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Tii Püss

Economics – Estonia

Discussant: Alari Purju

Introduction

The foundations of the current national organization of research and development in Estonia were laid during the reform of science and higher education that started in 1990. The objective of the reform was to use organizational measures to promote the competitiveness of Estonian science in the open world. These included: legislation regulating research and development activities; the arrangement of the financing system for research and the network of research institutions; and the reconciliation of research trends with the changes in the national economy and social sphere and with the needs and possibilities of the state. Special attention was focused on making cooperation between research institutions and universities more effective and on integrating research institutions with universities.

In 1990, the Estonian Science Council was established as a strategic counselor of the government on issues of research and development; three national foundations were also founded to mediate the funding of research and development. In 1993, the Estonian Science Council was reorganized as the Research and Development Council, with the Prime Minister presiding. In 1994, the Parliament passed the Law on the Organization of Research and, on March 26, 1997, its amended version – the Organization of Research and Development Act, which fixed the new structure, the fundamentals of organization and financing, and state supervision of the research and development system. This Act also stipulated the reorganization of the Estonian Academy of Sciences (Eesti Teaduste Akadeemia) and changed the institutes of the Academy into independent research institutions, which from 1996-1998 were mostly integrated in universities. The Act was specified and amended on three occasions (Dec. 10, 1998; Jan. 21, 1999; March 14, 2001).

Economic research is practiced mainly in 4 academic institutions:

- The Estonian Institute of Economics at Tallinn Technical University (Tallinna Tehnikaülikooli Eesti Majanduse Instituut) (the former Institute of Economics of the Estonian Academy of Sciences) (EIE – TTU);
- The Faculty of Economics and Business Administration of the University of Tartu (Tartu Ülikooli Majandusteaduskond) (FEBA – UT);
- The Faculty of Economics and Social Sciences of the Estonian Agricultural University (Eesti Põllumajandusülikooli Majandus- ja Sotsiaalteaduskond) (FESS - EAU);
- The Faculty of Economics and Business Administration of Tallinn Technical University (Tallinna Tehnikaülikooli Majandusteaduskond) (FEBA – TTU).

This study covers the activities of all these institutions and the situation and changes in economics in Estonia in the transition period of 1990-2000. Apart from these institutions, the Bank of Estonia (Eesti Pank) and all commercial banks, as well as various private consultation firms, have established macro-economic analysis departments, but this report does not discuss their activity.

Institutional participation in and contributions to economic research in the former Soviet Union until the year 1990 were variable, because universities' first priority was education and they almost completely lacked institutions engaged in research. Teaching professors and postgraduate students, as a rule, were engaged in research. The Institute of Economics of the Estonian SSR Academy of Sciences was fully oriented toward research and was the leading economic research center in Estonia, in terms of both the number of researchers and the volume and quality of research. Since teachers at public universities also did research before 1990, e.g. in preparing for their academic degrees and in supervising students, all public universities also continued research after 1990. The new research funding system (research grants) and opportunities to participate in

international research projects also contributed to this. The numerous private schools of higher education do not as a rule conduct research and are therefore not discussed in this report.

1. Analysis of the pre-1989 situation and change of elites since 1990

The *Estonian Institute of Economics at Tallinn Technical University* is the legal successor to the Institute of Economics of the Estonian Academy of Sciences, which was founded in 1947. In connection with the reorganization of science in the Republic of Estonia, in 1995 the Institute was renamed the Estonian Institute of Economics in the domain of the Estonian Ministry of Education and, in December 1997, the Estonian Institute of Economics at TTU.

According to the statutes, the Estonian Institute of Economics at TTU is a research and development institution at Tallinn Technical University that performs independent tasks, and has its own statutes, balance, budget, bank accounts, and seal. The Institute is an autonomous academic research and development institution whose task is to promote economics through fundamental and applied research. The Estonian Institute of Economics has had the leading role in conducting and coordinating economic research in Estonia over time. In the 1960s, the Institute was the first economic research center in Estonia to use mathematical methods in economic research. This period is remembered as the beginning of research dealing with the prognostication of Estonian national economic development, as well as for introducing input-output tables on the national economy.

In 1980, the Estonian branch of the Central Institute of Mathematical Economics of the USSR Academy of Sciences was merged with the Institute of Economics of the Academy of Sciences, which expanded the range of subjects connected with the prognostication of economic development.

The Institute of Economics of the Estonian Academy of Sciences was a center training research personnel in Estonia. Until 1990, it had a special council awarding doctoral degrees in two specialties: "Economics of the national economy, planning and organization of management" and "Implementation of mathematical methods in economic research". Since the reorganization of science in the newly independent Estonia, the research personnel have been trained at the respective faculties of universities.

The Institute underwent major changes in the first years of restored independence, when a number of researchers went into politics or to work for government institutions. For example, a new scientific research center – the macroeconomic research department – was set up at the Bank of Estonia on the basis of one research group of the Institute. These changes resulted in a dramatic decrease in personnel and changes in the Institute's research subjects.

At the beginning of 1991, in connection with the tasks ensuing from the transition to a market economy, the subjects of research of the Institute of Economics were changed and the structure improved. The composition of the Institute was as follows:

- a department of macroeconomics,
- a department of the main branches of the economy,
- a department of economic and administrative reform,
- a department of natural resources and environmental economics.

Fast changes in the economy and the need to rapidly adjust economic research trends to demand led to major structural changes. In 1994, the Research Council of the Institute resolved to take up work without any structural units. Considering the needs of particular research projects, working groups were to be formed to work through problems and conduct this particular research. Starting in 1998, all finance of research has been subject-based, and research groups have been formed accordingly.

In the years 1995-1997, the Estonian Institute of Economics had the following research groups investigating the following major research areas:

- the social development and social policy group (social development and social policy in Estonia in the period of transition);

- the economic integration group (adaptation of the Estonian economy to European integration processes);
- the institutional changes group (formation of market mechanisms and institutions);
- the economics of natural and energy resources group (economic problems in the use of local natural resources and the development of the fuel-energy complex).

Two research groups were formed to pursue two principal areas of research approved for the Institute for the years 1998-2000:

- the natural and energy resource economics group (socio-economic evaluation of the Estonian natural resource potential and the use of energy resources: theory and application options);
- the economic theory and institutional development group (the theory and practice of harmonizing the social and market economy institutions in Estonia's accession to the European Union).

Today, the Estonian Institute of Economics has 24 employees, 15 of them research personnel.

The independent *Faculty of Economics of the University of Tartu* started operation on January 1, 1938 (Krinal, 1999: 39). In the post-war Soviet Union, the prevailing idea was that the administration of the economy was mere technical work implementing the Communist Party's strategic directives. This ideology was especially damaging to academic economic education and research. The liquidation of the faculty of economics after the war also threw away the advantages of continuous development of economics at the UT. Instruction in economics was not re-established at the UT until 1954, and even then only on a very small scale and in conjunction with the Faculty of Law. In the second half of the 1960s, proceeding from this extremely unfavorable starting position, people still managed to induce the UT's faculty of economics to provide higher academic education and develop research on the level required of a university. All the opportunities offered at that time were made use of. The specialty of economic cybernetics (mathematical economics) was introduced in 1967, and a *curriculum* was adopted whose orientation and content met the requirements for a classical university education in economics. In 1968, the independent Faculty of Economics was re-established.

Following the changes in the political and economic situation in the second half of the 1980s, the need to reform economic education and research soon became evident, and there was also a chance to do it. In 1987, the staff started revising curricula and updating the content of disciplines taught at the Faculty of Economics. Anticipating new prospects for opening and developing the Estonian economy, the specialty of international economics was introduced at the UT's Faculty of Economics two years later. Shaping the new content and form of core study was the first result that involved the whole faculty after the curriculum of the faculty of economics was revised and adjusted to conform to new requirements. Those admitted in 1991 to the faculty of economics for bachelor's, master's, and doctorate studies already started their studies on the basis of new curricula.

By the beginning of 1992, based on the results of several years of discussions, a scheme for majoring in economics in the higher stage of bachelor's studies was developed. Accordingly, preparatory work (preparing study materials in the necessary subjects) for particular fields of specialization started, and in September 1993, the actual implementation of the higher stage of the curriculum for bachelor's studies began. It is the only university in Estonia that provides every student with an opportunity to major in two narrower specialties in the framework of the curriculum. Together with the revised curricula, a new system for master's and doctorate study was also introduced at the Faculty of Economics. Here too, from the very beginning, the aim has been to treat both macroeconomic and microeconomic matters within one specialty of Economics, with the possibility to major either in economics or business administration. At first, master's and doctor's degrees in economics were awarded, but in accordance with the Statutes of Scientific Degrees of the University of Tartu approved in 1994, the names of degrees are in Latin: *magister artium* and *doctor philosophia*, respectively. From 1995 on, graduates of core study have also been awarded a scientific degree of *baccalaureus artium*.

A greater change in curricula took place in 1995 (Report, 2000). When it turned out in 1994 that subjects of economics (as opposed to business administration) were not sufficiently popular within a unified specialty of Economics, thus endangering the development of economics, the Faculty decided to apply the classic German model. Since Autumn 1995, the university has offered a bachelor's degree in two separate majors in economics and business economics. Also in 1995, the Faculty of Economics added courses of study leading to a diploma or master's degree in business administration with an applied orientation.

The Faculty of Economics and Business Administration consists of three institutes:

- the Institute of Management and Marketing,
- the Institute of Finance and Accounting, and
- the Institute of Economics.

The staff of the FEBA UT includes 72 people, 42 of whom are engaged in teaching and 6 in research.

The history of the founding of the *Faculty of Economics and Social Sciences of the Estonian Agricultural University* (FESS – EAU) goes as far back as 1951, when the Estonian Agricultural Academy was founded (Self, 2000). From the first year, the Department of Agricultural Economics and Organization was founded to teach economic subjects to the students of all agricultural specialties. All present institutes and the faculty itself grew from this first department. As the teaching load grew and a deeper specialization within the framework of one existing department developed, the process of creating a new, separate department continued. In 1966, the Department of Agricultural Accounting and Statistics was founded, which in turn gave rise to the Department of Mathematical Economics in 1967. The presence of two specialties and the improving qualification of the teaching staff (many of whom had successfully defended their candidate degrees) prepared the ground for the separation of economic specialties from the Faculty of Agronomy. There was a rule that at least five departments were required to form a faculty, so the two missing departments were invited from a number of cross-academy departments.

The independent Faculty of Economics was opened in 1969. During its 30 years of existence, the faculty's organizational structure has undergone several changes, as have the names of its subdivisions and teaching staff. These changes were connected to the 1988-1995 reforms of higher agricultural education and to the latest developments. The faculties were reorganized and renamed as institutes in 1992-1994. The Faculty of Economics turned into the Institute of Economics and was renamed the Faculty of Economics and Social Sciences.

The history of scientific research in the faculty can be divided between two different politico-economic systems. The division line falls at the end of the 1980s. Until Estonia's restored independence (1991), research in agricultural economics was concentrated mainly at the Estonian Institute of Agrarian Economics (Saku). This institution conducted research connected to the *ad hoc* orders of the Ministry of Agriculture. Long-term research topics were financed neither by Saku nor by the Estonian Agricultural Academy. In the Faculty of Economics, the Ministry financed mainly research on transportation problems (milk transportation, concentrated feed transportation, and peat transportation) with the aim of optimizing transportation routes in the republic. Despite the absence of financing, staff carried out research while bearing full teaching loads and defending their candidate degrees. Long-term agricultural research in the Soviet times was considered unnecessary, because decisions about long-term developments were solely political and based mainly on Communist Party directives.

In independent Estonia, a situation developed in which agricultural research was considered unnecessary, and, of course, there was a lack of resources as well. The practical reorganization of the agricultural sector was started without proper analysis and without consulting agricultural scientists. This explains a number of mistakes made while carrying out agricultural, property, and land reforms.

Starting in 1993, target-financed projects and ESF grants have provided some support to agrarian economic research in the Republic of Estonia. The first topics financed were connected to

the agricultural reform and its efficiency. Starting in 1995, research began on rural life and agricultural development under the new conditions. A special issue has been Estonian agriculture's problems of competitiveness. From 1997 on, EU accession and integration problems have been added. Funds for agricultural research grew in the first years of financing, but have been withdrawn again in recent years.

The Faculty of Economics and Social Sciences of EAU consists of 4 institutes:

- the Institute of Agricultural Economics and Marketing,
- the Institute of Rural Sociology and Cooperation,
- the Institute of Informatics, and
- the Institute of Accounting and Finance.

The staff of the FESS EAU includes 42 people, 28 of whom are engaged in teaching. Research personnel consists of 1 person. The main fields of research are: agricultural reform and its efficiency; land reform and its consequences; the competitiveness of Estonian agriculture; problems of integration in the EU; investments and financing agriculture; cooperation in agriculture and in rural areas; agricultural marketing; problems of agricultural accounting; rural development and rural entrepreneurship; the attitudes of rural people; and Estonian rural society in development.

The *Faculty of Economics and Business Administration of Tallinn Technical University* (FEBA – TTU) was established in 1940 to train specialists in business administration and industrial economics in Tallinn (Tallinn, 2000). In its first years, the Faculty had chairs of Finance and Banking and of the Economics of Industry and Trade. The total number of students, including those enrolled as first-year students and those transferred from the University of Tartu, was over 600. During World War II, the Faculty of Economics and Business Administration ceased to exist. It was reopened in 1944. New chairs were added (Statistics, Accounting, etc.). From the end of World War II to the mid-1950s, 660 specialists graduated the Faculty in finance and the economics of industry and trade.

In 1954, in cooperation with engineering faculties, the Faculty started to train production managers – economic engineers. In 1954-1960, there was no independent faculty of economics and business administration. Engineer/economists were trained at the Faculty of Engineering until 1957. The first economic engineers of the machine-building industry, who not only studied economics and business disciplines but also gained theoretical and practical knowledge about the relevant industry, graduated in 1957. In 1959, the training of accountants for industry began. From 1960 on, the development accelerated, and now there is already an independent Faculty of Economics and Business Administration. Research units – groups for research on the economics of higher schools and a laboratory for work and management – were established.

In 1990, TTU started an extensive academic reform. Today, the Faculty consists of 4 institutes:

- the Institute of Business Administration,
- the Institute of Accounting,
- the Institute of National Economy, and
- the Institute of Territorial Economy.

The staff of the FEBA TTU includes 114 people, with 89 people in academic positions (teaching staff), including 7 researchers.

The main fields of research are: theory and application of micro- and macroeconomics; development of mathematical methods in economics and their application; financial economics and banking; applications of statistical and econometric models; theory and applications of economic accounting; innovation and economic policy; and labor management.

2. Redefinition of the discipline since 1990

Social sciences were in complete isolation in the Soviet Union. All academic literature was published only in Russian and often had a strong ideological flavor. Only selected universities in

Moscow had access to foreign literature. Information on the developments of economic thought and important scientific problems was practically missing in Estonia. Access to new journal articles was basically nonexistent. Financial resources for books and journal subscriptions were very scarce. The deficiencies were alleviated to some extent by gifts from other countries and by literature scholars bought from abroad themselves. The situation started to improve in the mid-1990s when the universities started to subscribe to international economic journals. A problem is the lack of pre-1991 journal issues. It is hard to understand the causes of important paradigm shifts in economic thought without knowing earlier literature. This makes it difficult to grasp and predict the patterns of development of economic science.

Great difficulties arose when new areas of research based on the concepts of a market economy were established, because information was scarce and full of gaps. It was not known which research topics had great potential and which were already far advanced. There was the danger of getting involved in areas in which problem set-ups and directions of research had become so specific that it would have been very hard to contribute on an international level without being familiar with earlier literature. The situation started to improve when our scientists started to participate in international research groups, sharing their experience with their colleagues in Estonia afterward.

In Soviet times, contacts with economists from other countries were extremely limited. After regaining independence, the relatively good contacts with economists from the former Soviet Union (Russia, Ukraine, Latvia, and Lithuania) discontinued. The situation was new for researchers and teachers in Estonia as well as in other countries of the former Soviet Union. In addition, financial difficulties emerged, making it practically impossible to organize traditional scientific conferences. Scarce financial resources had to be spent on integration with Western science and the Western academic community. Still, there were very few academic contacts with the West at the beginning of transition. In the beginning, cooperation with the West consisted only in inviting visiting lecturers. The visitors mostly had to finance this themselves. Cooperative research projects were extremely rare. The main obstacle was that our scientists were occupied with reorganizing teaching and were also unprepared to study new phenomena of a market economy. Another obstacle was the language problem, because in Soviet times, Russian was the language of science and people's knowledge of English or German was limited. Paradoxically, the main obstacle to scholarly communication with Russia at present is the younger generation of economists' inadequate knowledge of Russian.

3. Core theoretical and methodological orientations

In transition to a market economy, the nature of the object of research – economic processes – changed significantly. Previous knowledge of the object – the planned economy – lost most of its use, and one had to start studying anew the essentials of economic processes in a market economy. This took several years. Instead of the Marxist economic model, one had to start using contemporary macroeconomic models. An analogous reorientation took place in the field of business administration. Earlier, research topics of business administration were applied to problems of different branches of the planned economy. Traditional areas of research in the time of the Soviet Union and in the first years of transition were trade, finance, mathematical methods, models in economics, and, since the 1990s, international economics. Economists lacked basic knowledge of disciplines that describe the behavior of firms operating in a market-economy environment, such as corporate finance, management, accounting, etc. Scientists who had already specialized in empirical methods and statistics in Soviet times were in a somewhat better situation, but they, too, had to apply familiar methods of analysis to a new object.

As the economic system and its treatment changed, economic terminology changed as well. The whole system of economic terminology needed to be revised. Estonian terminology was nonexistent or insufficient in many areas of economics. It was also necessary to adopt

methodological changes, and completely new concepts emerged, such as marginal analysis, opportunity costs, general equilibrium, welfare economics, etc.

4. Thematic orientation and funding

In the first years of restored independence, changes also occurred in economic research topics. Until 1989, research was mostly coordinated by the Soviet Union Academy of Sciences, where Estonia also participated in fundamental research. But from 1990 on, research primarily aimed at solving tasks the Republic of Estonia faced in transition to a market economy and at elaborating relevant economic theory standpoints. Conventionally, the period since 1990 can be divided into two:

Research in 1991-1995 covered mainly theoretical and applied aspects of the transition to a market economy:

- The major macroeconomic subjects since 1996 have been the search for solutions to issues related to EU accession.

Some particular subjects of research in 1991-1995 were:

- Analysis, forecast, and economic policy development trends of the Estonian national economy; comparative research with developed capitalist countries.
- Research on the long-term use of natural resources and the elaboration of strategy to use nature to ensure ecological equilibrium. Production efficiency, competitiveness, and outlooks of further development.
- Economic and legal problems in transition economies and administrative reform. An economic regulation mechanism on the way to a market economy.

The main subjects of research in 1996-2001 were:

- The economic, legal, and socio-political basis of European integration.
- Strategies of socio-economic development in Estonia in preparation for accession to the European Union.
- Modeling the economic processes of and informational support for the decision-making process.
- Socio-economic evaluation of the potential of Estonian natural resources and energy resources.
- Reconstruction of the Estonian economy through banking and investment policy. Financial structure management in the situation of opening financial markets.
- The restructuring of agriculture (agricultural reform and agricultural reform principles).
- Improvement of the quality of produce and of the efficiency of production.
- Seeking and researching alternative activities in the rural sector (rural tourism, berry growing, ecological produce etc.). Ecological problems, various financial sources and financial management of agricultural firm.

An important step in creating a completely new environment for the financing of research was taken in 1990 when the Estonian government established the Estonian Science Foundation (ESF, Eesti Teadusfond) as an independent non-profit agency (Eesti, 1996). The main aims of the ESF are to assemble and distribute state budget allotments to support research and development in the form of competitive research grants to individuals and research groups. The ESF is also responsible for organizing expertises of research grants.

The fundamentals of new principles of financing research were laid down in the Law on the Organization of Research (1994). This law divides the state budget allocations into three parts (Eesti, 1998: 5). The ESF funded research activities through target financing and grants. Expenditures for maintaining research infrastructure (maintenance of buildings and minimum administrative costs of research institutions) had to be covered by the owner of the institution, i.e., the relevant ministry, local authority, or physical person. The ESF Council developed the principles of target financing. Basically, the money was given to research institutions for specific

research projects. The new system was introduced in 1996, but in reality, the system was not fully launched until 1998.

Expenditures on research and development in Estonia were between 0.6 and 0.7% of GDP (GERD/GDP) in 1993-1996 and then started to fall. State budget resources accounted for ca. 75% of this, resources from enterprises ca. 10%. Compared with the pre-independence period and with the EU countries, the importance of the latter in financing research is modest. The reasons for this are a sharp decline in industry and agriculture in Estonia along with changes in the organization of research, which have led to a situation in which enterprises and institutions do not have sufficient means to commission research. The share of foreign sources of finance has risen over the years, reaching a maximum in 1997. In 2000, the state budget financing of research diminished significantly; research retained the level of 0.5% of GDP only thanks to the earnings from international projects (see Table 1).

The distribution of target financing between the fields of science was relatively unfavorable for social sciences in 1996, when they received altogether around 9.8 percent of the total budget. The share of allocations from the whole of state financing (both target financing and grants) to economics has been decreasing, compared with other sciences. Priority in financing in Estonia is given to chemical and molecular biology and biological and geological sciences.

To maintain the continuity of research during the transition period, it was decided to retain certain basic funds for the institutions doing fundamental research and gradually to introduce the financing of research grants. The share of grants in overall financing grew from 5% in the first two years to 31.4% in 1996 and reached nearly 90% in 1999. Target financing of research projects was shifted from the ESF to the Ministry of Education, where the Center of Competence was formed to evaluate proposed research projects. In the beginning of the implementation of the grants system in the ESF, the number of grants awarded was relatively large – around 40,000 EEK per year. But the average size was very small. The number of grants has gradually decreased. At the same time, the average size of grants has increased. One of the basic criteria in awarding grants – academic quality – has been regarded as more relevant. The ESF issues grants once a year. The duration of the projects can be up to four years. When the project is completed, the grantee must present a final report, which the expert commissions evaluate. The final reports of research projects are forwarded to the archive of the relevant institution.

The basic feature of the period 1992-1996 was the rapid growth of grant money allocated by the ESF. It increased from 3 million to 58 million EEK. Since 1997, the growth of grant money slowed down and, since 1999, has stagnated completely. Since 1999, no remarkable change in financing has happened; and in economics, ESF allocated funding has even been reduced.

Table 2 and 3 indicate that the share of state target financing of economics has decreased in particular, and earnings from contractual research have increased. This means that interest in economic research has increased. The number of international projects (Phare ACE, UNDP, ILO, etc.) has decreased in recent years because Estonia is regarded as a well-developed transitional country that no longer needs significant help.

5. Public space and academic debates

The problems related to publications have been one of the general problems of research. It must be noted, however, that in the late 1990s, a significant shift from popular-scientific to research articles took place. As for qualitative shifts, articles in pre-reviewed journals make up a very small share of all publications – 19% (see Table 4). But there are positive tendencies as well. The number of articles published in pre-reviewed journals doubled from 1996 to 2000. The journals are not top journals, but the increased number of these articles is certainly an evidence of qualitative changes.

Consider that publication in pre-reviewed journals is a long process that may take up to two years. Therefore, many articles written as a result of current research are now in the review process. The increasing number of presentations at conferences abroad gives hope of more

publications in the near future. In 1997, the share of presentations made abroad was 39% of all conference presentations; in 1999, it was 49%. This shows that the researchers' work is reaching an internationally acceptable level, but they lack experience in bringing it into conformity with technical requirements.

One of the most important problems in publishing is the absence of local scientific journals. The only Estonian journal that is accepted as scientific is *Akadeemia*, which is a non-economic, pre-reviewed, generally humanities-oriented journal. *Proceedings of the Estonian Academy of Sciences. Humanities and Social Sciences*, which was the only journal publishing economic articles in Estonia, terminated publication in 1997. Specific academic economic periodicals are practically nonexistent.

Starting in 1986, the Estonian Institute of Economics has been issuing a series of preprints of the results of major research projects. Depending on the addressees of research results, the preprints are issued either in Estonian or some foreign language (mainly English), which considerably extends their distribution. So far, 60 preprints have been published.

To improve publication opportunities and to prepare articles for international publications, the Faculty of Economics and Business Administration of TU started to publish faculty working papers. Five papers were published in 2000. Also, *The Baltic Journal of Economics*, an economic journal founded at the initiative of Euro-Faculty, is now published in Tartu. The journal is pre-reviewed, but until now, only two issues have been published. This is due to several technical and organizational problems that impede the regular publishing of the journal. Hopefully, cooperation between faculty and Euro-Faculty will improve the situation.

Important changes have also taken place in publishing collective monographs. On the one hand, writing collective monographs and articles shares information on the subjects researched from the different viewpoints of different authors, and, on the other hand, includes researchers from other research institutions. In recent years, the Estonian Institute of Economics has published 5 collective monographs whose authors, aside from my own employees, are researchers from Finland, Latvia, Lithuania, the UK, Germany, and the USA.

In 1998, FEBA of TU started a new research publication series in addition to textbooks. So far, five collective monographs have been published in this series. The writing of these monographs has played an important role in supporting cooperation between faculty members. Very useful is also that many master's and doctoral students were involved in the process of preparing these monographs. Cooperation with leading professors was surely a very useful experience and helped to develop the article-writing skills of young scientists.

If we analyze the dynamics of the publications, we see a remarkable growth in international publications. The progress in publications is obvious: in the beginning (1996-1997), we witnessed a shift from popular-journalistic articles to serious research publications in Estonia. Now, more and more of our authors are publishing their papers abroad, but the majority are proceedings of conferences or joint working papers published abroad. Increasing international collaboration and joint research projects in which the leading country in the project publishes a joint monograph have certainly had a positive impact on publication abroad.

In the first years of transition, the number of *conferences* held in Estonia decreased. Between 1987 and 1990, as subjects related to the improvement of economic mechanisms became very topical across the USSR, the Estonian Institute of Economics, in cooperation with the Institute of Economics and the Institute of Mathematical Economics of the USSR Academy of Sciences, organized several international and all-Union conferences where the number of participants exceeded 200. The most of important were:

- the international conference on complex analyses and the evaluation of scientific-technical organizations (1987);
- the international symposium "Acceleration strategy and reformation of the economic mechanisms in the Soviet Union and Hungary" (1987);

- the All-Union Conference on Problems of the Management of the Economy of a Republic (1989); and
- the international conference “Methods of research and comparative analysis of economic mechanisms in Eastern European countries” (1990).

After regaining independence and in connection with the development of new subjects of research, previous contacts with USSR research institutions ceased and contacts with research institutions in Western and Central European countries grew closer. Especially close contacts were established with the Nordic countries, primarily with Finland. An international joint conference was held in 1991: *Finland – Estonia: a socio-economic comparison*. In 1992, the Estonian Institute of Economics participated in the organization of a local government conference of Nordic countries. In 1993, an international conference was held in Helsinki: *The key issues of the development of the Estonian economy*.

The intensification of international contacts with Western European research institutions and the launching of joint projects (mainly PHARE and ACE research projects) have led to a rapid increase in the number of international workshops and conferences in recent years. Before 1989, the Estonian Institute of Economics was the main institution engaged in economic research, but then the reorganization of research activity and changes in financing shifted research more into the economic faculties of universities. So universities are organizing ever more workshops and conferences. In recent years, Estonian research institutions have organized nine major international economic research conferences per year. In addition to these, commercial undertakings, banks, and conference centers have also held practically oriented conferences.

The Chair of Economic Policy of UT organizes an international conference every year where economic-theoretical and political problems of countries in transition and development perspectives for economic education are discussed. Such annual conferences have been organized for eight years now with the cooperation of the Faculty of Economics of Tallinn Technical University. Participants are mostly from Estonia and Germany, but other Eastern European countries are also represented. Every year, a book of conference proceedings is published. The conference papers were first pre-reviewed by an anonymous referee in 2000. The topics of the last conference were the effectiveness of the economic policy of the Republic of Estonia and the European Union. Table 5 contains an overview of the international conferences and workshops in the field of economics organization in Estonia.

After regaining independence, new possibilities emerged for active international collaboration. *International cooperation* mainly takes three forms: collaboration agreements, international joint projects, and the training of students, teachers and researchers.

Participation in international research and development projects is important for raising the level of academic education and research. In the early 1990s, international aid programs at universities were mainly concerned with reorganizing teaching and developing new curricula and textbooks. Since the mid-1990s, the focus has been on international cooperation projects in which teachers and students can do research together with partners from foreign universities and research institutions.

One objective of international research and technological development projects is the analysis and scientific generalization of transition and integration processes and the treatment of Estonia's economic and social problems in an international context. The cooperation projects have examined the role of foreign investments and multinational enterprises in restructuring and internationalizing the economy and in the labor markets of transition economies, the changes in labor policy and their impact on the process of integrating into the EU, theoretical and practical problems related to the eastward enlargement of the EU, the role of regional integration in globalization processes, possibilities of modeling the transition processes and the development of methods of research on them, and many other problems related to transition and integration processes. The projects have also explored the possibilities of cooperative development, market research, the development of banking, related problems and risks, etc.

Solving the theoretical and applied economic and social problems on a good international level and the synergetic generation and development of new ideas for future cooperation have been the main result of international cooperation projects. The results of cooperation projects are important to Estonian economists as well as to partners from other countries. Cooperation between Estonian economists and economists from countries with developed market economies facilitates better understanding and generalization of the specifics of transition processes. It is possible to test the robustness of economic theory's predictions in extreme situations, which transition from one economic system to another undoubtedly is. Cooperation projects accelerate innovative processes, enlarge markets, and create better conditions for cooperation between economists and businessmen from countries with different socio-economic and political backgrounds.

International cooperation projects have helped researchers acquire important experience in presenting the results of their research works in accordance with international standards. As a result of international cooperation projects, several scientific articles have been published in pre-reviewed journals. Also, the results of international research and development projects have been presented at international scientific conferences and seminars.

Quite a substantial share of international cooperation is in the form of collaboration agreements. The Estonian Institute of Economics already had mutual collaboration agreements with the leading research institutions of the Soviet Union and also with the Institute of Economics of the Hungarian Academy of Sciences, the Institute of Global Economics of the Hungarian Academy of Sciences, Central European University, the Institute of System Research of the Polish Academy of Sciences, the Institute of Economic Sciences of the Polish Academy of Sciences, the University of York (Canada), etc. before 1990. In the first years of restored independence, cooperation intensified particularly with the Finnish research institutions, the Research Institute of the Finnish Economy (ETLA) and the Finnish Institute of National Economy (VATT), as well as with the Center for International Economic Growth (ICEG), with whom we have conducted many joint research projects and written a number of publications. Unfortunately, contacts with other Baltic States have diminished and are limited to only some joint projects with a few researchers. Table 6 shows Estonian economists' participation in international research and collaboration projects.

6. Views on further development: mission and trends

Since economic research in Estonia is conducted mainly in academic universities, the outlook for future development must be discussed in two closely interlinked spheres: economic education and economic research.

The economics faculties of national universities have to meet the requirements of *Estonian society*, especially of its economy, to provide economic specialists with a contemporary education, and to conduct economic research of topical issues. Owing to its small size, the Estonian economy is very strongly and extensively integrated in the world economy, and the universities have to conform to *internationally acceptable* requirements of economic education and research.

The high-priority tasks in providing economic education at academic universities, in contrast to specialized universities with applied orientation, is to provide students with academic (universal and general) economic education, training competent specialists who perceive and understand the relations between society and the economy and between global connections and the tasks of the economy. To perform this task, the FEBA of UT and the FEBA of TTU stress comprehensive theoretical education and the development of economic thinking to mold members of society with a broad outlook who will be able to orient themselves in a dynamic, fast-changing environment. It will be relatively easy for specialists with a solid theoretical and general methodological basis to acquire the skills and experience necessary to perform particular work duties.

One of the tasks of the national universities is to train national research staff whose qualifications conform to international standards and who are able to apply their knowledge in

other scientific institutions, as well as in governmental institutions. To assure the high quality of research in the FEBA of UT and the FEBA of TTU, one of the most important results is the establishment of properly working master programs in economics (MA) and business administration (MBA). Their success has brought remarkable positive changes in doctoral studies, as well. After a long standstill, the first PhD degrees were obtained in 2000, and after a couple of years, the preparation of the next generation of researchers with modern qualifications will be in a completely new situation.

Until 1990, as a rule, the teaching staffs of economic departments had obtained their basic education in the Soviet period and their contemporary economic education by upgrading themselves in universities abroad (primarily in programs financed by the US government and realized at the College of Bentley and those financed by the Canadian government and realized at the University of Dalhousie, the University of Leipzig, etc.). A serious problem was that demand for people with contemporary economic education was very high in the labor market in the first years of independence. Since wages remained significantly lower at national universities than in the banking and business sector, it was very hard to attract capable young people to research. Meanwhile, the situation in the labor market has stabilized, and the number of master's and doctor's students has rapidly increased. This allows us to expect that both teaching staff and research staff will grow younger.

The above analysis indicated that Estonian economists have always had close international collaboration contacts with researchers from various countries, particularly in the form of joint projects. These contacts started to produce cooperation projects in the fifth Framework Programmes, ACE and PHARE projects, Nordic Council frameworks, etc. In addition to these, the Estonian Academy of Sciences has concluded contracts for the equivalent exchange of researchers with the Academies of Sciences of 20 countries. Within these, economists, too, can do short-term research abroad, though they have not availed themselves of this opportunity very extensively. Contacts with researchers from the other Baltic States, in previous times very intensive, have unfortunately diminished in the years of independence. Now they are limited to participation in joint projects and to contacts between individual researchers, rather than between institutions.

Preparation for accession to the EU has influenced Estonian economists in their choice of research topics. Important topics now are Estonian development strategies and convergence issues, which should help Estonia catch up to the EU's level of economic development.

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Table 1 Financing of research and development in Estonia 1992-2000

Year	Total funding		Allocations from the state budget			Resources of enterprises		Foreign sources		Other sources	
	EEK mill.	% GDP	EEK mill.	% from the state budget	% of total costs	EEK mill.	% of total costs	EEK mill.	% of total costs	EEK mill.	% of total costs
1992	101.1		89.1			1.7		9.9		0.4	
1993	133.4	0.62	100.0	2.4	75.0	19.1	14.3	4.3	3.2	10.0	7.5
1994	216.8	0.73	165.3	2.3	76.2	20.8	9.6	15.1	7.0	15.6	7.2
1995	253.0	0.62	180.6	2.0	71.4	32.7	12.9	24.2	9.6	15.5	6.1
1996	305.7	0.58	216.2	2.1	70.7	31.0	10.1	33.0	10.8	25.5	8.3
1997	387.9	0.61	260.2	2.1	67.1	33.0	8.5	55.9	14.4	38.8	10.0
1998	387.2	0.53	291.6	1.9	75.3	32.5	8.4	32.9	8.5	30.2	7.8
1999	435.8	0.57	344.7	2.0	79.1	41.0	9.4	36.6	8.4	13.5	3.1
2000	449.0	0.53	330.9	1.2	73.7	41.9	9.3	53.8	12.0	22.4	5.0

Source: Eesti teadus- ja arendustegevuse ülevaade 1996-1999, Tallinn 2000; Statistical Yearbook of Estonia 2001, ESA.

Table 2 Distribution of target financing and ETF research grants between different sciences in 1998-2000 (from the state budget)

Sciences	1998		1999		2000	
	EEK mill.	%	EEK mill.	%	EEK mill.	%
Exact sciences	28.4	14.8	33.6	14.1	32.0	14.4
Chemical and molecular biology	18.2	9.5	24.0	10.1	22.9	10.3
Bio-geological sciences	23.8	12.5	34.5	14.5	34.6	15.6
Technical sciences	37.0	19.3	48.3	20.3	44.7	20.1
Medical science	27.6	14.4	34.0	14.3	27.6	12.4
Agricultural sciences	22.2	11.6	24.5	10.3	23.4	10.5
Social sciences	15.4	8.1	17.2	7.2	16.4	7.4
of this, economics	8.4	4.4	9.5	4.0	8.6	3.8
Humanities	18.8	9.8	21.9	9.2	20.8	9.3
Total	191.4	100.0	238.0	100.0	222.4	100.0

Source: Eesti teadus- ja arendustegevuse ülevaade 1996 – 1999: struktuur ja suundumused. Tallinn, 2000; Estonian Ministry of Education; Estonian Science Foundation.

Table 3 Economic research financing during the period 1996-2000 (%)

Type of funding	1996	1997	1998	1999	2000
Financing of target research	58.6	54.2	51.8	49.7	47.6
Grants from ESF	25.3	29.8	34.0	27.5	31.3
Contracts with other institutions	16.1	16.0	14.1	22.8	21.1
Total	100.0	100.0	100.0	100.0	100.0

Source: Annual reports of EIE at TTU; FEBA of UT; FEBA of TTU, FESS of EAU

Table 4 General overview of publications (1996-2000)

Institution	Pre-reviewed articles	Indexed in CC	Other scientific publications	Separate publications (monographs)		Total
				Published in Estonia	Published abroad	
EIE at TTU	113	7	74	22	8	224
FEBA of UT	71		648	23	2	744
FEBA of TTU	161	5	195	84	11	456
FESS of EAU	43		162	22	2	229
Total	388	12	1079	151	23	1653

Source: Annual Reports of EIE at TTU, FEBA of UT, FEBA of TTU, FESS of EAU

Table 5 Organization of international conferences and seminars

Title of Conference/Seminar	Date and location	Number of participants
Small and Medium-Sized Enterprises in the Countries in Transition: the Examples of the Baltic States and Poland	March 8-10, 1996, Tallinn	34
Cooperation in the Republic of Estonia	March 22-23, 1996, Tartu	124
4 th Alfred Müller-Armack Symposium "Soziale Marktwirtschaft – Weg nach Europa"	May 7-12, 1996, Tallinn	70
Privatization in the Baltic States	June 25-26, 1996, Tallinn	26
Topical Problems of the Economic Policy in the Member States of the European Union and the Republic of Estonia	June 28-29, 1996, Tartu	80
Integration of the Baltic States in Europe	Aug. 28 - Sept. 2, 1996, Tallinn	42
Economic Performance and Financial Sector Reform in Central and Eastern Europe	Sept. 20-21, 1996, Tallinn	80
Innovation and Changes in Cooperation	Sept. 27-28, 1996, Tartu	83
Cooperative Innovation and Change	Sept. 26-29, 1996, Tartu	120
Internationalization and Inter-Firm Relations	April 24-29, 1997, Tallinn	18

Title of Conference/Seminar	Date and location	Number of participants
Infrastructural Policy as a Factor of Economic Growth	May 15-16, 1997, Tallinn	32
Economic Policy of the Republic of Estonia and Integration in the European Union	June 26-28, 1997, Tartu	60
Agricultural Reforms, Changes, and the Future	July 1-2, 1997, Tartu	83
Strategies for Raising Competitiveness of the Estonian Economy	Dec. 12-13, 1997, Tallinn	47
Business Environment in Transition Economies in the Baltic Area	Feb. 10-11, 1998, Tallinn	26
Education, Training, and Labor Markets in Hungary and Estonia	April 2-4, 1998, Tallinn	16
The 4 th Conference on Financial Sector Reform in Central and Eastern Europe	April 24-26, 1998, Tallinn	70
32 nd Baltic Conference on Economics "Social and Liberal Economy"	April 25, 1998, Tartu	24
Integration of the Republic of Estonia in the European Union – Goals and Instruments of Economic Policy	June 25–27, 1998, Tartu	45
Rural life, Agriculture, and Informatics	June 26-27 1998, Tartu	77
Internationalization and Businesses' Competitiveness in the Baltic Countries	Sept. 29-30, 1998, Tallinn	18
Transformation of Economic and Political Systems in the Baltic Sea Region	Oct. 23-25, 1998, Tartu	70
Labor Supply and Demand Issues in Estonia and Finland	Dec. 16-17, 1998, Tallinn	23
International Trade, Labor Markets, and Integration	Feb. 22-26, 1999, Tartu	30
Education, Training, and Labor Market Adjustments	May 17-18, 1999, Tallinn	15
Economic Policy of the Republic of Estonia and the European Union	June 25-27, 1999, Tartu	50
The Promotion of Entrepreneurship and the State Contribution: Experience and Estimates	June 1-2, 1999, Tallinn	24
The Tenth Annual Conference of the Congress of Political Economists (COPE)	July 13-18, 1999, Tallinn	80
1st Summer School on International Economics	July 12-16, 1999, Tartu	26
Accounting Perspectives on the Threshold of the 21 st Century	Oct. 28-29, 1999, Tartu	80
Transformation of Economic and Political Systems in the Baltic Sea Region	Oct. 29-31, 1999, Tartu	100
2 nd Helsinki-Tartu Symposium in Applied Economics with Special Reference to Accession to the EU	Nov. 21-23, 1999, Tartu	30
National Agricultural Policy on the Way to the European Union	Jan. 28-29, 2000, Tartu	64
Impact of Foreign Direct Investment on the International Competitiveness of CEEC Manufacturing and EU Enlargement	May 13-15, 2000, Tartu	24
Current Stage and Development Perspectives of Cost Accounting and Internal Performance Measurement Systems in Estonian Manufacturing Companies (Workshop for practitioners)	June 14, 2000, Tartu June 16, 2000, Tallinn	55
Effectiveness of the Economic Policy of the Republic of Estonia and the European Union	June 29- July 1, 2000, Tartu	90
2 nd Summer School on International Economics	July 10-14, 2000, Tartu	28

Table 6 Participation in international research projects

Name of the project	Partners (coordinating institutions)
European Network for Research on Organizations and Changes in Accounting	Manchester University, universities and organizations from 13 countries
Small Business Management and Marketing	Staffordshire University
Banking and Accounting System	University of Latvia
Teaching in Finance and Accounting Disciplines	Sweden, University of Umea
Economic Development of Baltic Sea Region Countries	University of Stockholm
Economic Modeling of Baltics	University of Rotterdam
From Combinates to Enterprises – Industrial Restructuring in the Baltic States	Paris School of Mines, (France)
Social Policy and of Social Welfare in Transition	University of Stockholm
Fifth Framework Programme: The Baltic Sea Area Studies: Northern Dimension of Europe (2000-2003)	Humboldt University of Berlin, University of Copenhagen, University of Vilnius, University of Gdansk, University of Helsinki, University of Latvia
Patterns of Firm Behavior and Institutional Structure in the Transition from Plan to Market Economies: A Comparative Approach	University of Uppsala
Die Institutionellen Grundlagen der Transformation und Wirtschaftspolitik in den MOE-Ländern	Europa Kolleg, Hamburg
Effectiveness of Economic Policy and the European Union	University of Leipzig
The Creation of Basic Conditions for Foreign Investments in the Economies of the Baltic States	Erasmus University Rotterdam, (Netherlands)

Name of the project	Partners (coordinating institutions)
Systems: Competition or Harmonization	Europa Kolleg, Hamburg
Support for the Ministry's Department of Labor and the National Labor Market Board in a Pre-accession Context (1998)	Ministry of Social Affairs, PHARE
Economics Training for Secondary School Teachers (1996)	US National Council on Economic Education (NCEE)
The Impact of Economic Changes on the Living Conditions and Welfare in the Baltic States	University of Copenhagen (Denmark)
Cross-Country Analysis of Employment Policies in Candidate Countries (2000)	European Training Foundation (ETF)
Elaboration of Country Report on Employment and Labor Market Policies in Estonia According to the Attached Outline (1998)	International Labor Organization (ILO)
Transforming the Estonian Economy	ICEG (USA)
Baltic Drainage Basin Project	University of East Anglia (UK)
Central and Eastern Europe in EU Enterprises Strategy of Industrial Restructuring and Relocation	ILO, partners from 11 transition countries
Economic and Social Implications of Exclusion of Transition Economies from the Enlargement of EU	London Business School, SSEES, University of London, University of Perugia
EU Integration-Driven Investment Networking: Outward Foreign Direct Investment in Candidate Countries	Coordinator Ljubljana University, other partners from Prague, Ljubljana, and Vienna universities and Central Banks of Hungary and Poland
Impact of Foreign Direct Investment on the International Competitiveness of CEEC Manufacturing and EU Enlargement	Coordinator Viin, WIW, Partners from universities of Prague, Ljubljana and Warsaw, Hungarian Academy of Sciences, Vienna Institute of Comparative Economic Research and UNCTAD
The Role of Foreign Direct Investments in Employment Changes in Transition Economies	School of Slavonic and East European Studies, University of London
Die Erweiterung der Europäischen Union und die Transformation in Mittel- und Osteuropa	Coordinator Viadrina University, partners from University of Vienna, University of Viadrina, University of Warsaw
Estonian Monetary Policy in the Framework of Widening Europe	University of Hamburg
Erfolgsfaktoren der Länderentwicklung	University of Leipzig
Estonian economy and European integration	ETLA (Finland)
Foreign Direct Investments and Economic Growth	Stockholm School of Economics
Estonian technology policy and innovation system	ETLA (Finland)
Evaluating the competitiveness of Estonian industry	AG (HLT) (Germany)
Cohesion Report Estonia	RWI Essen (Germany)
Alternative Approaches to the Provision and Financing of Local Public Transport Services in the Baltic States	University of Liverpool (UK)
Correlation Between European Integration and Subregional Cooperation	Institute for World Economics (Hungary)
Foreign capital inflows and macro-economic policies in transition economies	University of Sussex, (UK)
Governance and Economic Performance in Eastern Europe	University of Birmingham (UK)
Management Buy-out and Management Buy-in as a Privatization Instrument	ISG Sozialforschung und Gesellschaftspolitik (BRD)
International Marketing	University of Vaasa
The survival, growth and support needs of manufacturing SMEs in Poland and the Baltic States	Middlesex University, (UK)
Internationalization, inter-firm linkages, and SME development in Central and Eastern Europe	Middlesex University, (UK)
Industrial restructuring and economic recovery in the Baltic Countries – Lithuania, Latvia, Estonia	DIW, BRD
Institution building as an industrial strategy for regional convergence between the CEECs and in the EU	University of Cambridge
Baltic Coast: Economic Valuation as a tool of coastal conservation policies in the Baltic States	European Union for Coastal Conservation (Lithuania)
Foreign Trade Relations, trade regimes, and Foreign Direct Investment	ETLA (Finland)
Locating specific aspects of learning and the transfer of know-how in transition	University St. Kiril and Metodij (Macedonia)
Education, training, and labor markets in transitional economies: the case of Hungary and Estonia	Budapest University of Economic Sciences
The impact of EU foreign direct investment and trade on firm-level restructuring in	Katholieke Universitet Leuven, Ireland

Name of the project	Partners (coordinating institutions)
Central and Eastern Europe	
Database Eastern Europe: institutions, expert's and literature Connected with EU Accession of Estonia	The Vienna Institute for Comparative Studies
Agribusiness, communication, and rural development	Nordic Agricultural College
Cross-border cooperation, Baltic Sea Region joint projects with INTERREG cooperation on countryside business	Häme Polytechnic (Finland) Stockholm Institute of Environment (Sweden)
CEESA – The Central and Eastern European Countries Sustainable Agriculture	Humboldt University (Germany) Helsinki University (Finland) Newcastle University
Agricultural development in Estonia – options under EU accession	German Development Institute (Berlin) – Dr. H. Brandt and 5 researchers
Local Elite in Post-Communist Countries	London School of Economics and Political Science
Parliaments in Post-Communist Countries of Eastern and Central Europe	University of Greensboro (North Carolina, USA)
Democratization in Central and Eastern European Countries	European Institute of Sussex in collaboration with the European Commission and European Council of Ministers
Elite in the Baltic Countries	University of Oslo (Norway)
Cooperation and Rural Development in Reindependent Estonia	Finnish Academy of Science
European integration, regional specialization, and localization of industrial activities in integrating countries	University of Bonn (Germany)
Company Adjustment and Restructuring During Economic Transformation in Central and Eastern Europe	Institute of Economics of the Hungarian Academy of Sciences
Competitiveness of the Estonian Food Industry from the Perspective of Integration in the EU	Scandinavian Institute for Administrative Research
Labor Markets and International Trade in the Baltic Economies	Erasmus University Rotterdam (Netherlands)
Baltic States Joining the EU: The Impact of Harmonization of Agricultural and Trade Policies on Baltic Agriculture	Agricultural Economics Research Institute (Netherlands)
Coping with Financial Reform in Emerging Market Economies: Analytical Tools	University of Wales College of Cardiff (UK)
Statistical Performance Indicators for Keeping Watch over Public Procurement	Aristotelion University of Thessaloniki (Greece)
Trade, Growth, and Integration: Modeling the Accession Countries	National Institute of Economics and Social Research (UK)
The Macroeconomic and Microeconomic Implications of Currency Boards in Transition Economies	International Institute for Applied Systems Analysis (Austria)
Foreign Banks and Economic Transition	University of Groningen (Netherlands)
Alternatives of Exchange Rate Regime in Advanced Transition Economies	Financial Research Ltd. (Hungary)