a whole. A policy of sustained wage moderation in combination with increased wage differentiation can increase the utilization of labor in the economy.

The possibilities of improving macroeconomic performance by coordinating the individual macroeconomic policy instruments were analyzed using a theoretical model. It was shown that an increase in potential output induced by wage moderation translates into actual production the fastest when monetary policy expands the money supply (or lowers interest rates) in the same period in which potential output rises. Fluctuations in the output gap and the inflation rate will be minimized in that case. The long-term effect of wage moderation on potential output, on the other hand, cannot be raised by an expansionary monetary policy. In order to quantify the effects, an empirical macro model (NiGEM) was utilized. The model simulations showed that wage moderation has a significant positive effect on output and employment. Specifically, the number of employees would rise by 750,000 in the longer term if wage increases were 1 percentage point lower than in the baseline scenario for five consecutive years. The conclusions of the theoretical model were confirmed: if monetary policy instantly accommodates an upward shift in potential output, the gains are somewhat higher in the short term but not in the longer term.

In a further step the feasibility of a coordination of monetary policies was investigated. Experience from other countries has shown that a successful revitalization of the economy has been largely attained without ex ante coordination of monetary policy and wage policy. As concerns the EU, the institutional framework does not allow such coordination. For instance, the statute for the ECB—for good reasons—does not allow the central bank to make binding commitments regarding monetary policy or to accept instructions from other institutions. Moreover, things are complicated by the fact that wage-setting systems are vastly different across European countries. An EU-wide centralized wage policy which would be necessary for a coordinated macroeconomic policy strategy is not possible under these conditions, nor is it sensible in view of the very different situations on the different European labor markets.

A further part of the project dealt with the question whether there should be a separate tax at the EU level and whether the value-added taxes and capital income taxes should be harmonized. The growth of potential output would be
hampered if the introduction of a tax at the EU level were to lead to an increase in the overall tax burden, which would be the most likely outcome. The arguments in favor of harmonizing value-added taxes were found to be unconvincing, whereas the introduction of the country-of-origin principle was found to be the superior solution. The arguments in favor of harmonizing capital income taxation were rejected as well. On the one hand, there is no indication that there would be a race to the bottom, as feared by some analysts, which would ultimately prevent the government from meeting its obligations. On the other hand, tax competition was found to be necessary in order to restrain redistribution to an efficient level and improve the efficiency of the tax system.

The investigation of the effects of the new information technologies on the macroeconomic level was continued. Productivity developments were again analyzed in order to take account of the recent period of economic slowdown and the repeated significant revisions of the U.S. national account statistics. It was found that productivity growth in the United States has continued to be significantly higher in recent years than in the period 1975–1995, although the productivity improvement has been somewhat less impressive compared to previous estimates. In Europe, by contrast, there has still been no visible acceleration of productivity growth. As concerns implications for monetary policy, it was concluded that in a world with forward-looking consumers the optimal reaction of the central bank is to raise interest rates. Given the uncertainty with respect to trend productivity, monetary policy should be careful about acting “on suspicion,” however.

Public Finance

The Public Finance Group (headed by Alfred Boss) continued its analysis of subsidization policy in Germany. In 2001, subsidies amounted to 156 billion euros (7.5 percent of GDP). In the political debate, the subsidies granted by the federal government, the states, the local governments, and the unemployment insurance office are justified in different ways. From an economic point of view, the reasons given are usually not convincing. Thus, there is room to cut subsidies and at the same time to reduce the tax rates. It was shown to what extent the income tax rates could be lowered drastically if—given the budget sector balance—all the subsidies were cut proportionately by the same amount. To give an example, the income tax rates could be reduced by about two-thirds if all the subsidies were abolished; in this case the top marginal income tax rate would be 19 instead of the current 51 percent.

In addition, the subsidies paid by the 16 German states and their local authorities were investigated in detail. These subsidies amounted to 71 billion euros in 2001.
Subsidies per inhabitant in eastern Germany are roughly 100 percent above those in western Germany.

In the 1990s, GDP growth in Germany was about half a percentage point smaller, on average, than in the other EMU countries. The Group investigated the question whether this difference might be due to a difference in government expenditures in relation to GDP. It concluded that this was the case to some extent. Whereas government expenditures in Germany were more or less constant, they declined, on average, in the other EMU countries. Consequently, the actual as well as the expected tax burden remained high in Germany, whereas it decreased elsewhere.

The Group also analyzed whether the federal government achieved the fiscal policy targets which it had announced in the Stability Programs of the recent years and whether the target of balancing the budget by 2004 will be achieved. The Stability and Growth Pact decided upon in 1997 gave enough time to balance the budget, as the structural budget deficit was small in 1997, compared to deficits in the other European countries. In addition, many other countries reduced their deficits much more. However, the targets were missed in Germany; for example, in 2002 the structural budget deficit in Germany was as large as in 1998. It is highly improbable that the budget will have been balanced by 2004.

Given the poor financial situation in 2002, the 2004 target will only be achieved if the expansion in government expenditures decelerates stronger than in the medium-run path decided upon in March 2002. In order to foster economic growth, fiscal policy should restrain public consumption expenditures, social expenditures, and subsidies, and not investment. Apart from this, it will be necessary to decelerate the growth in the social insurance expenditures (22 percent of GDP). Otherwise, labor costs will rise and employment growth will be dampened. If the increase in government expenditures is not reduced, investors and consumers will have to expect high taxes. The announcement that taxes will be cut in 2004 and 2005, without significant measures being taken to cut expenditures, has probably already led to a loss of credibility of fiscal policy. The intentions of the new government to raise taxes are the opposite of what is adequate for a medium-run fiscal policy strategy.