

ICPS newsletter

Macroeconomic model of Ukraine has been created

Under the framework of the Economic Modeling and Forecasting in Ukraine project, spearheaded by the International Centre for Policy Studies and financed by the Canadian International Development Agency (CIDA), an economic model of Ukraine was completed during a series of working seminars over the past six months, with contributions by all project participants

The Economic Modeling and Forecasting in Ukraine project was launched in June 1999 and is scheduled to expire in September 2002. In our *ICPS Newsletter* (issue No. 124, 8 October 2001), we already reported about the project activities, in particular about the topical seminars conducted by Paul Darby, Economic Forecasting Director with the Conference Board of Canada, a leading policy research centre.

Development of government capacity

The Economic Modeling and Forecasting in Ukraine project is carried out by the Conference Board of Canada (CBoC), the International Centre for Policy Studies, and the Government of Ukraine. The key project objective is to strengthen the Government of Ukraine's capacity to establish a feasible market-oriented macroeconomic policy, through devising analytical instruments and developing recommendations.

The project's mandate is to assist ministries in determining and coordinating their needs and objectives, primarily in attaining mutual understanding on data- and methodology-related problems. The project is mandated to produce a macroeconomic model of Ukraine.

Distinctive trainee teaching

The paramount feature of the project is to train public servants by creating, adjusting, and applying the macroeconomic model and putting it into the common practice of ministries.

The project participants work in groups. One of the most essential particularities of this kind of work is examining special economic issues in

small groups. Such a small size of these project structural units enables trainees to more frequently address the Conference Board experts with their technical questions, and to focus on the needs of the group.

Besides, trainees have to grasp that such a factor of economic analysis as the model is only an instrument, the efficiency of which tremendously depends on the analyst's capacity.

Construction of a macroeconomic model of the Ukrainian economy

During the past year, project participants worked on the construction of a macroeconomic model of Ukraine's economy. The preliminary preparation consisted in establishing a theoretical basis and data acquisition. Later on, the evaluation of equations was continued and finalised. Such work envisaged the re-evaluation of theoretical basis in blocks — where the data did not support basic model parameters, or where new theories as regards possible parameters emerged.

The training organisers undertook to bring together all equation models, identities, and quasi-identities. The database update system was coordinated, and the model was tested by the historic modeling method.

At the subsequent project stage — the testing stage — model properties were forecasted for the period up to 2005 using the "shock-minus" test.

Initial model specification

The initial specification model was based on the theoretical model devised during the first year of the project. Later on, a series of recommendations

was produced, based on the changes introduced to fine-tune the basic model to the Ukrainian reality. The working model has been fine-tuned and updated over the project term.

Data updating system

The essential prerequisite of the model's construction was the creation of a data updating system; that is, an equation system scans the preliminary database information, and on its basis produces a new database, which is, in fact, the principal model. The data updating system generates, catalogues, and stores all identities, quasi-identities, and historic-and-time series of the model data for all independent substitutes. Such a system makes up most of the model; the remaining part of its features consists of probable equations (numbering 36 by now).

Peculiarities of the forecasting process

The model forecasting process is in essence iterative; therefore, it should be recurrent. The model does not take into account any recent or already known changes in Ukraine's economic situation. This type of information should be entered manually to the database and meticulously keep track of, to ensure its usefulness. This process requires users to have a comprehensive picture of the developments in the Ukrainian economy. Another vital forecasting feature is the forecast results tracking system. Initial historic tables, holding all the information required for generating forecasts, had to be added to the forecast cycle, in order to make it possible to scrutinise the results of each iteration.

Final database

Having achieved satisfactory forecast results, the project participants added them to the final database; such data are taken for official forecast results. The database will further on be used as a bank of output scenarios for

ICPS events

On 24 June 2002, a seminar on the "Assessment of needs and the existing situation with regional data acquisition" will be held from 10:00 to 17:00 at the Conference Hall in the National Academy of Sciences of Ukraine (55 Volodymyrska Street, second floor). The presentation will be conducted under the framework of the Developing the Institutional Capacity of the Government of Ukraine in the Sphere of Regional Statistics project, financed by the World Bank, the OECD, and the CDE. The project, which is being implemented in Bulgaria, Romania, Slovenia, Slovakia, and Ukraine, was launched by an urgent need for developing regional statistics. Therefore, it is envisaged to determine areas for reform and development of regional statistics, taking into account the needs of data users and the possibilities for extracting such data.

Seminar participants have to meet the following targets:

- discussing reports on needs assessment in developing regional statistics;
- discussing the positions of key data users and producers at regional and local levels;
- determining key issues which demand further consideration at a regional training seminar;
- building the basis for developing an action plan designed to reform the regional statistics field, taking into consideration users' needs and available resources.

For further information, please contact Oksana Remiga at tel.: (38-044) 236-4568, or via e-mail: oremiga@icps.kiev.ua

modeling policy, or for generating alternative scenarios.

Apart from the actual database with forecast results, modeling processes will generate a series of additional products designed for public presentation of the forecasting results; that is, publication of consolidated tables of major substitutes, compiling documents describing the key impact factors for the general forecast, and forecasts for leading sectors of the Ukrainian economy.

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Macroeconomic model of Ukraine

The macroeconomic model of Ukraine's economy, designed by project trainees, comprises 109 equations (together with identities, quasi-identities, and assessed equations) and the following blocks:

- real aggregate demand;
- income;
- budget revenues and state debt;
- financial markets;
- prices and employment;
- input/output balance.

After the plan is outlined, stages are determined and a set of instruments to manipulate the model is selected; as well, model properties are assessed by means of the "shock-minus" test. The database of major indicators was designed and the model has already been re-assessed. Therefore, the forecasting process has actually started, resulting in the forecast of macroeconomic indicators for Ukraine's economy, which coincided with the government scenario for many indicators.

Anticipated quantity and quality results Currently, the project has entered its final stage. Among the major results of the final stage, we would like to particularly emphasize the following:

- designing the final working model of the Ukrainian economy;
- introducing and applying an efficient system for database updates;
- further fine-tuning of the model and testing of its properties;
- detailed description of the entire modeling process (both in English and Ukrainian);
- arranging communicative events for making public the results of quarterly medium-term forecasts.

Not less important than the above project results are the ability of participants to make use of the above-mentioned instruments. Trainees will be able to update the database, correct the model functioning, and analyse the results of the model usage with the help of acquired solid economic knowledge.

Assessing model properties

Following the requirements of the "shock-minus" test, the calibration and re-assessment of some equations have been undertaken. Such procedure has proved extremely helpful for the project

trainees, enabling them to strengthen their own capacity to manipulate the database update system, the model, as well as other programs. Besides, some problems related to the model properties were successfully resolved, which testified to high competence of trainees in the domain of conceptual and technical aspects of data updates and the modeling process.

Risk elimination

As it has already been mentioned, the model is not the major and sole result of the project. Project coordinators foresaw that not all of the government officials from the ministries involved would be able to perceive the model's limited possibilities and an urgent need to apply a multi-lateral approach to the economic analysis.

It is no secret that the quality of economic forecasting and analysis tremendously relies on the knowledge and skills of the ministries in charge of this task. That is why the project envisaged measures for bridging the qualificatory gap between government trainees and high government officials regarding the practical application of the model in state departments.

Canadian consultants of the project acknowledged the high level of institutional capacity of Ukrainian experts, their capability to undertake changes and master new knowledge, and also assessed all the work performed as a unique phenomenon for Ukraine.

The project in its final stage

During the past year and a half, the project focussed on developing the skills of economic forecasting. Project trainees will continue to hone the model and its properties, in order to finish constructing the macroeconomic model of Ukraine.

The design of an efficient database update system is regarded as an essential feature of the training program. Additionally, it is envisaged to describe the modeling process in detail (in English and Ukrainian). The forecast results will be made available to politicians and all parties interested in current analysis of Ukraine's economy.

By the end of the project, it is intended to monitor the proper usage of the model and other analytical instruments to achieve the practical goal of strengthening the capacity of Ukrainian experts to apply the model to everyday activities. ■

For further information, please contact Oksana Remiga at tel.: (38-044) 236-4568, or via e-mail: oremiga@icps.kiev.ua