DESCRIPTION OF THE SOLUTION PROGRESS

The aim of the research of the Centre is to do a comprehensive analysis of sources and results of competitiveness of the Czech Republic as well as identification of related economic and social implications to support a successful transition to the knowledge–based economy. The research progress is stipulated in the project and structured into four components covering the key areas of the researched subject, namely (1) growth performance and stability, (2) institutional quality, (3) innovation performance and (4) human resources quality. The project was carried out by three workplaces: Faculty of Economics and Administration, Masaryk University (ESF) and the Centre for Economic Studies at GF VŠEM, o.p.s. (CES) that focused on the first three components, while the National Observatory of Employment and Training at the NVF, o.p.s. (NOZV) dealt with the fourth component. At the beginning of 2005 the research concept and focus of individual workplaces was determined and specified in more detail.

Solution of individual components was as follows:

(1) Growth performance and stability was researched in CES with regard to supply and demand factors including their interaction in macroeconomic equilibrium and according to real and nominal convergence. On the supply side, the factors of labour, capital and total factor productivity have been investigated, since they determine economic growth in the long term. The effect of technological progress was analysed in an international comparison. The demand side has been analysed according to the basic components of demand (private consumption, public consumption, investment and foreign trade) with a quantification of their contribution to the growth of GDP. In addition to it, the Centre carried out an international comparison of demand structure in purchasing power parity. Macroeconomic equilibrium was analysed on the basis of domestic supply (GNP) and domestic demand (final consumption and investment) and the relationship between national savings and domestic investment, which enables to relate the internal economic equilibrium with the external equilibrium. Institutional sectors contributing to the production of a negative savings-investment gap were identified. On the demand side, the research was also focused on the development of the tax quota, which determines economic growth. The analysis concentrated on the quota development in time as well as in an international comparison. The progress of real convergence towards the developed EU countries was assessed both globally according to the living standards measured in terms of GDP per capita in purchasing power parity and labour productivity developments and employment development. The comparisons were made with the average level of EU-25 countries and with individual new member countries, particularly with the five countries of Central Europe. Price level competitiveness was analysed using the unit labour cost indicator specifically constructed for this international comparison. Researchers began to investigate the link between nominal and real convergence and the convergence of price levels was studied in relation to economic level. Factors of economic growth both on the supply and demand sides were identified at ESF. Aggregate output growth was decomposed to show the contribution of individual production factors. The subject of analysis in the international comparison was the impact of technologies and technical progress. At this workplace the research on the demand side was also focused on the tax quota development, namely in time as well as in international comparison. Another subject of research was the influence of external shocks on growth and stability of economy, identification of possible sources of macroeconomic instability and options of the

central bank in stabilizing the output and inflation. For this reason monetary policy and its influence on the small, open, inflation-oriented economy of the Czech Republic was also investigated. The optimum behaviour of the central bank, represented by variant monetary rules, was analysed, including its choice and robustness testing.

(2) **Institutional quality** was assessed in CES according to governance quality and business environment quality. The governance quality is studied in terms of three key aspects, according to the Governance matters of the World Bank. These aspects include the quality of political process, efficiency of policy implementation, and the quality of interactions between institutional agents. The analysis was complemented by other approaches especially in terms of quality of public institutions, economic freedom, political risk and legal environment. The results serve to distinguish institutional models between different groups of EU member countries and to test their approach to economic performance and competitiveness. Business environment quality emphasizes partial (microeconomic) view of institutional quality. As compared with the draft project, its assessment was enhanced in reaction to updating of available data and methodological approaches. Quality was assessed on the basis of efficiency of partial markets and conditions for doing business and quality of corporate governance. Efficiency of partial markets includes the area of functioning of the product, financial and labour markets with the stress on the issues of their elasticity in structural adaptation and enhancing of competitiveness. Conditions for doing business were assessed according to the project results *Doing Business* of the World Bank with an amplified commentary on the specific features of the Czech Republic in monitored areas. The results were applied to the economic analysis using other aspects of institutional quality. Quality of corporate governance is evaluated according to the indicators of corporate governance and concrete comparisons of some elements involved in technology of administration of trading companies. Relevant data are compared with the results of European corporate governance. In the field of corporate governance ESF researchers assessed efficiency of governments and institutional changes with regard to creating a transparent and functional of business environment and its impact on business environment and its influence on a general level of regulation in the society, with a special focus on economic regulations (price regulation, labour market regulation and financial institution regulation). The analyses of regulation quality were made by comparing the CR with the EU. Individual determinants of regulation quality were analysed and the researchers investigated the causes of a worse rating of the CR in comparison with the above mentioned groups of countries and at a more general level with globalizing trends. The analyses were also based on the fact that a low quality of public administration creates opportunities for corruption behaviour, whose analysis also falls within this area. An inseparable part was the analysis and assessment of quality of the body of laws including protection of proprietary rights and development of legislative scope for business. In this field the governance quality is interconnected with the quality of business environment, whose analysis addresses not only external barriers to business and entrepreneurial discovery but also internal aspects linked with the relationship between efficiency and institutional quality of firms.

(3) **Innovation performance.** Innovation performance was assessed in CES according to qualitative aspects of competitive advantage as well as sources and results of innovation performance. The competitive advantage quality is approached according to export efficiency of products and industries with different technology

demand, using commodity statistics and national accounts statistics (from the viewpoint of gross added value and employment), and using professional needs of employment. In addition to standard methods of structural analysis, the Centre also applied the approach using the input-output methods. To specify the sectors important for transfer of technologies, knowledge and innovation in the economy, cluster analysis was applied. It is based on the matrix of complex consumption coefficients. Innovation inputs and outputs are assessed according to R&D activities and other preconditions of innovation performance, according to results of innovation activities as well as extent and intensity of implementation of information and communication technologies. The analysis of innovation inputs is based on the sector structure methodology in national innovation systems, which is exploited to interpret the innovation environment, its players and their mutual relationship. Financial and human resources indicators and qualitatively oriented assessments at national, regional and sector level are applied in the analysis. Innovation activities are assessed especially on the microeconomic level using the results of an international survey carried out by CIS according to internal and external sources of innovation activities, their key forms, results and obstacles. The scope of ICT implementation is assessed according to a wide spectrum of information society characteristics, both on macroeconomic and corporate level, particularly emphasizing the intensity and form of implementation of individual types of means and applications and their economic effects. ESF divided the issues of innovation performance into three subcomponents: research in innovation performance (a) at company level, (b) from regional aspects and (c) from the viewpoint of the support of innovation activities. The current phenomenon, to which a special attention was paid in the analysis, is the problem of networks or clusters, enabling by means of a dynamical interlinking of manufacturing, research, sales and other subjects to create an environment for preparation and implementation of important innovations. It is possible to identify relevant elements contributing to the growth of the capability of a company to innovate, not only within one sector or industry through the analysis of relationships between subjects, based on network theory. A model of internal and external business environment was generated from the aspect of regional quality of business environment and innovation potential of companies. It serves as a tool for integrating knowledge from various fields and disciplines, each of which is a domain of relatively autonomous approaches and methods, based on independent theoretical starting points and terminology. A spatial model of economic development in the CR was begun according to an original methodology. Its basis is formed by investment and development preferences of companies, which were then synthesized into 16 content-differentiated quality factors of business environment by means of statistical methods of multidimensional analysis. The Centre started working on the analyses focusing on evaluation of selected structural characteristics of economic development in various regions of the CR.

(4) The component of human resources quality was exclusively elaborated in NOZV. The work was focused particularly on compiling a representative set of indicators characterizing the quality of human resources (HR), on quality assessment of HR in the CR in the internal comparison and on the context analysis methodology. The first stage involved internal discussions aimed at defining a structured approach to HR analyses and selection of indicators, which enable to comprehensively express not only the principal aspects of HR quality, but also the decisive factors influencing this quality. An important criterion for the selection of indicators was their availability for the CR and for the individual EU countries, and also for the USA and Japan as the main economic competitors of EU. NOZV particularly investigated methodological

aspects of individual indicators, their generation methods, international comparability and informative value. The set indicators in this component was gradually harmonised with the set of indicators in the other components, to ensure the most comprehensive expression of the existing competitiveness level of Czech economy. After agreeing on the set of indicators within the working team, context analysis methodology was designed and an analysis was made within the four partial blocks. In the first block it was the analysis of qualifications and skills in adult population including flexibility and adaptability, in the second block it was participation of population in individual forms of education as well as education expenditure in particular forms of education, and further the education expenditure was divided into public and private. The fourth block was devoted to HR for technology development according to the fundamental state and flow characteristics.