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Socio-economic impact of European singel market on Lithuanian companies: Methodology manual

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No. 746

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SOCIO-ECONOMIC IMPACT OF EUROPEAN SINGLE MARKET ON LITHUANIAN COMPANIES.

Methodology Manual

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The manual was prepared as a part of the SEIL Phare project "Support to European Integration in Lithuania" (PHARE Project, Contract No LI/19701). It summarises and presents the methods used and developed when carrying out four industry impact studies in Lithuania. In addition to these studies, three more were initiated. The main beneficiaries of the project were the European Committee under the Government of the Republic of Lithuania, Lithuanian Ministry of Economic Affairs and respective Lithuanian industry organisations. The manual was published in October 2000. Results belong to EU-Phare but its publication as ETLA DP is considered useful for wider discussion.

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HERNESNIEMI, Hannu – **LINDROOS**, Pekka, **THE SOCIO-ECONOMIC IMPACT OF THE EUROPEAN SINGLE MARKET ON LITHUANIAN COMPANIES, Methodology Manual**, Helsinki, ETLA, Elinkeinoelämän Tutkimuslaitos, The Research Institute of The Finnish Economy, 2000, 73 p. (Keskusteluaiheita, Discussion Papers, ISSN, 0781-6847; no 746).

ABSTRACT: This report has been written within the framework of the Phare SEIL (Support for European Integration in Lithuania) project supporting the Government of Lithuania in preparations for the accession to the European Union. The manual summarises the method used and developed when drafting separate impact studies for the most important industries of Lithuania. The industries examined are the wood, foodstuffs, textile and clothing and road transport industries. Reports were drafted by Lithuanian experts from Eurofaculty at Vilnius University, under the supervision of the authors and Dr. Mark Chandler. Three other reports are forthcoming, covering the chemical, construction products and (a joint report about) the electronic and machinery manufacturing industries under the supervision of Professor Robertas Jucevicius of the Kaunas University of Technology.

The social impacts of the European Single Market very much depend on the competitiveness of the industries. We put a lot of emphasis on benchmarking the performance of industries and studying carefully their competitiveness and the most important factors behind it. To do so, the cluster approach was used. In order to increase the influence of the studies, we tied industry organisations and industrial policy officials, together with the researchers, to identify the strategic development needs of industries and make policy proposals for improving the competitiveness of the industries concerned. The other part of the analysis was the regulatory changes (new directives regulating the firms, abolishment of border formalities, etc.) and their direct costs and benefits. The direct effects of integration mean costs and incomes now. But it is important to realise that these regulatory changes mean that the size of the real costs, including those over the long-term, depend on the level of competitiveness and development activities. Along with the competitiveness pyramid of the European Commission we developed suggestions for main indicators measuring the socio-economic impacts of EU membership, which can be used also for other applicant countries.

KEY WORDS: Lithuania, EU membership, socio-economic impacts, competitiveness

HERNESNIEMI, Hannu – **LINDROOS**, Pekka, **EUROOPAN YHTEISMARKKINOIDEN YHTEISKUNNALLIS-TALOUDELLISET VAIKUTUKSET LIETTUAN YRITYKSIIN, Metodimanuaali**, Helsinki, ETLA, Elinkeinoelämän Tutkimuslaitos, The Research Institute of The Finnish Economy, 2000, 73 s. (Keskusteluaiheita, Discussion Papers, ISSN, 0781-6847; nro 746).

TIIVISTELMÄ: Raportti tuotettiin osana Phare SEIL –projektia (Support to European Integration in Lithuania), jolla tuettiin Liettuan hallitusta Liettuan valmistautuessa EU-jäsenyyteen. Manuaali kokoaa menetelmät, joita käytettiin ja kehitettiin, kun tehtiin tutkimukset jäsenyyden vaikutuksista neljään Liettuan kannalta tärkeimpään toimialaan. Nämä alat ovat elintarviketeollisuus, tekstiili- ja vaatetusteollisuus, puunjalostus ja maantiekuljetukset. Raporttien tekijät ovat Vilnan yliopiston Eurotiedekunnasta. Heitä ohjasivat manuaalin kirjoittajat ja tohtori Mark Chandler. Kolme uutta raporttia - raportit kemianteollisuudesta, rakennustuoteteollisuudesta sekä yhteinen raportti sähkö- ja elektroniikkateollisuudesta ja koneenrakennuksesta on tekeillä Kaunasin teknillisessä yliopistossa Professori Robertas Jucevicius:n johdolla.

Yhteismarkkinoiden sosiaaliset vaikutukset riippuvat keskeisesti toimialojen kilpailukyvystä. Niinpä keskityimme toimialojen benchmarkkaukseen ja niiden kilpailukyvyn ja siihen vaikuttavien tekijöiden tutkimiseen. Tässä käytimme klusterianalyysiä. Tutkimusten vaikuttavuuden lisäämiseksi niihin kytkettiin mukaan toimialajärjestöjä ja elinkeinopolitiikasta vastaavia virkamiehiä. He yhdessä tutkijoiden kanssa tunnistivat toimialojen strategisia kehitystarpeita ja tekivät ehdotuksia aloja kehittävistä elinkeinopoliittisista toimenpiteistä. Analyysin toinen osa oli säännöksissä tapahtuvien muutosten (uudet direktiivit, rajamuodollisuuksien poistuminen jne.) vaikutusten arviointi. Nämä tuovat heti suoria kustannuksia ja hyötyjä. On kuitenkin tärkeä huomata, että uusista säännöksistä aiheutuvat todelliset kokonaiskustannukset, mukaan lukien pitkän ajan kustannukset, riippuvat alojen kilpailukyvystä ja sen kehittämiseksi tarvittavista toimenpiteistä. Manuaalissa teemme myös Euroopan Komission esittämää kilpailukykypyramidia noudattelevan ehdotuksen indikaattoreista, joilla voidaan mitata EU-jäsenyyden yhteiskunnallis-taloudellisia vaikutuksia hakijamaissa.

AVAINSANAT: Liettua, EU-jäsenyys, yhteiskunnallis-taloudelliset vaikutukset, kilpailukyky

FOREWORD

This report has been written within the framework of the Phare SEIL (Support for European Integration in Lithuania) project supporting the Government of Lithuania in preparations for the accession to the European Union. The SEIL project was implemented during the years 1998-2000 and the main method was to provide technical expert assistance to the various government institutions. The SEIL project delivered some 80 separate sub-projects and the one addressed here was called "Support for Socio-Economic Impact Analysis in Lithuania". One of the main objectives was to guarantee that the support provided would lead to a sustainable impact in Lithuania. Therefore, it was decided that a document describing the methods used in the sub-project should be issued.

This manual summarises the experience gained in Lithuania when drafting separate reports for four industrial sectors or clusters. They cover the wood, foodstuffs, textile and clothing and road transport industries. The reports were drafted by Lithuanian experts from Eurofaculty at Vilnius University, under the supervision of Dr. Mark Chandler. Details of the reports are given in the annex. Four other reports are forthcoming covering chemical, construction products, electronic and machine construction industries. They will be completed by research teams from Kaunas University of Technology during autumn 2000 under the supervision of Professor Robertas Jucevicius.

Hannu Hernesniemi, Research Director of The Research Institute of Finnish Economy, acted as responsible expert of the project and as SEIL short-term expert. Pekka Lindroos was SEIL resident economic adviser and is from the Ministry of Trade and Industry in Finland.

AIM OF THIS DOCUMENT

This document has been drafted for two purposes. Chapter 5 constitutes the main methodological manual, and it is planned for use in similar cases. In particular, researchers designing and carrying out impact analysis in Lithuania should benefit from it.

The earlier part and Chapter 6 are meant for the purpose of completing the reporting of the pilot studies sub-project. It is produced in a form to reflect the political and practical issues of carrying out the pilot projects. It is conceived that the problems encountered are of a particular nature and separate from the methodological issues. Nevertheless, the sub-project has taught quite a lesson to the external experts. They try to reflect and assess the Lithuanian situation in order to make the life of others attempting to deliver similar research easier and more productive. The chapter is also meant to reflect a specific request from the Ministry of Economy on the EU approach to competitiveness.

The combination of the two parts may look somewhat repetitive but this problem is eliminated when Chapter 5 is removed and used as a stand-alone tool.

Table of contents

1. AIM OF ANALYSIS

1.1 EUROPEAN UNION COMPETITIVENESS CONCEPT

When studying the impacts of possible European Union membership on four Lithuanian industries, we have focused on the competitiveness of these industries. It is a central factor when the industry has to adjust to a single market, with all the legal and institutional changes that are brought with it.

A central part of any impact analysis is to relate identified compliance costs and accruing benefits to a capacity to absorb them. This can only be done in the overall context of the performance of the economy. In these sector studies future company profitability is the natural selection for such a framework. And indeed, only competitiveness can provide that. Secondly, this is of particular relevance in a situation where the responsibilities of economic agents and the administration will be redistributed anew, like is the case with the Single Market implementation.

Such an approach allows also the creation of a new type of dialogue between the private and public sector. This dialogue is of utmost importance in the development of competitiveness. It is part of the process of strengthening the administrative capacity in the applicant countries. This again is a central criteria in the accession process, something that is not that well reflected in all cases. Transposition of EU legislation in isolation of an implementation strategy based on common understanding of the impact will not do.

What is competitiveness?

European Commission has given a communication about Benchmarking the Competitiveness of European Industry. This is main starting point when studying the socio-economic impact of EU membership, see chapter 5. Also the Council of the European Union have emphases the importance of competitiveness of European industry. According to their thinking, when analysing the competitiveness and adjustment process of the industry focus should be on the following issues:

- investment in intangibles, which is the key determinant of the competitiveness of the industry
- the role of factors, competition in particular, of the business environment in encouraging the industry to seek and to achieve competitive advantages through innovation, rapid adjustment and flexibility
- networking which stands as an opportunity for the SMEs to take advantage of the restructuring and outsourcing of larger firms.

The resent thinking can be against the approach developed during the 1990s in the Union in the so-called Bangemann I and II documents. The main pillars can be summarised as follows:

Table 1.1 EU Approach to Competitiveness: Tasks to Improve the Competitiveness of European Companies

- Promote intangible investment in
  - R&D
  - Quality promotion
  - Sustainable industrial development
  - company training
  - efficient management and organisation principles
  - improved market information systems and customer service
- Develop industrial co-operation
  - Networking, sub-contracting
  - International co-operation with other main markets such as the USA and Japan
- Ensure fair competition
  - trade policy measures for external markets
  - state aid control and antitrust enforcement for internal market
  - completion and strengthening of the functioning of the internal market
- Modernise the role of the public authorities
  - functioning market economy approach
  - public interventions only when needed
  - privatisation and liberalisation
- Objective measuring of the competitiveness
  - Of the economy in general as a business environment for companies
  - In industrial sectors
  - Supporting companies to benchmark themselves

Cluster analysis as a starting point

We have studied competitiveness using cluster analyses and a related competitive model. These cover the same aspects as listed by Council and Commission and are used in most EU countries in their national industrial policy. It was deemed to be particularly appropriate for the analysis of Lithuanian industrial sectors for the following reasons:

- it offers the perspective for comparing Lithuanian industrial policy with a wide body of other examples based on cluster analysis. In fact this was developed into a direct link to the drafting of Lithuanian industrial policy document, where SEIL experts were invited to participate.

- it highlights the government's role in the provision of well developed inputs for companies. Private investments, and intangible investments in particular, are at the core of economic development of a transition economy.

- Similarly, it addresses the need to promote co-operation between companies, an area where transition economies typically reflect the old artificial division of labour and isolated companies.

- The cluster approach also looks at the role of the government and the fair functioning of markets in a comprehensive way.

We have also used benchmarking, which is a widely used method in the EU and stressed by the Council conclusions and by the Commission. This is clearly an area where companies, industry associations, ministries and European institutions have a lot of unused potential to form a common understanding of development needs. This highlights the need for close co-operation with industry associations. A particular chapter of this report is devoted for their role.

1.2 EXPERIENCE WITH COMPETITIVENESS ANALYSIS

A large number of countries have adopted a cluster analysis-based competitiveness framework. This is partially explained by the role of international organisations. In particular, the OECD (Organisation for Economic Co-operation and Development) has been active, and has produced a large body of cluster analyses andoffered methodological guidance. Also, the European Union is increasingly using a cluster-based framework. The content of industrial policy has during the 1990s turned exclusively towards a competitiveness policy approach.

At the national level, a large number of countries regularly carry out similar analyses as reported here. Looking closest to Lithuania, all the Nordic countries follow this framework. There is a relatively deeply rooted tradition and co-operation pattern between various research institutions and experiences are shared regularly in a comparative perspective. Also other countries do similar work. For instance the Netherlands is well known for its work in the field. Another level of implementation is that of regional entities paying attention to their strengths and challenges in a cluster framework. Michael Porter, the founder of cluster competitiveness analysis, lists dozens of countries where he has been involved and also those where his work is starting.

In Finland, Hannu Hernesniemi and his colleagues at Etla (The Research Institute of Finnish Economy) published in 1995 a large research series Advantage Finland – The Future of Finnish Industries. Over 60 separate cluster and sub-cluster analyses were carried out. Representatives of the Ministry of Trade and Industry and the Prime Minister’s Office, of social partners and the most important companies participated in the supervisory board of the study series. Since then competitiveness policy in Finland has followed this model.

In Finland a cluster-based development concept has also been integrated into the method that the Ministry of Labour uses in implementing EU structural fund projects.

All enterprise development projects are due to meet the core priorities of the cluster studies.

The cluster competitiveness approach is emerging also in transition economies. For instance, the Stockholm School of Economics is launching a project titled Baltic Rim Regional Agenda based on cluster analysis and competitiveness development. The plan includes the involvement of all three Baltic countries. Also, the Nordic Council has developed a project to analyse cross-border cluster development in the Nordic countries.

The common cluster competitiveness methodology has considerably eased communication between researchers and policy makers. The established concepts and methods provide comparable data, and policy transparency is increased.

1.3 USE OF RESULTS IN COMPETITIVENESS WORK

Cluster analysis aims at identification of policy relevant factors of competitiveness. The results should form a basis for measures to improve the operating environment for companies. They should also lay the foundations for the needed dialogue between the administration and the private sector. Within the administration the identified development needs should form the basis for policy co-ordination between the various ministries and agencies.

In companies the results should of course offer the management an opportunity to compare their position and performance. They should also serve as a tool to communicate to the company relevant issues of authorities, financiers, personnel and other stakeholders.

In Lithuania, the sub-project to analyse the competitive position of four major Lithuanian clusters took place parallel to drafting the Lithuanian Industrial Development Programme and the Strategy for Its Implementation. Parts of the competitiveness analysis were used in the description of the current situation. Equally, some of the recommendations were based on identified shortcomings in the Lithuanian business environment.

The document was presented to the Government of Lithuania for adoption. Next it was presented to the European Commission Directorate General Enterprise, and talks about its implementation started. Some measures to support the implementation are foreseen within the pre-accession support framework. Presentation of the document and well-prepared implementation schemes are due to alleviate the preoccupations expressed by the Commission in various documents with regard to the content of industrial policy in Lithuania. The explicit statements of basing the policy on improving the competitiveness and compliance with the Single Market principles were noted. It is known that the analytical part describing the current situation and the major shortcomings was also welcomed in the Commission, as information with regard to the performance of Lithuanian industries is scarce.

Subsequent to completion of the general Industrial Strategy, various industry associations have been invited to prepare their more concrete strategies. The Lithuanian Light Industry Association and key member companies participated actively in the production of the report. They have also completed their own development strategy aimed at

introducing the particular priority measures needed. This activism has contributed towards the creation of a dynamic profile for the industry and being an early partner in the dialogue with the administration undoubtedly guarantees due attention to challenges and needs. The external experts involved in this co-operation regard this also as a proof of the feasibility of the process launched.

Various other government policies and programmes are equally relevant to competitiveness development. A specific link was created between the Industrial Strategy and the government policies dealing with technology, namely the Business Innovation Programme and the White Paper on Science and Technology, both supported by the SEIL. Equally, the same basic approach was followed with the SME Development Programme and a closer integration of it with the competitiveness policy was called for by the SEIL experts. The Strategy for Single Market integration also touches on many of the key issues raised in the socio-economic impact studies.

In the future, the transfers of structural funds and other financing from Brussels will be a decisive factor for economic development in Lithuania. This opportunity will yield sustainable results only if the money is spent in a proper way to improve productivity of the Lithuanian economy. Typically more that half of structural fund expenditure, EU and domestic, will go to enterprises in the form of various development projects. The Lithuanian National Development Plan should incorporate the core of the competitiveness policy and guarantee that major attention is given to company-driven local initiatives that do improve company productivity. Infrastructure development, training and diffusion of technology, management development and networking between companies are all well-tested structural fund project areas, strongly supported by the impact analysis findings.

Finally, the impact analysis was extended to cover individual EU directives and several reports and pilot studies have been carried out. Whilst the results will support the Lithuanian negotiation delegation in the formulation of the negotiation positions, their results can also be compared against the background of the total competitiveness background offered by the socio-economic impact analysis. Some of the regulatory impact analyses carried out by SEIL experts have covered the Low Voltage Directive, Health and Safety at Work directives and the Good Manufacturing Practice in Pharmaceutical Industry directive.

Although the clusters analysed represented the most important export sectors and cover a large part of the Lithuanian industrial development potential the process and method of the analysis proves hopefully useful. Objective measurement and longer time series can contribute to competitiveness policy implementation. That policy, in turn, should gain a more prominent place within the overall economic strategy. Solid demonstration of business environment improvement needs and their contribution to industrial development and overall economic progress will bear fruit.

It is also wished that competitiveness impact analysis will become part of a Lithuanian research tradition. The aim of the project has been to give an opportunity to participate to every institution that has expressed an interest.

2. IMPACT ANALYSIS AS A PROCESS

An impact analysis faces particular challenges when it is comparing the impact of a comprehensive change in the economic environment, such as accession to the EU.

There is a shortage of **information** on the specific content of the new system that could form the basis for such an analysis. The only remedy to this is a gradual building of such information. The accumulation can only be organised step by step, in an interplay between the different actors. Existing information has to be accepted as a basis for that. This approach is vulnerable in relation to the expectations that an impact analysis can create.

It is clear that external experts are constrained with a number of factors when carrying out a multilevel study of this kind. Their most valuable input is the provision of the methodology and the creation of the process. A local junior researcher team can contribute within this process but clearly cannot outmatch the most experienced national industry experts. Thus, a large part of the information value of the research is with raising the questions and not with producing ready answers.

The administration should give an adequate picture of the forthcoming changes to companies but this is not sufficient. The legislative change scenario should be supported with practical indications of consequences. The administration, however, can only learn of these concrete elements from companies. Companies, on their side, can state that they have not been provided with sufficient initial information to give any comments.

The methodology developed for this study and described below attempted to overcome those problems with creating a multilevel data and analysis system. It was clear from the outset that the results would only be a first step in the long process of accumulating this sufficient information.

The absence of an impact analysis and private-public partnership traditions form particular difficulties for this process. It is believed that a successful study can contribute to **an impact analysis culture** or process.

Similarly, the studies aimed at producing **policy relevant** results. The conclusions were to support the government integration policy and negotiation process preparations. Equally, they were to provide direct input into competitiveness policy formulation and implementation. This **strategy planning** is the other process element to which the study tried to give support.

As was stated above a link was created with the drafting of the industrial strategy subproject and same experts were involved. It is also foreseen that the implementation of the industrial strategy will partially be carried out in sectoral strategy drafting. The Ministry of Economy is supporting these sectoral strategy drafting exercises and the results of similar impact analyses are to form a basis for that work. In this respect the strategic process seems to be proceeding, and some sustainable impact delivered with the pilot studies and this manual.

The carrying out of four pilot projects was also to contribute to an overall learning process. In conclusion, this learning should also cover the methodological part of the study. Finally, it is wished that the studies contribute to the creation of an increased common understanding of Lithuanian economic development outside Lithuania. Similarly, a contribution to the understanding of how the EU looks at and judges Lithuanian progress in fulfilling the economic criteria for accession was aimed at.

3. PILOT PROJECT DESCRIPTION

The impact project started in early spring 1999. It took several months to get the Commission's approval of the external short-term expert and, later, the researchers, after the SEIL project had nominated suitable candidates. STE Hannu Hernesniemi started his work in April 1999 and the researchers in July 1999. Impact analyses were finalised so that the textile and clothing industry impact report and wood-based industry impact report were presented to the industry representatives in February 2000 and the food-based industry impact report in June 2000.

As a process the project contained the following phases:

Introduction of the project

- STE met the main beneficiaries: representatives of the European Committee under the Government of the Republic of Lithuania, Lithuanian Ministries of Economy, Transportation and Agriculture and four industry organisations. Impact analysis studies were presented to beneficiaries (selection of branches, contents of the studies, methodology and time schedule) and the necessary the co-operation relationships with them were created. In addition, the STE also visited several companies in order to get familiarised with the practical situation of the companies. According to our experience we should have put even more emphasis on the contacts with industry organisation and sector ministries and use more authority of the European Committee to tie these beneficiaries to the project. We also organised a steering group. It was formed from the experts of the European Committee, relevant ministries and industry organisations and SEIL representatives.

Selection of the researchers

- The SEIL project team met with representatives of five academic institutions in a common meeting. The impact analysis project, content of studies and methodology to be followed were presented to them. The institutes were possible candidates for the responsible institute, which selected postgraduate or graduate students to be the researchers of the project. Based on their offerings and related CVs we selected a team from the Euro Faculty of Vilnius University to carry out the four industry impact studies. One aim was to give education and provide reference work for the researcher to work later in similar consultant jobs. The second wave of four more condensed impact analyses was given to the team of Kaunas Technical University. Here the selection criteria were researchers' familiarity with the industries concerned. We thought that previous knowledge could partly compensate for the lack of interviews made by the other team, but which were not possible in these due to lack of time and financial resources.

Become acquainted with and preparation of the research material

- The Statistical Office of Lithuania was asked all the necessary enterprise, production, export and import, transportation, foreign direct investment, research and development and innovation statistics for the project. They also promised to provide the data on diskettes or do the necessary tables if they found it impossible to pro-

vide all the data. OECD data bases were used for international comparisons. Important research material included Single Market Reviews, which were made available for the researchers. In a later phase of the project we also used information from international industry organisations and material of the Finnish industry organisation. The Internet was a very useful source of information, too.

Education and training of the researcher

- In the first research seminar the content and the methodology of the studies was examined thoroughly with the researchers. On the first day, stress was placed on 1) how to study competitiveness and 2) how to evaluate the effects of EU membership for the firms and different industries. See the table Content of the Studies on page xx. On the second seminar day we concentrated on practical issues: how to run the firm interviews and the schedule of the project. The STE prepared the directive questionnaire for the interviews (Appendix 2), which researches later applied when they interviewed the industry representatives. The first research seminar was held on 1st and 2nd July, 1999. It was a starting point for the work of researchers. The seminar, as well as the other two research seminars, was open because the targets were to disseminate the methodology of the study and get immediate comments contributing to the analysis. We asked especially officials of the European Committee and Ministry of Economy Affairs and the Institute of Economics and Privatisation to participate in the seminars.

- Research work process

The research work was organised in the following way:

- Description of the industry: At first researchers were asked to write a description about the industry they were studying. The content of the description was given so that, in an optimal case, it could form as such a description chapter for the study itself.

- Interviews: As mentioned the principle content of interviews is in Appendix 1, which was used as a base for interviews. Researchers were given freedom to apply the questionnaire because branches are not similar and it is not optimal for managers to follow the order of a questionnaire. There were many difficulties concerning the interviews. We had to start the interviews during the summer holiday period, when it was difficult to get the interviews. Managers were not used to interviews or they had bad experiences with them, or they were suspicious concerning the targets of the interviews. We gave more advice for the researchers on how to run successfully the interviews and we also asked associations to send an information letter about the project and consult the researcher to get suitable managers for the interviews. Finally in the three impact studies interviews were run successfully and they gave a lot of relevant information.[1] The interview period was longer than was

[1] In the road transportation impact study the researcher told us that he had run several interviews. Later it came out that many of the named managers and officials were not interviewed. This harmed badly the whole sub project. We replaced the researcher, but damage had already been done. We finally terminated that project without publishing the results.

planned. The latest interviews were done in December 2000. A disappointment was that especially officials in ministries were not so keenly interested in supplying all the relevant information they had about EU regulations.

- Research work based on secondary sources: Researchers were also working a lot with different kinds of statistics. A major source was the export-import statistics of the OECD and Lithuania. Based on those statistics, lists of products where Lithuania has a competitive edge were presented. Also cost structure statistics were available, but researchers did not utilise them as actively as foreign trade statistics. When studying the direct impacts of EU membership, the Single Market Reviews were utilised. A lot of information was also obtained from the international and national industry organisation.

- Commenting on the results: In the second research seminar on September 2000 we commented on the intermediate reports. Second time preliminary results of the reports were presented to the representatives of industries and industrial policy officials in four sector meetings in December 2000. In these meetings we also, together with beneficiaries, prepared industrial policy proposals for the sectors. Concerning the textile and clothing industry, we were very successful, and the results of the food processing industry meeting were also positive. In formulating the wood industry policy proposal, we resorted to having it made later by the researcher and the industry organisation together, because the study itself was not ready yet for that. The road transportation meeting revealed the shortcomings of the study; the study was rejected later because of distrust of the sector representatives. Results of the studies were also presented several times to the steering committee of the impact analysis. The supervisors read and commented on the studies from three to five times depending on the study.

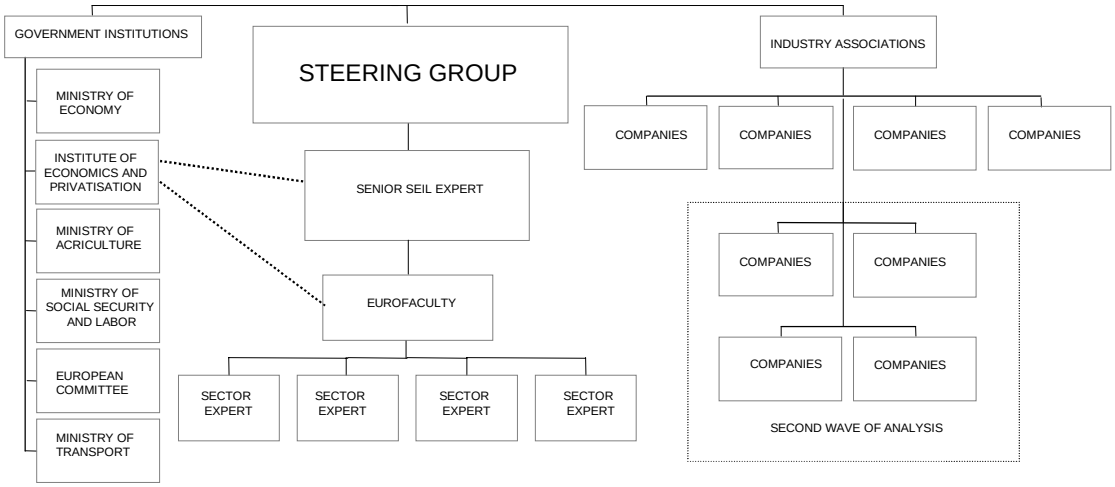
▪ Publishing the impact studies

The impact reports of the textile and clothing industry and wood-based industries were officially presented and delivered to the industry representatives in February 2000. The representatives of both industries were satisfied with the reports and with the dialogue and common strategy setting of the industry representatives and the industrial policy officials. The food industry impact study was presented to the industry people and respective industrial policy officials in June 2000. In this seminar as well as an earlier foodstuff industry seminar, also Finnish experiences regarding the first five membership years were presented.

▪ Project Structure

The impact analysis project structure is presented in Figure 3.1. As one can see, there are two important groups involved in industry associations as well as, of course, companies and governmental institutions. The steering group was a union, because there were representatives from both groups as well as from the SEIL project. It was monitoring the progress of the project. The second wave of impacts studies are under preparation and has not been published yet.

Figure 3.1 Projects Structure of Policy impact analysis



4. CRITICAL APPRAISAL OF PILOT PROJECT RESULTS

The general process description above indicates the time used for the project. As can be seen there were several delays in the process that were beyond the control of the research team. Not all the sector reports have been finalised at this time. There are time pressures to make this manual available for the beneficiaries and the critical appraisal has to be presented at this stage. However, the completed studies in forest and textile and clothing industries and foodstuffs industries can be analysed. The experience gained in their production can also act as a benchmark when looking at the other processes and lay a platform for analysing the whole process. The main observations are presented in summary form below:

1. Phare supported projects are complicated and time consuming. The external expert based on his experience of several similar studies in his home country and elsewhere, assesses that the actual project work could have been carried out in 24 full man months.

   In particular, the approval of experts for the work was particularly time consuming. It proved to be a serious constraint because the project could not contract the Lithuanian part of the research to an academic institution like it was suggested. The researchers that had been contracted for the project for full time work were not able to concentrate on the project exclusively. It was complicated to create the needed back up and responsibilities were blurred.

2. The completed sector studies give proof that the methodology and overall research design is a feasible one when looking at the objective results. This observation is enhanced by the positive comments that have been received from the industry associations. These sectors benefited of committed and open minded local researchers.

3. The external consult had designed a comprehensive training and support system for the researchers, reflecting his experience of similar exercises with students. However, the lack of commitment of some researchers even surfaced in form of challenging the need for training, and eventually totally misguided and unacceptable results.

4. Statistical data availability described in detail below did limit the process somewhat. The research project did not have direct access to basic EU references like Panorama. This was partially compensated by the access that the external expert had in his institution in Helsinki, and which he used to a major degree.

5. Company interviews proved to be a difficult part of the data gathering. The information problem described above accounts for part of the difficulty. The experience of external experts indicates that the general level of information in Lithuanian companies is relatively low. In particular, this relates to the perceived benefits of the single market. In contrast with most EU company managers the Lithuanian managers did not attach any particular value to the abolition of barriers to trade. Companies already exporting to the EU were in some cases of the opinion

that nothing will change when Lithuania accedes. This opinion are generally not shared by other managers.

6. There was even hostility and non-willingness to co-operate. This was motivated by a fear of foreign interventions, experience of earlier studies where results were never delivered and other negative experiences or mistrust of government policies. With fairness, the limited amount of information and consequent hesitancy and have been an underlying factor. But the project failed to mobilise the political support needed in such cases. The administration nor the industrial associations provided support. Previous experience indicates that in certain cases this is necessary.

7. These situations seriously harmed the planned joint analysis of the hypothetical results and prevented presentation of any priority recommendations or conclusions. The research team input alone was not planned to produce the targeted results so these cases have to be considered as failures and usefulness of publication of the partial results is questionable.

8. The willingness to present comments from the administration in those sectors where the process progressed more or less along planned forms was of varying degree. There would have been room for a much closer co-operation. It should be stated that though the external experts were aware of this need in principle it was somewhat difficult to deliver that in practice in some cases.

9. In most cases it has to be concluded, however, that the research would seem to have induced a process of further analysis and sectoral strategy drafting. The produced results can form a basis for further analysis that will also lead to corrections of the mistakes and to filling in the gaps. Hopefully they will also lead to development in industrial policy and, of course, implementing measures in companies.

10. Again, based on foreign experience, it would be fair to claim that foreign companies, industry associations and ministries would have found the results of the completed reports useful in their own work. It is wished that the European Commission and interested member states are of similar opinion.

5. OUTLINE FOR PILOT PROJECT METHODOLOGY

5.1 PARTIES INVOLVED AND ROLES FOR EACH

Impact analysis is a process where a lot of co-operation is needed between researchers and government officials, industry associations and firms. The three last mentioned are also the main beneficiaries. Active and many-sided co-operation helps researchers to focus on essential questions set by beneficiaries. It helps beneficiaries also to internalise the results, and do their part when preparing policy recommendations and informing about the results.

For the impact analyses' purposes we set some targets for the co-operation. Partners should help the researchers by fulfilling the following tasks:

- Beneficiaries should help researchers by opening the doors to the industry and in practice to the firms.
- Beneficiaries should help the researcher by providing information they already have. This is an especially relevant task for sector ministries and officials of industry organisations.
- Beneficiaries should comment on the results of the studies, check the relevance of the work, make necessary suggestions for improvements, and finally verify the results.
- Forming the industrial policy recommendations is primarily the task of industry organisations and industrial policy officials of ministries.
- Finally it is also partly their task to inform about the results of the analyses.

Of course co-operation should go two ways so that all the participants can benefit from it and be motivated to help the project.

Government

There are different conceptions about what should be the content of the industrial policy. In the Lithuanian case, there is an historical experience with central planning connected with social ownership of firms. This was followed by the free market concept connected to mostly horizontal industrial policy measures. In practice, both concepts were, and still are, in effect and also run side by side in Lithuania.

When analysing the recent industrial policy thinking in the OECD countries and the EU, one can see that preferred industrial policy is based on free competition, entrepreneurship and functioning of their positive incentives. This is the base for many horizontal industrial policy measures including, for example, competition laws. At the same time there are some strong scientific outcomes which clearly shows that gov-

ernments (central and local) and supranational organisations like the EU have justifiable reason to interfere in the functioning of economic actors. Investment in education and the basic research facilitating the technological and other development of firms are good examples of the necessary measures. There is also rising understanding that industries differ from each other and, on the other hand, the very same industries in different countries have different preconditions for competition. Also this gives a role for industrial policy measures. Typical examples are high risks in developing and investing in new technology in some industries and ethical or hygienic rules in some industries. Rules for using and upgrading some nationally important raw materials may have different importance in different countries. A recent issue under discussion is whether EU competition policy prohibits companies of small countries from growing into internationally competitive size through mergers, because they can easily have too domineering of a position in their own home markets.

Accessing the European Union means a big change to the industrial policy regime and can also change dramatically the competitive position of the industries. In a way the changes are similar to those faced by Austria, Finland and Sweden upon joining the EU in 1995. On the other hand, the effects are totally different. Lithuania, like the other applicant countries, has in different branches very much lower productivity than the member countries. That is why the rise of real competitiveness, i.e. the rise of productivity, and maintaining the high employment and scale of activity in different industries is at the same time a main challenge.

Impact analysis as a process offers an excellent possibility for industrial policy official to get new information about different industries and, together with the representatives of industries, the researchers to form the industrial policy targets and means. In our studies industrial policy officials unfortunately did not utilise this option. When gathering the information the biggest shortcoming was that we were not successful in getting the information, which the sector policy official had concerning institutional changes, such as regulatory changes due to membership.

Associations

Industry associations are key partners in the studies. They represent the industry, form stands on various issues and accumulate information about the industry concerned. They normally cover the most important firms of the industry. The industry associations can open doors to the firms. We, for example, recommend the association to send an information letter about the studies to firms and supply the researchers with the relevant firms for the interviews.

For the industry association the study offers a good possibility to improve its industrial policy planning and tighten its connections to policy officials and firms. That is why it is valuable for them not only to supply the right information, commenting and taking part in industrial policy formulation but also to inform the results.

In our study, the textile and clothing association had a very active and diverse role, including spreading information and even lobbying officials in a positive manner. The wood industry association also gave a lot of help in opening doors to firms, supplying statistics, and commenting. In the foodstuff industries there are several associations and they dot not have any roof organisation of their own like in most of EU countries.

So we tried to work with many sub-associations, which of course is not that effective. In co-operation with the transportation association we failed. We were unable to convince them about the importance of the study after the mistakes made by the researcher.

Social partners have an important role in industrial policy in the EU countries and also in multinational and national EU financed projects. Impact analyses were at the same time kinds of training programmes for the new role of industry associations.

One important aspect is worth mentioning here. When industry organisations and firms are actively participating, also industry policy officials take the studies seriously. This was the case in the textile and clothing industry study and to some degree in the wood based industries and food processing industries.

Industrial organisations play an important role in promoting the industries, even in the market-oriented Lithuanian economy, at least in the European Union context. Relevant tasks are for example:

- To accumulate knowledge about the industry and benchmark the industry comparing that of rivalry countries
- To prepare and execute general and especially sector industrial policy
- To deliver sector relevant information to interest groups and official bodies
- To take care that professional education system is producing enough and high quality experts for the industry
- To organise common projects for developing productivity and technology development and related consultant.
- To promote the industry by organising common fairs and preparing catalogues, Internet pages, etc.
- In the EU context lobbying is an important field of work. The EU Commission is preparing directives, important resolutions, etc. together with international industry organisation. It is important to follow and participate in that work.

Firms

Firms were objects of the study in order to get a good view about the current status and competitiveness of the industry and expected impact of the EU on the industry. We had a target to interview 20 outstanding firms per industry. We selected big firms, export-oriented firms, firms with progressive business strategies or advanced technology. Also some small firms were asked to be interviewed. Researchers selected firms using possible suggestions of the industry associations. Together we asked researchers to perform 30 interviews per industry including also government officials and other sector experts.

Firms' representatives were also asked to some meetings and seminars, which we held in order to disseminate the results and get feedback. In the textile and clothing industry business leaders belonging to the board of industry organisation were actively identifying the problems and competitiveness shortcomings of the industry and preparing policy proposals in order to solve the problems. In the wood industry sector practically the whole industry was present when informing the results of the study. Several of them were thankful for this rare occasion to meet simultaneously with representatives of the relevant ministries, i.e. with the Ministries of Agriculture, Environment and Economy and hoped to co-operate more with them.

Firm interviews were confidential. During the interviewing process researchers learned about some of the success stories and good examples on development activities, which could be good examples for other firms. After getting permission, we have published many of these case reports in the studies.

Researchers

An important aim was that during the process we could educate selected researchers later to work as consultants, who know the industry concerned, who become familiar with the industry related to EU issues, who are able to analyse competitiveness generally and who are able to participate in industrial policy work. A good base to carry out this kind of analysis as well as for a consulting career later is a modern education in economics or business economics For practical reasons, we placed a precondition that researchers should be able to work with the English language.

In April 1999 we had a meeting, where we presented a project to four candidate groups of different university faculties. They were asked to make a project offering. Among them we selected a post graduate team of the Euro Faculty of the Vilnius University. Their competitive edges were a good educational background, solid English language skills and their team leader Ph.D. Mark Chandler, who could act as an intermediary link with the supervisor and SEIL project officials, and offer local consultation to the researchers if needed. Doctor Chandler was appointed to be supervisor as well.

One other selection criterion would have been the industry expertise. This choice we made at a later stage, when some financing was given to the second round of industry studies. The researchers of Kaunas Technical University know in advance the selected industries. On the other hand, they are burdened by other work and we did not have enough financing to offer the possibility to work full-time just on the industry impact studies.

Supervisors

Research Director Hannu Hernesniemi was selected as the supervisor and short-term expert for the project. His expertise includes the competitiveness of firms, industries and clusters, industry policy issues. Mr. Hernesniemi also knew Lithuania in advance and the Finnish experiences during its membership in EU. Mr. Hernesniemi works for Etlatieto Ltd., a project research subsidiary of The Research Institute of The Finnish Economy – ETLA.

The supervisor made a total of 8 missions to Lithuania during the project and other SEIL sub-projects. During these missions he provided education to researchers and commented on their work, contacted industry organisations and visited several firms, took part in the sector meetings, reported to the supervisory board about the project progress and took part in the publication of the studies (see Chapter 3). Most of the commenting work was done as distant work. Email offered effective connections. The supervisor had access to several important databases and publications, which were not otherwise in use, because there was no financing for these purposes in the SEIL project.

Mark Chandler, Ph.D., is a Lecturer in the Euro Faculty of Vilnius University. His field of specialisation is industrial economics. Doctor Chandler collected the original research group, which then won the project. He took part in and performed the same activities as STE Hernesniemi. His role in providing backup to the researchers, and in some cases finding new researchers to replace original ones, who left the project, was extremely important. Doctor Chandler also checked that the language of the reports was fluent enough.

5.2 SELECTION OF THE BRANCHES FOR STUDIES

We selected the four branches for the pilot studies. The selection was based on the importance of these industries for the Lithuanian economy. The selection criteria were the following:

- These industries earn most of the net export incomes and products of these industries have export shares over the Lithuanian export share in OECD exports. These industries already have already manifested success in exports markets.
- These industries are relatively more important in Lithuania than they are in most of the studied OECD countries. Their share of GDP as well as employment shares are over or at least as high as respective figures in studied OECD countries.
- In these industries there are early signs of positive connections to other industries. In best cases they are key industries of the most potential future clusters of Lithuania.
- These industries are also rather evenly spread across the country. There are factories also in the smaller towns and villages, and rural areas have a significant role in providing raw materials for these industries (agricultural products, raw wood and some flax). That means very positive influences from a local politics standpoint.

As a result of the selection criteria the following four industries were selected as objects for the studies.

- **Food industry**
- **Textile and clothing industry**
- **Wood based industries including furniture**
- **Freight transportation**

Figures 5.1 – 5.4 and Tables 5.1 and 5.2 show the importance of these industries for the Lithuanian economy and their role as net export income earners. Socio-economic impacts of the European single markets on these industries are important for the whole Lithuanian economy not only for the firms and employees of these industries. To take care of competitiveness of these industries strong industries should be among the top priorities of Lithuanian industrial policy.

Figure 5.1 Relative Importance of Food, Beverages & Tobacco Industries

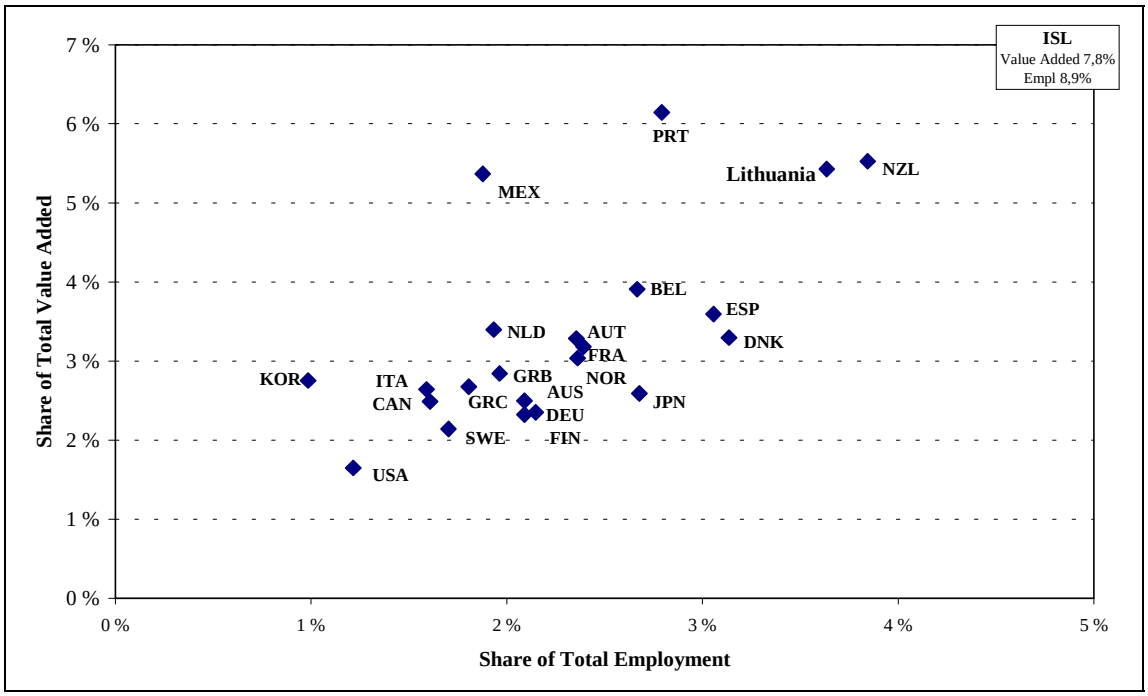


Figure 5.2 Relative Importance of Textiles, Apparel & Leather Industries

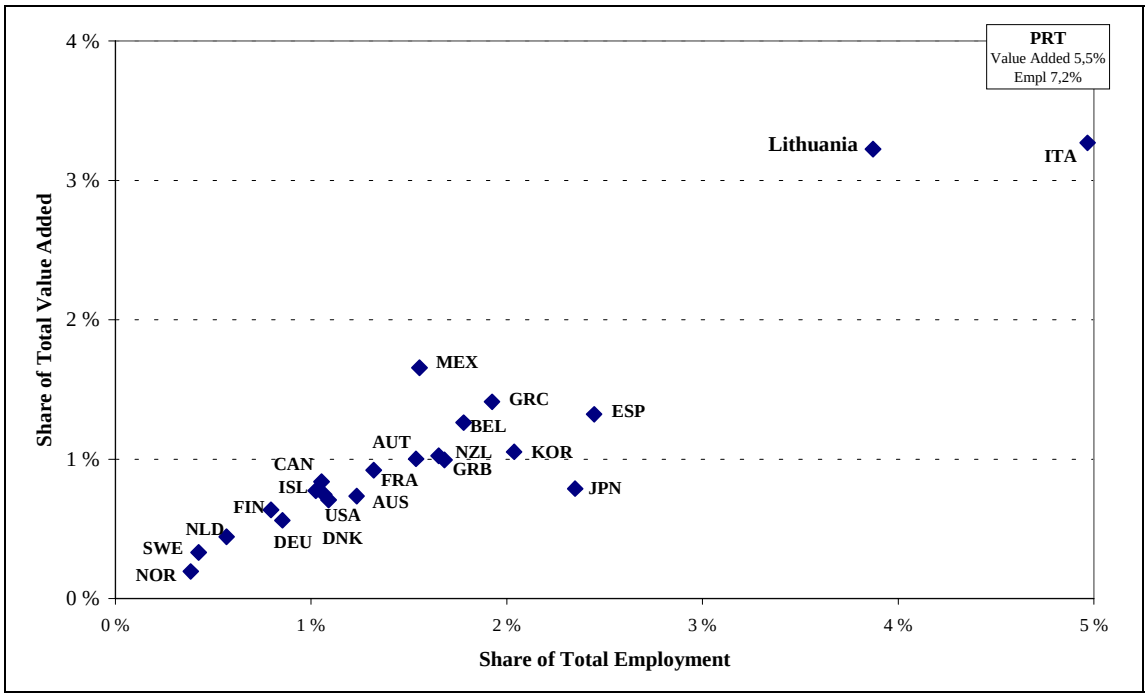


Figure 5.3 Relative Importance of Wood Products & Furniture Industries

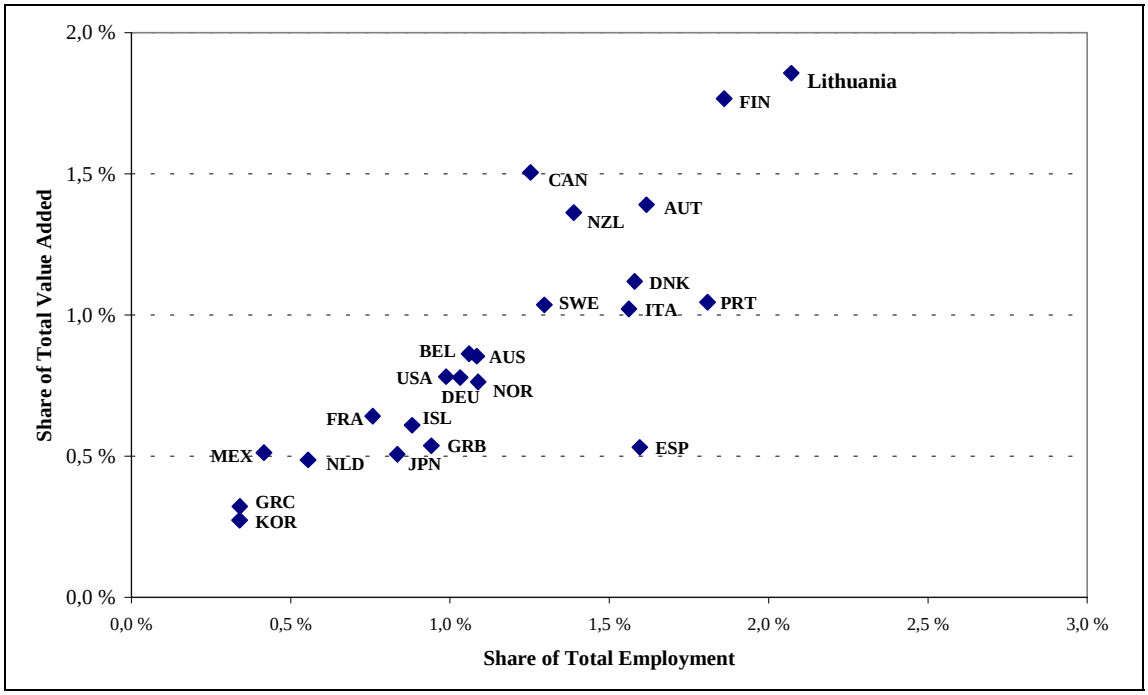


Figure 5.4 Relative Importance of Transportation

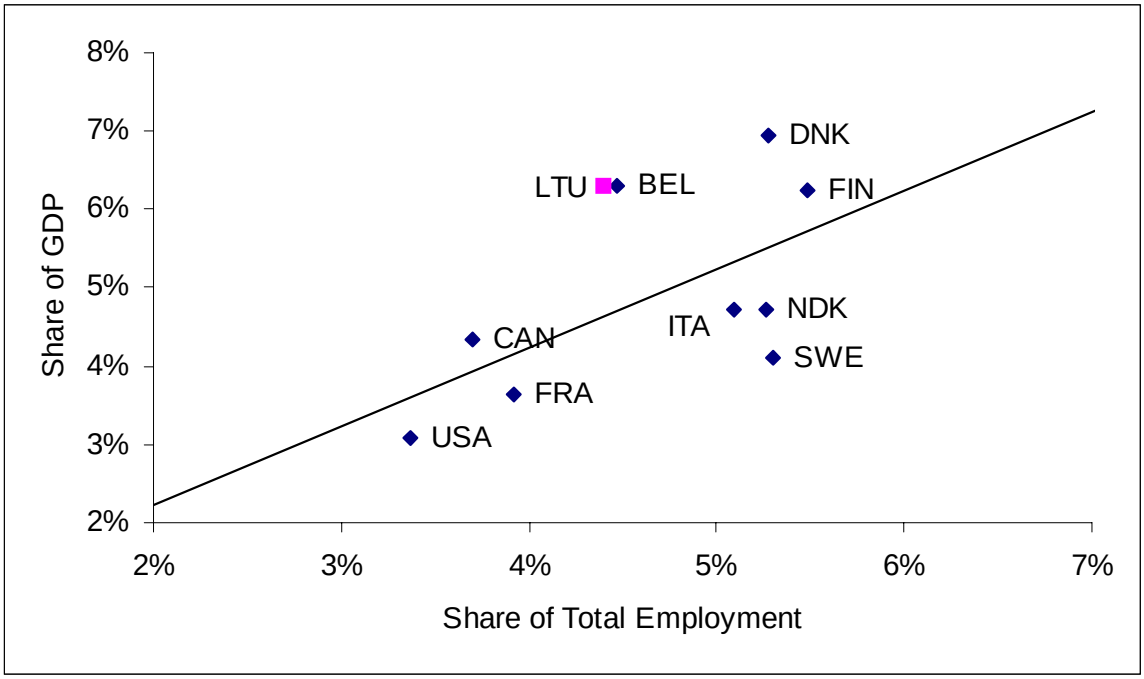


Table 5.1 Top Lithuanian Products in Terms of Trade Balance with the World in 1999

RCA = Revealed Comparative Advantage: Lithuanian Share of OECD Exports of a Commodity Group / Lithuanian Avarage Share of OECD Total Exports
Rating of Competitive Edge: AA = Positive Trade Balance and a Higher Import Share than the Lithuanian Average Share of OECD Exports;
A - = A Higer Import Share than The Lithuanian Averege Share of OECD Imports; - A = Positive Trade Balance for Lithuania at least in an other year.

HS-code and Product Group		Total Exports, Mill. USD			Lithuania's Share of OECD Exports in 1998	RCA-Index	Trade Balance, Mill. USD		Rating of Competitive Edge
		Lithuania 1999	Lithuania 1998	OECD Countries 1998			of Lithuania 1999	of Lithuania 1998	
Total		**3 004**	**3 711**	**4 439 900**	**0,08 %**	**1,0**	**-1 830,7**	**-2 083,0**	
62	Art of apparel & clothing access, not knitted/crocheted	323,2	293,4	87 109	**0,37 %**	**4,5**	**286,5**	**256,1**	**AA**
31	Fertilizers.	177,7	182,8	10 386	**1,74 %**	**20,8**	**160,4**	**157,2**	**AA**
44	Wood and articles of wood; wood charcoal.	192,5	177,6	45 750	**0,42 %**	**5,1**	**128,6**	**114,9**	**AA**
04	Dairy prod; birds' eggs; natural honey; edible prod nes	113,0	195,2	26 872	**0,42 %**	**5,1**	**100,2**	**173,2**	**AA**
61	Art of apparel & clothing access, knitted or crocheted.	124,1	123,6	68 939	**0,18 %**	**2,2**	**88,9**	**91,9**	**AA**
94	Furniture; bedding, mattress, matt support, cushion etc	109,3	87,5	62 566	**0,17 %**	**2,1**	**53,1**	**27,7**	**AA**
10	Cereals.	29,9	23,5	25 727	**0,12 %**	**1,4**	**22,2**	**12,1**	**AA**
89	Ships, boats and floating structures.	32,3	25,4	37 921	**0,09 %**	**1,0**	**14,9**	**15,5**	**AA**
16	Prep of meat, fish or crustaceans, molluscs etc	20,8	22,2	11 132	**0,19 %**	**2,2**	**14,0**	**15,2**	**AA**
23	Residues & waste from the food indust; prepr ani fodder	35,6	46,1	13 642	**0,26 %**	**3,1**	**11,4**	**16,9**	**AA**
53	Other vegetable textile fibres; paper yarn & woven fab	43,2	40,8	2 596	**1,69 %**	**20,2**	**9,4**	**11,0**	**AA**
41	Raw hides and skins (other than furskins) and leather.	33,0	24,5	14 478	**0,23 %**	**2,7**	**9,0**	**9,5**	**AA**
63	Other made up textile articles; sets; worn clothing etc	39,3	34,2	15 236	**0,26 %**	**3,1**	**8,5**	**0,1**	**AA**
12	Oil seed, oleagi fruits; miscell grain, seed, fruit etc	23,8	30,4	14 839	**0,16 %**	**1,9**	**8,2**	**-6,6**	**A -**
35	Albuminoidal subs; modified starches; glues; enzymes.	18,0	29,3	8 317	**0,22 %**	**2,6**	**4,9**	**11,2**	**AA**
01	Live animals.	5,9	4,3	8 265	**0,07 %**	**0,9**	**3,8**	**1,7**	**- A**
43	Furskins and artificial fur; manufactures thereof.	14,9	16,0	3 864	**0,39 %**	**4,6**	**3,4**	**2,4**	**AA**
56	Wadding, felt & nonwoven; yarns; twine, cordage, etc	16,5	14,2	8 597	**0,19 %**	**2,3**	**3,3**	**0,1**	**AA**
88	Aircraft, spacecraft, and parts thereof.	19,1	12,1	106 410	**0,02 %**	**0,2**	**3,0**	**1,8**	**- A**
46	Manufactures of straw, esparto/other plaiting mat; etc	0,9	0,7	1 233	**0,07 %**	**0,9**	**0,7**	**0,5**	**- A**

Table 5.2 Top Lithuanian Products in Terms of Export Market Shares in 1998

RCA = Revealed Comparative Advantage: Lithuanian Share of OECD Exports of a Commodity Group / Lithuanian Avarage Share of OECD Total Exports
Rating of Competitive Edge: AA = Positive Trade Balance and a Higher Import Share than the Lithuanian Average Share of OECD Exports;
A - = A Higer Import Share than The Lithuanian Averege Share of OECD Imports; - A = Positive Trade Balance for Lithuania at least in an other year.

HS-code and Product Group		Total Exports, Mill. USD			Lithuania's Share of OECD Exports in 1998	RCA-Index	Trade Balance, Mill. USD		Rating of Competitive Edge
		Lithuania 1999	Lithuania 1998	OECD Countries 1998			of Lithuania 1999	of Lithuania 1998	
Total		**3 004**	**3 711**	**4 439 900**	**0,08 %**	**1,00**	**-1 830,7**	**-2 083,0**	
31	Fertilizers.	177,7	182,8	10 386	**1,74 %**	**20,84**	**160,4**	**157,2**	**AA**
53	Other vegetable textile fibres; paper yarn & woven fab	43,2	40,8	2 596	**1,69 %**	**20,21**	**9,4**	**11,0**	**AA**
04	Dairy prod; birds' eggs; natural honey; edible prod nes	113,0	195,2	26 872	**0,42 %**	**5,07**	**100,2**	**173,2**	**AA**
44	Wood and articles of wood; wood charcoal.	192,5	177,6	45 750	**0,42 %**	**5,05**	**128,6**	**114,9**	**AA**
43	Furskins and artificial fur; manufactures thereof.	14,9	16,0	3 864	**0,39 %**	**4,63**	**3,4**	**2,4**	**AA**
62	Art of apparel & clothing access, not knitted/crocheted	323,2	293,4	87 109	**0,37 %**	**4,45**	**286,5**	**256,1**	**AA**
27	Mineral fuels, oils & product of their distillation; etc	433,3	691,3	130 610	**0,33 %**	**3,99**	**-281,0**	**-136,8**	**A -**
23	Residues & waste from the food indust; prepr ani fodder	35,6	46,1	13 642	**0,26 %**	**3,13**	**11,4**	**16,9**	**AA**
63	Other made up textile articles; sets; worn clothing etc	39,3	34,2	15 236	**0,26 %**	**3,10**	**8,5**	**0,1**	**AA**
41	Raw hides and skins (other than furskins) and leather.	33,0	24,5	14 478	**0,23 %**	**2,73**	**9,0**	**9,5**	**AA**
35	Albuminoidal subs; modified starches; glues; enzymes.	18,0	29,3	8 317	**0,22 %**	**2,60**	**4,9**	**11,2**	**AA**
54	Man-made filaments.	50,6	67,4	25 978	**0,20 %**	**2,34**	**-26,6**	**-5,4**	**A -**
56	Wadding, felt & nonwoven; yarns; twine, cordage, etc	16,5	14,2	8 597	**0,19 %**	**2,30**	**3,3**	**0,1**	**AA**
16	Prep of meat, fish or crustaceans, molluscs etc	20,8	22,2	11 132	**0,19 %**	**2,24**	**14,0**	**15,2**	**AA**
61	Art of apparel & clothing access, knitted or crocheted.	124,1	123,6	68 939	**0,18 %**	**2,16**	**88,9**	**91,9**	**AA**
94	Furniture; bedding, mattress, matt support, cushion etc	109,3	87,5	62 566	**0,17 %**	**2,09**	**53,1**	**27,7**	**AA**
12	Oil seed, oleagi fruits; miscell grain, seed, fruit etc	23,8	30,4	14 839	**0,16 %**	**1,93**	**8,2**	**-6,6**	**A -**
55	Man-made staple fibres.	35,3	36,9	22 353	**0,16 %**	**1,90**	**-67,8**	**-62,6**	**A -**
24	Tobacco and manufactured tobacco substitutes.	26,7	17,0	17 835	**0,15 %**	**1,79**	**-26,9**	**-38,1**	**A -**
25	Salt; sulphur; earth & ston; plastering mat; lime & cem	18,9	21,0	13 262	**0,14 %**	**1,71**	**-69,2**	**-52,7**	**A -**

5.3 LEVELS OF ANALYSIS

Table of Contents

A fixed table of contents was given to the researcher in the very beginning of the project. The idea was to gather and supply identical information from the different industries. Similarly, some fixed tables and figures were asked to be produced. The levels of analyses are described in following sub-chapters.

From the beginning of the project it was clear to the SEIL team that the social impacts of the European Single Market very much depend on the competitiveness of the Lithuanian industries. That is why so much emphasis is put on benchmarking the performance of industries and studying carefully their competitiveness and the most important factors behind it. In order to increase the influence of the studies, we tied industry organisations and industrial policy officials to the project. Their tasks were, together with the researchers, to identify strategic development needs of industries and make policy proposals for improving the competitiveness of the industries concerned. In this work we tried to follow methods used extensively in EU countries and by the European Commission.

The other part of the analysis was the regulatory changes (new directives regulating the firms, abolishment of border formalities, etc.) and their direct cost and benefit effects. This work has been done also in other SEL projects. From the government officials, industry organisations and firms' standpoint, a lot of this kind work shall be done before and after joining the EU.

These two levels of analysis are tied to each other. Long-term socio-economic impacts connected to competitiveness are realised over the long term and might be very significant – either negatively or positively. Direct effects of integration mean costs and incomes now. But it is important to realise that these regulatory changes mean that the size of the real costs, including those over the long-term, depend on the level of competitiveness and development activities.

Description of the branch and its connections

Because the studies have foreign readers, for example in the European Commission, a description of the industry is needed. So far there is extremely little information available about Lithuanian industries in other languages than Lithuanian.

From the beginning we also wanted to explicitly present the industry on the firm level, too. We mention the biggest firms by name and give information on them. This way we can reach a level of analysis where information is not lost because of rough generalisations or because others’ generalisations are quoted. This and company interviews force researchers to be familiar with the firms and the industry and relay in the first stage information when it is possible.

Table 5.3 Table of Contents of the Industry Impact Studies

1. Description of the industry

- What are the products or/and services of the industry
- What are the customer segments of the industry
- What are the main type of enterprises
- Short presentation of major companies
- Connections to other industries
- Short history of the industry: Important factors of history

2. Benchmarking the industry

National level

- What is the size and the importance of the industry in comparison to other industries
- What have been the development trends of the industry: value and volume of the production, number of employees, number of firms, etc.
- What is the profitability of the industry: comparison to others and development of it

International perspective

- What is the revealed comparative advantage of the industry: export success: export/import, export market shares, RCA, destination of export and respective measures for services (road transport)
- Shares of GDP and numbers of employment compared to other countries
- Price level and product differentiation, new innovations, successful business ideas
- Ability to attract FDI and ability to globalise business activities

3. Challenge of the European Union

- Potential advantages of the single market: trade potential of the industry
- Accurate description of the coming institutional and other changes
- Evaluation of their effects
- Estimation of the adjustment costs to the industry

4. Competitive edge of the industry

- Factor conditions
- Demand conditions
- Related and supported industries
- Firm strategy, structure and rivalry
- The role of government

Survey of industry managers: the present state of the industry, expected effects of EU-membership, identified company and industry development needs

5. Conclusions and industrial policy proposals

- Conclusions about the competitive position of the industry
- Effects of EU membership
- Strategic development needs and aims
- Industrial policy proposals

Classifying enterprises is an important task. This can be done for example based on products. Often normal industrial classifications are made based on products or raw materials used. So it is one practical starting point, because statistics are made according to these classifications. For example in the foodstuffs industry the normal industry classification is very constructive. An advantage when following the traditional classification is that one can use statistical data in the descriptions.

Other important classification dimensions are the following:

- Size of firms and concentration of production, sales, labour force, capacity.

- Another factor to know is internationalisation measured by export and foreign activities, or for example FDI in the firm.

- Way of functioning. Are firms acting in a network focusing on their core competition and outsourcing fewer strategic parts of production, or have they integrated the whole production chain within the company?

- The role of research and development. Are the firms developing their own new products? Are they investing in new production technology?

These kinds of factors are of course an essential part of the industry description. Another function of the classification is that it gives a good base for forming a representative sample for the questionnaire.

When describing the industry one normally has a target to cover the whole area, even those sub industries that are of no significance to the country. A result might be a very comprehensive presentation, but the side effect is that the importance of the industries to the country remains unclear. This is dangerous, for example, when describing traffic. There are passenger traffic and goods traffic using different kinds of transportation means. We advise the researcher to concentrate in the later phase of the study only on goods transportation, and only on those means of transportation that really seem to have a competitive edge in Lithuania. This means road transportation, sea transport and activities in the Klaipeda harbour, and all kinds of firms offering services for this chain.

An historical description of the branch provides much insight on the recent situation of the branches. It gives an explanation for why certain sub-branches have declined faster than others. History tells about industrial inheritance, where a country has got strong traditions, which are vivid still and forms a good background to build up new production. Sometimes it is the other way round. An industry without a historical burden can become successful because it is not tied to ineffective means of production, outdated products, etc.

In this phase we already look for the connection of the industry to the other industries and customers' segments. In the positive case these connections can be very progressive and the industry can form a competitive cluster with the firms from other industries. The following table highlights the economic explanation for clusters and gives a strong argument for why fostering clusters is an important part of industrial policy.

Table 5.4 Economic Explanations for the Competitiveness of a Cluster

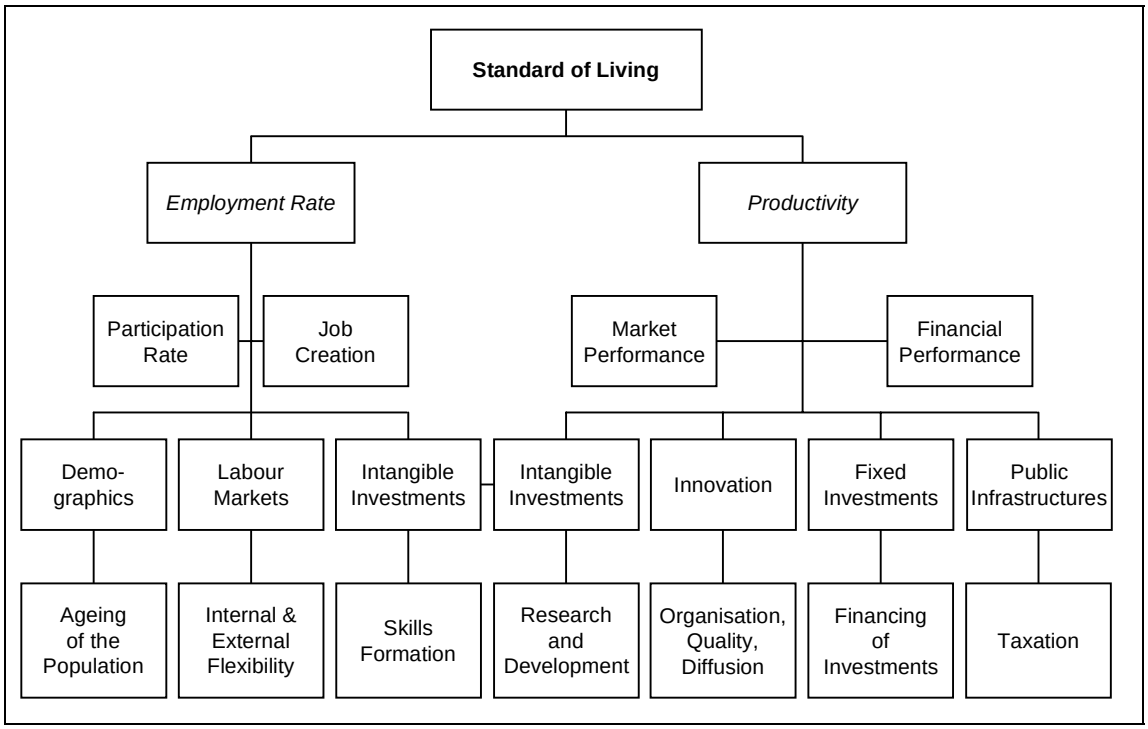
• Rivalry between firms from the same industry improves productivity and innovation. • Detailed labour division makes positive specialisation effects possible. • There are a lot of positive externalities between firms like information spill-overs. • There are synergies between firms as well as readymade infrastructure to start new businesses. • Along with higher world market shares, firms can utilise scale effects of R&D, production, marketing etc.

Benchmarking industry

Competitiveness Pyramid of EU

Benchmarking is a very simple but effective method. That's why it is more and more widely used in western countries. It has also been adopted as one of the European Union tools to study and develop competitiveness. Important documents are the Commission's communications "Benchmarking the Competitiveness of European Industry", Oct. 9th, 1996, and Benchmarking, Implementation of an Instrument Available to Economic Actors and Public Authorities", Apr. 16th, 1997 (see Internet page http://www.benchmarking-in-europe.com).

Figure 5.5 Competitiveness Pyramid of The European Commission



Source: European Commission Communication: Benchmarking the Competitiveness of European Industry, 9.10.1996

For the economy and industry level benchmarking, the European Commission has presented The Competitiveness Pyramid. The ultimate target of a competitive edge is of course a high standard of living for all citizens. This is normally an outcome of two factors, a high employment rate and productivity. The whole pyramid with initial factors of growth is shown in Figure 5.5

At the beginning of the impact analysis process we did not have as broad a concept as the Commission has for analysing the impacts of EU membership. We concentrated strictly on competitiveness of the firms and the industries. Along the process we anyhow developed and formally defined indicators measuring the socio-economic impact of EU membership. These indicators are included in Table 5.5. Numerical examples and data sources in the Lithuanian case are shown in Table 5.6.

Benchmarking in industry impact studies

We asked researchers to benchmark their industries on the national level and also in an international perspective as can be seen from "The Table of Contents of the Industry Impact Studies" (see Table 5.3 on page 29). These benchmarking indicators are in line with the competitiveness pyramid and the indicators we developed in a latter phase of the project.

Important benchmarking measures, which we asked to produce on the national level, are the following:

- *The value and volume of the production and historical development of it:* Especially "the value added" created by the industry is a valuable measure here. The wider concept "gross production" covers also raw materials and semi-finished products purchased from other industries or imported. When using the gross production figures there is always a problem of double and even multiple counting. The value added of different industries is summed up to obtain gross value added, which after tax and subsidies etc. adjustment is the same as Gross National Product (GDP). If value added is not available, gross production can be used instead for example to describe the dynamics of production. If we are comparing different industries, gross production per number of employed is a misleading figure, because it includes also production of input industries. The same goes for sales figures. In the Lithuania case current price value added figures are available consisting of sub-branches of manufacturing. Fixed priced value added figures are so far calculated and published consisting of only total manufacturing and the other main sectors of the economy.
- *The number of employed or number of employees is also basic figure when we are examining different industries*. We prefer the number of employed because it also includes entrepreneurs and other self employed person. In some branches like road hauling there are normally a lot of family firms. In the clothing industry also, depending on the country, there are a lot of entrepreneurs and other self-employed persons practising a profession.
- *Profitability measures:* On the company and industry point of view profitability is a very important tool of benchmarking. For the firms suitable measures are return on investment (ROI) and return on assets (ROA).
- *Productivity measures:* To gain national perspective we need a wider concept. It is important that not only capital owners and entrepreneurs but also the labour force

and raw material producers etc. are able to receive fair compensation for their inputs. So we have to look in a similar way at all other factors. As *input unit costs* components, we can compare salaries, raw material prices, interest rates and even tax rates. We can calculate some kinds of productivity figures for all factors. The most often used productivity indicator is the labour productivity indicator, which can be calculated as value added divided by the number of employed. Total productivity is a concept, which sums up all partial productivity indicators. It also includes so called dynamic productivity, which formal theory leaves unexplained. So there are not any unequivocal indicators to measure it.

In international comparison we asked to use very similar indicators and compare them to the very same industries of different countries. Add to these, important benchmarking indicators are also export success measures, which reveal a comparative edge of the country concerned and related specialisation indexes. We recommended the following benchmarking indicators.

- *Performance of the industry:* Value added figures of industries in different countries are important as such. When using the fixed price value added figures we can compare the real growth rates in different countries. In a similar way the number of employed is also an important benchmarking indicator.
- *Relative importance of industry and specialisation of the country:* Comparing the branch's share of total national employment and of total national value added, we are able to get the measure for relative importance of the industry concerned. Comparing these figures to similar figures of the other countries we are benchmarking the production specialisation and a labour force specialisation of the countries. In Appendix 3 we have done this benchmarking for OECD countries including most of the EU Countries and Lithuania. These figures also give a lot of information about the relative importance of the industry concerned in different countries.
- *International productivity measures* are extremely informative. If the industries are perfectly homogenous concerning the input structure, we can directly observe efficiency differences. In Appendix 3 we have calculated value added per person (in USD) per employed. On average these calculations shows that labour productivity of Lithuanian manufacturing industries is one tenth of that of leading countries. Low productivity is a risk for Lithuania, when it is faced with the competition pressure within the EU Single Markets.
- *Price and cost levels*: We also asked to benchmark price and cost levels of industries. One of the main hypotheses is that they become integrated within the Single Markets. Will this happen and at what speed were among the key issues in the questionnaire.
- *Foreign direct investment (FDI)*: What industries are getting FDIs and what is their relative size compering the competing industries in other countries. Answers to these questions offer a lot of information about the positive home base effect of the country. On the other hand it is the total investments including domestic investments which mater. Unfortunately Lithuanian national accounts statistics do not so far offer figures which can be used for international comparisons.

We got a lot a benchmarking material through impact studies, but the material is not comprehensive and systematic for several reasons. We did not give enough formal

instructions considering the general unfamiliarity regarding use of benchmarking measures. Lithuanian statistics are not yet developed to support all the benchmarking information needs. And finally in Lithuania there was no direct access to most important data of the OECD and EU.

Suggestion for systematic Socio-economic impact indicators

We developed the following systematic and rather simple indicators for measuring the socio-economic Impact of EU integration. They follow the thinking of the European Commission expressed in the competitiveness pyramid. Indicators have got a theoretical base. They are easy to calculate and most of the data for calculation is available. Indicators are so general that they can be used for all the applicant countries. They could serve as integration and convergence indicators of EU enlargement, not to keep applicants outside, but help them to adjust to and benefit from the Single Market. In the Lithuanian case improvement in statistics and training for compiling the indicator are needed (see chapter 5.4).

Table 5.5 Suggestions for Main Indicators Measuring Socio-economic Impacts of EU Membership in Lithuania

Standard of living

(1) Purchasing power parity adjusted Labour Costs/Employees (PerCapitaLCppp)

PerCapita $LC_i(ppp) = (LC_i / Emp_i) / ppp$,

where LC*i* is labour costs of industry *i* and Emp*i* is the number of employees in industry *i* and ppp is a purchasing power parity consumer price index.

Absolute and Relative Importance of Industry

(2) Number of Employed (E)
(3) Value Added (VA)
(4) Employment Share (%E)

$\%E_i = E_i / \sum_i E_i$

(5) Value Added Share (%VA)

$\%VA_i = VA_i / \sum_i VA_i$

Productivity

(6) Value Added/Employed (PerCapitaVA)

PerCapita $VA_i = VA_i / E_i$,

where VA*i* is a value added of industry *i* and E*i* is the number of employed in industry *i.*

(7) Adjust Value Added (AdjustedVA)

Adjusted $VA_i = VA_i / LC_i$

where VA*i* is a value added of industry *i* , and LC*i* is total labour cost of the industry *i.*

Competitive Edge in Foreign Markets

(8) Trade Surplus (TS)

$TS_i = X_i - M_i$,

where X*i* is an export of product *i* and M*i* is an import of product *i.*

(9) Export Market Share (EMS)

$$EMS_{ij} = X_{ij} / \sum_j X_{ij},$$

where X*ij* is an export of product *i* from country *j*. The nominator calculates the sum of the OECD total exports of product *i*.

(10) Rating of Competitive Edge (RCE)

RCE ratings:
AA = and(TSi>0; EMSij>EMSj)
-A = and(TSi<0; EMSij=EMSj)
A- = and(TSi>0; EMSij<EMSj),
where **and** is a logical function determining that both conditions must be in force at the same time.

Measuring the export and production specialisation of a country

(11) RCA-index of Export (XRCA)

Specialisation of a country in product exports can be measured by RCA (Revealed Comparative Advantage) index, which is calculated as follows:

$$XRCA_{ij} = \frac{X_{ij} \Big/ \sum_j X_{ij}}{\sum_i X_{ij} \Big/ \sum_i \sum_j X_{ij}},$$

where X_{ij} is the exports of product *i* from country *j*, and $\sum_j X_{ij}$ is total exports of product *i* from the all the OECD countries. The nominator calculates the share of country *i's* total exports of the OECD's total exports. If the RCA index equals 1, a country is as specialised in the product i exports as the OECD in average. If the RCA index exceeds 1, the country is specialised in exporting product i. RCA can be scaled between –1 and 1, which yields XRSCA (Revealed Symmetric Comparative Advantage) index.

(12) RCA-index of Production (VARCA)

Specialisation of a country in production can be measured by RCA (Revealed Comparative Advantage) index, which is calculated as follows:

$$VARCA_{ij} = \frac{VA_{ij} \Big/ \sum_j VA_{ij}}{\sum_i VA_{ij} \Big/ \sum_i \sum_j VA_{ij}},$$

where VA in an indicator of production. VA_{ij} is the production of industry *i* in country *j*, and $\sum_j VA_{ij}$ is total industry *i* production of OECD countries. The nominator calculates the share of country *j*'s total production of OECD total production. If the RCA index equals 1, a country is as specialised in industry *i* production as the OECD on average. If RCA index exceeds 1, the country is specialised in industry *i* production. RCA can be scaled between –1 and 1, which yields VARSCA (Revealed Symmetric Comparative Advantage) index.

Future indicators

Change of fixed price Value Added
Fixed Investments
Investments in research and development (R&D)
Investments in training and education
Share of high tech products in exports
These indicators are not possible to calculate or the results are unsatisfactory on detailed industry level.

Table 5.6 Data sources and numerical examples of the Main indicators

Data sources	Numerical examples
1) Purchasing power parity adjusted Labour Costs/Employees (PerCapitaLCppp)	Cannot calculate yet because there is no suitable ppp-index for Lithuania
(2) Number of Employed (E) **Source**: National Account, Statistical Yearbook 1999 CD, Table 14.7 Average annual number of employees in industrial activities, newest data from year 1997 **Note:** The numerical example uses the newest figures from year 1998, obtained from Statistical Department	***Numerical example: E, persons*** **Textile and clothing industry in 1998** • Manufacture of textiles 27 100 • Manufacture of wearing apparel, dressing and dyeing of fur 31 800 • Manuf. of leather and leather products 5 200 **Total number of Employed 64 100**
(3) Value Added (VA) **Sources:** National Account, Statistical Yearbook 1999 CD, Table 27.3 Gross value added and gross domestic product (at current prices; in million litas), newest data from year 1997, More detailed manufacturing industry level information in Lithuanian National Accounts in 1997: Table 4.8 Gross Value Added (GVA) of Industry, newest information from year 1997. **Note:** The numerical example uses the newest figures from year 1999, obtained from Statistical Department	***Numerical example: VA, Mill. Litas, Current prices*** **Textile and clothing industry in 1999** • Manuf. of textiles and textile products 1 101,8 • Manuf. of leather and leather products 124,3 **Total Textiles, Apparel & Leather 1 226,1**
(4) Employment Share (%E) **Sources:** Same sources as in (2) concerning Textile and clothing industry. Total Employment from National Account, Statistical Yearbook 1999 CD Table 7.5 Employed population by activity, newest information from year 1998	***Numerical example: %E*** E in Textiles, Apparel & Leather 64 100 / Total number of Employed 1 656 100 * 100 **Employment share 3,9%**
(5) Value Added Share (%VA) **Sources:** Same sources as in (3) concerning Textile and clothing industry. Total Gross Value Added from National Accounts, Statistical Yearbook 1999 CD Table 27.3 Gross Value Added and Gross Domestic Product, newest data from year 1998. **Note:** The numerical example uses the newest figures from year 1999, obtained from Statistical Department	***Numerical example: %VA*** VA in Textiles, Apparel & Leather 1 226,1 / Total Gross Value Added 38 043,0 * 100 **Value Added Share 3,2%**
(6) Value Added/Employed (PerCapitaVA) **Sources:** Same sources as in (2) and (3) **Note 1:** Here we have divided 1999 VA by 1998 E. We wanted to utilise here the newest possible data. In historical calculations it is preferable to use the same year's data. **Note 2:** When benchmarking domestic industries PerCapitaVA in Litas can be used. USD or EUR values are better for international benchmarking it	***Numerical example:*** **PerCapitaVA, Litas, Current prices** VA of Textiles, Apparel & Leather 1 226 100 000 /E of Textiles, Apparel & Leather 64 100 Value Added/Employed (Litas) 19 148 ***Numerical example:*** **PerCapitaVA, USD, Current prices** VA of Textiles, Apparel & Leather 1 226 100 000 /E of Textiles, Apparel & Leather 64 100 /USD exchange rate 4 ValueAdded/Employed (USD) 4 782
(7) Adjust Value Added (AdjustedVA) **Source:** Lithuanian National Accounts in	***Numerical example:*** **AjustedVA** Transport, storage, Gross Value Added 2600,7

1997, C201, Table 5.4. Generation of Income Account by Kind of Economic Activity, 1997, Gross Value Added at current prices, Mill. Litas, Compensation of Employees at current prices, Mill. Litas **Note:** This is not necessary the newest possible data available. There is not this data from a detailed level of manufacturing industries	Transport, storage, Compens. of Employees 1350,5 **Adjusted Value Added 2,4** **Interpretation:** Net taxes, consumption of fixed capital Operating surplus together is 1,4 times that of labor costs.
(8) Trade Surplus (TS) **Source:** Lithuanian Foreign Trade 1997 (A600) and 1998, possibly 1999 exist already: Table Exports and imports by commodity group; **Note:** The numerical example uses the newest figures from year 1999, obtained from Statistical Department.	***Numerical example:* TS, Mill. USD, 1999** HS,CN 31 Fertilisers, Export (X) 182,8 HS,CN 31 Fertilisers, Import (M) 22,4 Trade Surplus, Mill. USD 160,4 **Note:** HS = Harmonized System, CN = Common Nomenclature
(9) Export Market Share (EMS) Sources: Lithuanian data same as in (8); OECD International Trade by Commodity Statistics, Harmonised system, 1999 and 2000. Newest data consisting of all OECD countries from year 1998; EU Intra and Extra-EU Trade, CN, newer data but only EU countries as reporting countries	***Numerical example:* EMS** Lit. HS,CN 31 Fertilisers,(X), Mill USD 182,8 /OECD HS,CN 31 Fertilisers, (X), Mill USD 10 386 * 100 **Lithuanian Export Market Share 1,74 %** **Note:** OECD Exports here includes also exports of China and Hong Kong and Lithuanian.
Rating of Competitive Edge (RCE) **Sources:** Same as in (8) an (9).	***Numerical example:* RCE, Case Fertilisers above** LitTS > 0 and LitEMS(1,74%) > LitAverageEMS(0,08%) **=> RCE = AA.**
RCA-index of Export (XRCA) **Sources:** Same as in (8) an (9). **Interpretation:** Lithuania is 20 times more specialised in Export fertilisers than average OECD country	***Numerical example:* XRCA, year 1998** **LitEMSFertilisers, see (9) 1,74 %** **Lithuanian AverageEMS** Lithuanian Total Exports, X, USD 3 711 /OECD Total Exports, X, USD 4 439 900 * 100 **Lithuanian AverageEMS 0,08%** **Lithuanian Export RCA-Index in Fertiliser** LitEMSFertilisers, see (9) 1,74 % /Lithuanian AverageEMS 0,08% **XRCA-index in HS;CN 31 Fertilizers 20,8**
RCA-index of Production (VARCA) Sources: Lithuanian production data is same as in (3); OECD production data source is STAN Data bases. **Interpretation:** Lithuania is 3,5 times more concentrated to Textile, clothing and leather production than average OECD country	***Numerical example:* VARCA** Lithuanian VA Share in Textile and clothing LitVA of Textile and Clothing, Mill. USD 306,5 /OECDVA of Text.&Cloth., Mill. USD 208 194 * 100 LitVAShare in Text&Cloth Production 0,147% LitGrossVA Share of OECD Production LitGrossVA Mill. USD 9 511 /Total OECDVA, Mill. USD 22 354 639 * 100 LitGrossVA Share of OECD Production 0,043% **LitVARCA in Textile and Clothing** LitVAShare in Text&Cloth Production 0,147% LitGrossVA Share of OECD Production 0,043% **LitVARCA in Textile and Clothing** 3,5

Impacts of the European Union

The Single Market as a big market area, where goods, services, capital and labour can move freely gives an historical opportunity to Lithuania. There are two kinds of impacts associated with European Union membership.

- Long-term effects are highly dependent on Lithuanian industries' capacity to cope with competitive pressures and market forces within the Union. Actually, throughout the impact analysis we have examined these impacts. Impacts are long term in their character and we can affect them. That is way we have tried to activate industrial policy officials and industry organisations to start systematic industrial policy work for improving competitiveness. At the same time, we have tested methods suitable for this work.

- Short-term impacts are those costs and benefits that are directly related to the "overnight" change from a country's non-membership to membership. Of course, in practice, the time period over which those costs and benefits are realized covers the accession period as well as the first years of membership, including possible transitional periods.

From the beneficiaries side we felt hard pressure to cover all direct costs and benefits of membership – to outline them, describe the content and finally give cost and income estimations. Within the financial framework given and detailed industry expertise needed, this kind of task is impossible to perform. It demands huge joint efforts of firms, industrial organisations and sector officials, and evidently this process will accelerate, the closer membership is. In any case, we took as a target to outline the most important direct measures needed and forthcoming benefits.[2]

For investigating the direct effect of membership, we used three kinds of approach:

1. The main tools were Single Market Reviews effects. This series includes a total of 39 studies made on the implications of the European Union Single Market programme (SMP). The list of studies is on page 41. The SMP, as introduced by the Single European Act, involved a large list of measures aimed at implementing the single market by the end of 1992. The relevance of these studies is obvious, because SMP measures were aimed at affecting the European Economy in the following areas:
    - Liberalisation of goods, through the elimination of border and fiscal formalities and abolition of technical barriers to trade;
    - Liberalisation of cross-border public procurement;
    - General deregulation and more enforcement of competition policy in all sectors;

[2] The SEIL Phare project also performed some subprojects about necessary activities to implement some directives and their estimated costs. Concerning for example the Clean Manufacturing Practices directive, there were finally huge differences between the cost estimation of the sector official and the Phare Short-term Expert. In practice, it is unclear whether there is any sense in implementing the directive, because the future of domestically owned firms is in danger since they do not have real own patented products.

- Liberalisation of trade of factors. Among others, the abolition of capital mobility controls;
- Liberalisation of cross-border service provision and abolition of restriction to establishment

In the Single Market Review series there were respective studies for three relevant impact studies, i.e. studies for the textile and clothing industry, processed foodstuffs and road freight transportation, and some studies about related areas such as food, beverages and tobacco processing machinery and transport networks.

2. The second approach was to ask the EU impacts from the business leaders, see the section "Impact of EU membership" of the questionnaire in Appendix 2. We asked for example the possible changes in the cost structure, changes in unit costs of inputs, and changes in the price level of products. Cost structure material on the EU countries is available, for example, in the Single Market Reviews, on Internet pages and publications of national and international industry associations, in official national industry statistics, and OECD statistics (Industrial Structural Data Base, National Accounts, Detailed Volume II and Stan Data Base).

3. Finally we examined the experience of Finland with respect to EU membership in order to get information about realised effects of membership. Finland joined the EU in the beginning of 1995, at the same time as Austria and Sweden. So there was a five-year period of experience available and information about realised adjustment costs. This information was used particularly for the foodstuffs impact study and to some degree for the road transportation study. Beneficiaries were very interested about this information. Of course national differences had to be taken into account here.[3]

After obtaining experience about four industry impact studies, we recommend the following methods for investigating the direct and short-term impacts of EU membership:

- Cost estimation due to implementing different directives and other EU regulations is optimal to do together with interested parties, i.e. sector officials, industry organisations together with firms in those cases when implementation costs are taking place in companies. Those countries that have had the most recent experience can provide a great deal of help and co-operation with EU officials is a must.

- Firm interviews will give valuable information, but researchers have to do a lot of homework in order to get maximum results. This is the case, for example, with

[3] For example in the foodstuffs industry Finnish raw material prices were much higher than those of EU producers, because raw material prices included subsidies to farmers. Finnish producers have benefited from cheaper raw materials, after markets were opened. But at the same time competition became harder also in end product markets and prices declined. In the Lithuanian case, prices of raw materials are under the EU level and will rise as well as many other costs. Because of that, and along export orientation, also end products price level in Lithuania will rise. Anyhow many impacts will be the same, for example, the concentration of products in order to get scale effects, optimising location of production, consolidation of companies, etc.

questions connected to cost structure and the development of unit costs, and as a result price competitiveness and profitability of firms. We noticed that, actually, the researcher might be more like a consultant or auditor, when performing company interviews, because in many cases the interviewees are not professional enough to provide answers for these questions or are not willing to give necessary information. Table 5.8 on page 42 displays a counting model of detachable trailer hauling in overseas transportation and as a benchmark the Finnish cost structure. These kinds of tools used especially in the most advanced companies are giving valuable outcomes. If the industry association becomes familiar with and starts to use these kinds of tools, it adds to the appreciation of the association among firms and sector officials.

- During the impact analysis process, it came out that international industry associations offer beforehand information about forthcoming new regulations of the EU and their effects on the industry concerned. This is because EU officials normally use their expertise in preparation work and associations also have an interest in lobbying and informing about coming regulations. Regulations have especially high cost and employment effects.

Table 5.7 The Single Market Review Series

Sub series	***I***	***Impact on manufacturing***
Volume:	1	Food, beverages and tobacco processing machinery
	2	Pharmaceutical products
	3	Textiles and clothing
	4	Construction site equipment
	5	Chemicals
	6	Motor vehicles
	7	Processed foodstuffs
	8	Telecommunications equipment
Sub series	***II***	***Impact on services***
Volume	1	Insurance
	2	Air transport
	3	Credit institutions and banking
	4	Distribution
	5	Road freight transport
	6	Telecommunications: liberalised services
	7	Advertising
	8	Audio-visual services and production
	9	Single information market
	10	Single energy markets
	11	Transport networks
Sub series	***III***	***Dismantling of barriers***
Volume	1	Technical barriers of trade
	2	Public procurement
	3	Customs and fiscal formalities of barriers
	4	Industrial property rights
	5	Capital market liberalisation
	6	Currency management costs
Sub series	***IV***	***Impact of trade and investment***
Volume	1	Foreign direct investments
	2	Trade pattern inside single market
	3	Trade creation and trade diversion
	4	External access to European markets
Sub series	***V***	***Impact on competition and scale effects***
Volume	1	Price competition and price effects
	2	Intangible investments
	3	Competition issues
	4	Economics of scale
Sub series	***VI***	***Impact on competition and scale effects***
Volume	1	Regional growth and convergence
	2	The cases of Greece, Spain, Ireland and Portugal
	3	Trade, labour and capital flows: the less developed regions
	4	Employment, trade and labour cost in manufacturing
	5	Aggregate results of the single market programme

Table 5.8 A Cost and Results Counting Model of Detachable Trailer Hauling in Overseas Transportation and the Finnish Cost Structure

SKAL/business economics and transportation technology		**Cost Estimate No. 1B May 11th,1998**			**Algorithm IPVCEMT3**		
Transport type: detachable trailer hauling		Chassis			FIM	500 000	
Transport area: Overseas		Hauling accessories			FIM	15 000	
Vehicle: tandem axel hauling vehicle		Trailer			FIM	0	
		Accessories			FIM	0	
Total weight	kg	Vehicle tires		6	2 200	-13 200	
Payload	kg	Trailer tires		0	0	0	
Note: hypothetical calculation, (V.A.T.=0)		Price without tires			FIM	501 800	
Kilometers driven (effective)	**km/a**	**50 000**	**80 000**	**100 000**	**120 000**	**150 000**	**180 000**
Distance driven by vehicle (during its lifetime)	km	550 000	640 000	700 000	720 000	750 000	780 000
Vehicle lifetime	a	11,0	8,0	7,0	6,0	5,0	4,3
Trailer lifetime	a	15,0	12,0	10,5	9,0	7,5	7,0
Fuel consumption	l/100 km	38	38	35	35	35	35
Treadware/lifetime of tires	km	100 000	100 000	100 000	100 000	100 000	100 000
Total hours vehicle operated	h/a	2000	1600	2000	2400	3000	3600
Hours worked by vehicle operator	h/a	2200	1800	2200	2700	3400	4100
Vehicle operator's wage	FIM/h	FIM/a	117 502	96 138	117 502	144 207	181 594	218 981
indirect wage costs	%	FIM/a	77551	63451	77551	95177	119852	144527
Daily allowance	0	FIM/a	0	0	0	0	0	0
Total labor costs		FIM/a	195 053	159 589	195 053	239 384	301 446	363 508
Fuel	p/l	p/km	135	135	124	124	124	124
Maintenace and repair		p/km	38	29	25	23	21	20
Tires, double tread	FIM/unit	p/km	9	9	9	9	9	9
Total variable costs		**p/km**	**182**	**173**	**158**	**156**	**154**	**153**
		FIM/a	**91 000**	**138 400**	**158 000**	**187 200**	**231 000**	**275 400**
Depreciation, 20	%	FIM/a	41 700	52 201	56 652	61 709	67 474	71 768
Capital interest	%	FIM/a	16 680	20 881	22 661	24 684	26 990	28 707
Interest on working capital	% prev.	FIM/a	1 668	2 088	2 266	2 468	2 699	2 871
Insurance fees		FIM/a	18 300	18 300	18 300	18 300	18 300	18 300
Operating fees		FIM/a	12 500	12 500	12 500	12 500	12 500	12 500
Administrative fees		FIM/a	15 400	12 500	15 400	15 400	15 400	15 400
Maintenance costs		FIM/a	10 400	10 400	10 400	10 400	10 400	10 400
Kilometers driven, uncompensated	km	FIM/a	6 320	6 320	6 320	6 320	6 320	6 320
Total fixed costs		**FIM/a**	**122 970**	**135 190**	**144 500**	**151 780**	**160 080**	**166 270**
Operational surplus	**%**	**FIM/a**	**21 528**	**22 799**	**26 187**	**30 440**	**36 449**	**42 378**
Total costs		**FIM/a**	**430 550**	**455 980**	**523 740**	**608 800**	**728 970**	**847 560**
Costs per hour		FIM/h	215	285	262	254	243	235
Costs per kilometer		FIM/km	8,61	5,70	5,24	5,07	4,86	4,71
Load-based calculation		Note	Operational surplus			5 %		
Vehicle operator's labor costs	normal working time					93 FIM/h		
Daily allowance in the home country						0 FIM/day		
Daily allowance abroad						0 FIM/day		
Vehicular costs per kilometer		35	Capital costs, %			1,91 FIM/km		
Vehicular costs per hour		2400	Per hour/per annum			53 FIM/h		

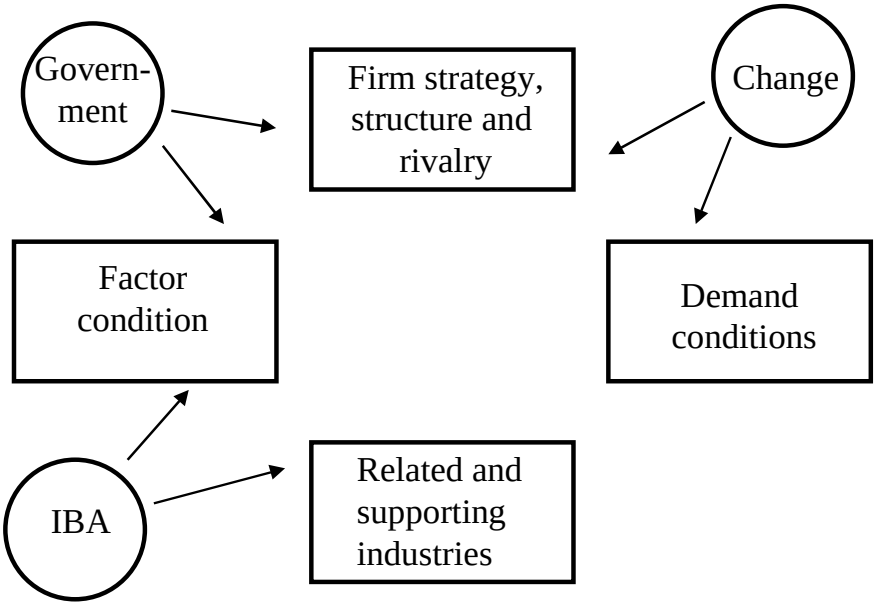
Source: SKAL - The Finnish Trucking Association, Business economics and transportation technology.
Note: p = Finnish penni 100 pennis = 1 FIM

Competitiveness of the branch

Model of competitiveness used

We used Porter's Diamond Model for studying the competitive edge of the industries and the possible cluster around them. The diamond model incorporates forces influencing the firms' ability to sustain and upgrade their competitive advantages. The four main determinants of the diamond are: (1) factor conditions, (2) demand conditions, (3) related and supporting industries, and (4) firm strategy, structure and rivalry. Besides these there are three outside forces shaping the operating environment namely (5) government, (6) chance, and (7) international business activities (IBA). The diamond model is illustrated in Figure 5.6. A short description of the model has been given in following abstract.

Figure 5.6 Porter's Diamond Model of Competitiveness



We ask the reader to become familiar with the following sources, before working with the model:

- Theoretical Background: Michael E Porter (1990), The Competitive Advantage of Nations, The Free Press, New York, and Collier MacMillan, Toronto.
- Examples of cluster studies from different countries: Hernesniemi-Lammi-Ylä-Anttila (1996): Advantage of Finland – The Future of Finnish Industries, ETLA B 113, Helsinki; Sölvell-Zandler-Porter (1991): Advantage Sweden, Norsteds, Stockholm.
- A Summary of studies: Reve-Mathiesen (1994), European Industrial Competitiveness, SNF-report 35/94.SNF, Bergen

It can easily be seen that the diamond model incorporates many well-known economic models. Apparently Porter has been influenced by the traditional industrial economics, new growth theory, network models, and ideas of user-producer relationships. Porter's greatest achievement may be the unique way he combines different approaches; he forms a model that is fairly comprehensive, unlike many older models. What is best is that Porter uses terms that are understandable among business manag-

ers and policymakers, and not only among other scientists, as formal economics tends to be.

Abstract: Porter's Diamond Model of Competitiveness

Factor conditions

Factor conditions can be split into two categories: basic factors, which are inherited, and advanced factors, which have to be created by the country in question. The former includes natural resources, climate, location, and demographics. The latter includes communications infrastructure, sophisticated skills acquired through higher education, and advanced research facilities. To sustain the advanced factors, firms, individuals, and the government have to invest continuously. It is through these often highly specialised and industry specific factors of production that the most significant competitive advantages can be gained.

Firm strategy, structure and rivalry

National characteristics partly determine how companies in a country are founded, organised and managed. Different management systems suit different industries. In addition to domestic demand, intense domestic rivalry is another major source of competitive advantage. Competition among domestic companies tends to be more intense and direct, since each enterprise has to operate under the same conditions. This forces companies to develop themselves.

Demand conditions

Globalisation has diminished but not abolished the important role of domestic demand. Demanding customers in the 'home base' are the genuine forces behind innovation and technological development. This is due to the fact that firms are most sensitive to the needs of their closest customers. Demanding domestic customers are especially valuable if changes in their demand help to predict future global trends.

Related and supporting industries

Successful industries tend to form clusters. A competitive cluster upholds a number of related and supporting industries that may in turn also be internationally competitive due to sophisticated demand they are facing. While a cluster's companies compete fiercely in the market place, they might co-operate, for example, in research and development. Due to the accelerated diffusion of technology and knowledge spillovers a successful cluster has internal synergies that further feed the innovation and upgrading process. By having internationally competitive related industries, a firm in a cluster can gain competitive advantages: it can concentrate on its core competencies and rely on its suppliers for other activities.

The role of government

Depending on the country, governments have a different role and importance in promoting the competitiveness of the firms. The government can have a significant role in a number of ways: it ought to (1) guarantee a sufficient supply of resources needed for growth - especially in the case of advanced factors, (2) create forces for upgrading and innovation (strict environmental restrictions, rigorous safety standards, etc.), (3) limit direct co-operation between competitors and ensure the functioning of the market system, and (4) promote development of human capital.

International business activities

International business activities were added later as a part of the diamond model. Many multinational corporations can be seen as extensions of national clusters. Most of these firms indeed have a 'home base', where their firm specific know-how originates from and where it is most strongly upgraded. But there are truly global corporations that seem to no longer have a single homeland. In any case, these companies are also taking into account the best possible home base for different activities, when locating them.

Role of Chance

Chance has a role in many of the industrial success stories. Chance events include 'pure' innovations, technological jumps (rapid changes in specific technologies), price shocks, changes in political systems, wars, etc.

Appendix II presents a questionnaire, which is based on the diamond model of competitiveness. Most of the results and conclusions concerning the competitiveness of Lithuanian industries are based on the interviews of business managers and other experts by using this questionnaire as a base for the interviews.

Company interviews

For the interviews, a total of 30 interviewees were set as an initial target. This amount should include a minimum of 20 company interviews plus interviews of the main association representatives and relevant governmental sector officials responsible for integration issues. The questionnaire is shown in Appendix 2.

We did not want to run a very formal questionnaire. The questions are more like subjects of discussion between the firm leader and researcher. Reasons for this include the following:

1. Managers have limited time available. It is better to discuss with them essential issues, not the whole list of questions. These questions are the following: What are the main ***competitiveness factors*** of the firm in question and the whole industry? What are the most ***important impacts of EU membership*** to the firm and the industry? What are necessary measures before and when accessing the EU and their costs? And finally what is the role of the public sector concerning both issues.
2. Secondly, managers have a more or less accurate structure in mind concerning their firms competitiveness (how they attain it, what are core issues of it and how to improve it) and strategies. The researcher certainly will lose a lot of valuable information, if he forces the manager to respond to a list of questions in his mind and lets the manager describe what is important according to his thinking.
3. Finally it is important to form a common questionnaire at a given time suitable for every firm and industry concerned or other respondents like policy officials and experts of the industry organisations. We asked the researcher to prepare in advance a shorter questionnaire based on the general one or pick up the relevant questions.

We also pointed out that it its important to do “homework” before the interviews. It is important to read annual reports, prospectuses, Internet pages, etc., if available, and company data published in for example different databases, catalogues or articles in newspapers and journals. Firm managers respect a researcher who knows the company advance. He avoids frustrating collection of basic data and is motivated to help the informed researcher to get answers to more strategic questions. Of course this was not always possible, because most firms provide very little information concerning their EU counterparts.

Lithuanian business managers are not yet very familiar with these kind of interviews. They are not an essential part of the business culture. Moreover, managers are not used to openly discussing issues, which, according to their thinking, are mostly business secrets. We assured them that any company information they provide would be handled confidentially and that we would not publish it without their permission.

Of course there were difficulties in obtaining interviews. In order to open the door, we asked the industry organisation to send the information and introductory regarding the

interviews. Sometimes practical arrangements are critical. In Appendix 3 we display the letter of the research supervisor to the researchers about how to get interviews.

Way to present the results

The following Tables 5.9 – 5.11 present the conclusions about determinants of competitiveness of the three industries. The sign in front of the determinant tells the interviewees' estimation about the effect of the determinant on competitiveness. A dynamic way to look at the determinants is to evaluate, which key determinant after becoming stronger, could but be the source of a rapid positive development.

These conclusions were and are important material for industrial policy proposals. In fact industrial policy measures could also be present in the framework of the diamond model.

Table 5.9 Determinants of Lithuanian Textile and Clothing Industry Competitiveness Studied Using Porter's Diamond Model of Competitive Edge

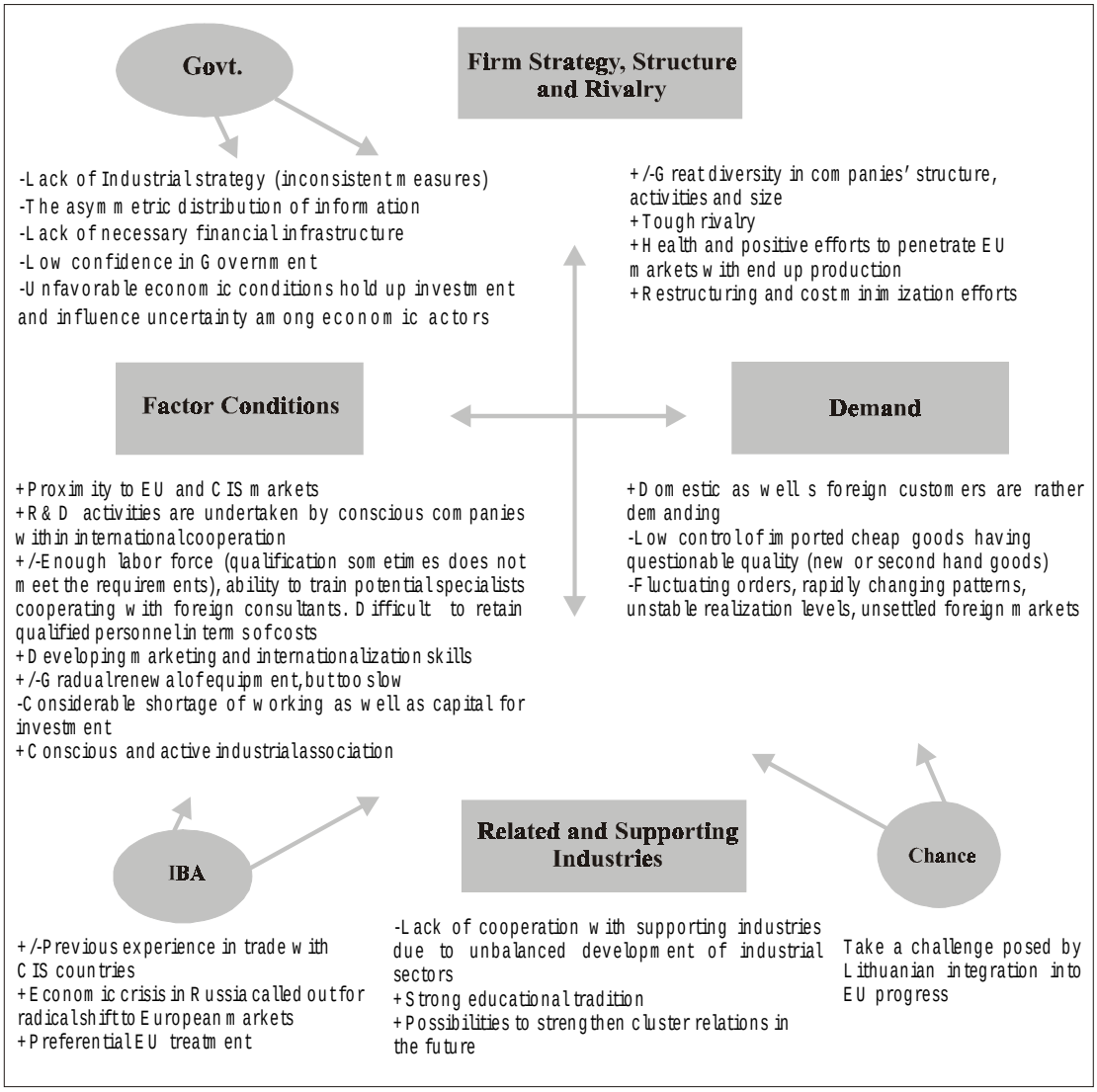


Table 5.10 Determinants of Lithuanian Wood Industry Competitiveness Studied Using Porter's Diamond Model of Competitive Edge

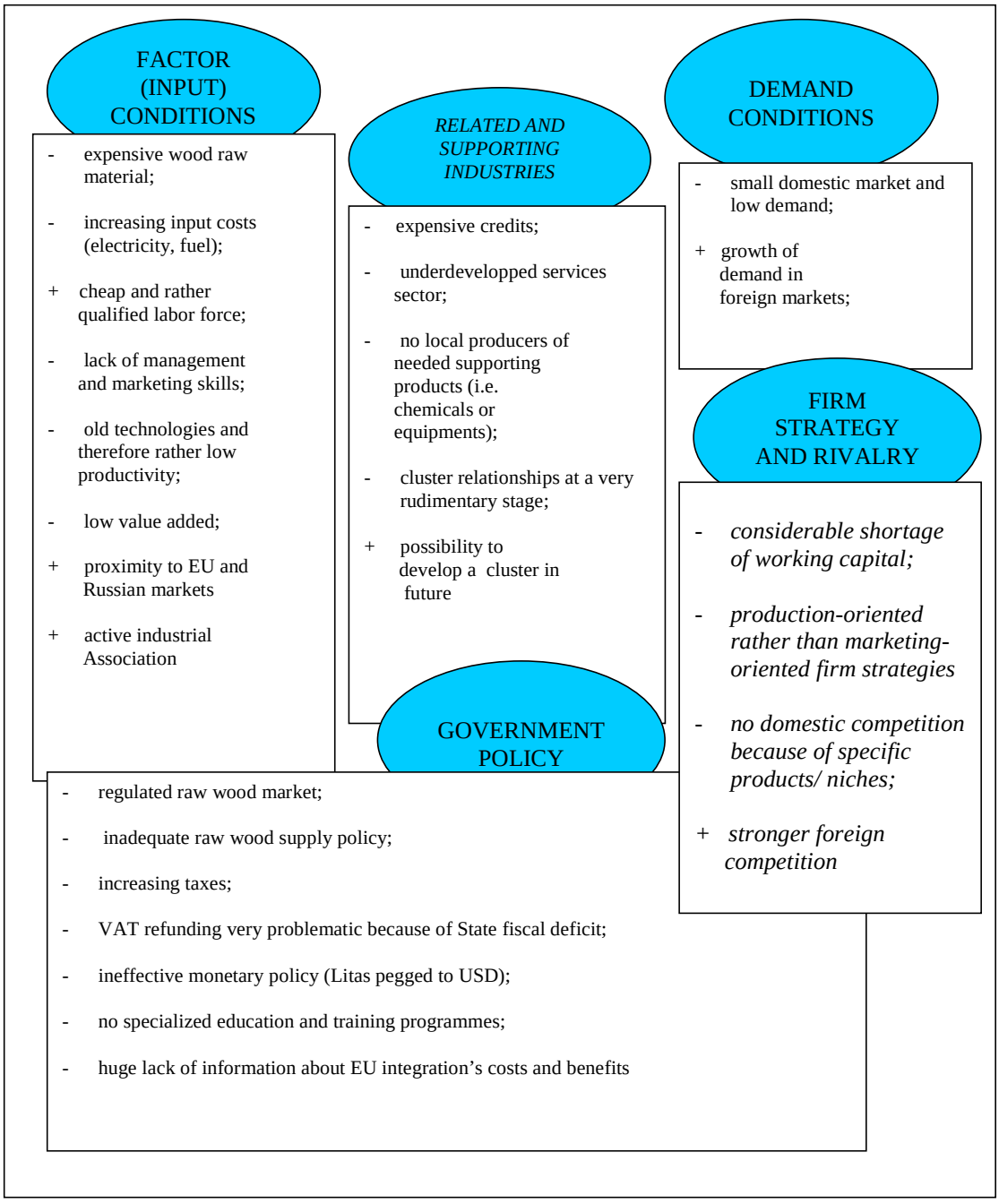


Table 5.11 Determinants of competitiveness in Lithuanian Transportation Industry Using Porter's Diamond Model of Competitive Edge

Govt.

+ Investments into infrastructure
+ Adopted national transportation strategy
- Prohibitive tax authorities and custom controls regulations

Factor conditions

+ Proximity to EU and CIS markets
+ Cheaper infrastructure and fuel costs
+ Enough qualified and cheap labour force
+ Relatively better developed infrastructure, which together with Klaipeda seaport make sound transportation corridor
+ Fast renewal of transportation fleet

IBA

- EU as well as other countries prohibitive regulations
+ Previous experience in transportation business in CIS environment: knowledge of local language and road conditions

Firm strategy, structure and rivalry

+/- Great diversity in companies' structure, activities and size
+ Tough rivalry among industry incumbents
+ Successful efforts to penetrate EU markets and substantial gains in share of east-west trade
+ Industry shake-up due to Russian crisis
+ Conscious and active industrial association

Demand conditions

+ Huge demand potential in eastern markets, rather demanding clients, both foreign and local
-/+ Solvency problems with local and CIS clients

Related and supporting industries

- Lack of co-operation with supporting industries due to unbalanced development of industrial sectors
+ Strong companies at seaport attracting new clients
- Possibilities to strengthen cluster relations in the future

Chance

+ Geographic location
+ Proximity to EU and CIS markets

Industrial policy suggestions

The industry impact analyses, as we performed them, were not simply positivistic analyses of the EU impacts. From the very beginning we had an idea that also policy proposals are drawn based on research results. The idea was that this should be in close co-operation with representatives of industry organisations and executive officers of leading and progressive firms and with industrial policy officials of the ministry of economics and possible sector ministries. We organised a policy proposal seminar for all four industries for identifying the problems in the competitiveness of the industry and for finding strategic solutions to those problems.

In three industries we used the so-called double team method, which today is registered under the name OPERA®[4]. In the transportation industry and the foodstuff industry we managed to identify the major competitiveness problems. This is an analytical part of strategy thinking. In the textile and clothing industry we also managed to innovate the strategic solutions to the problems. The next phase of the method would have been planning the practical activities how to fulfil the strategic solutions.

Taking into account that this kind of strategic work is novel in the country and the method used was not known to any of the participants except the Short-term Expert and that we worked bilingually, the results of the strategy work are very encouraging. By novel me mean that the whole industry was doing strategic work together and also together with governmental officials. Seminars as well as a later conference of the wood based industry were early examples of a new kind of private-public partnership in Lithuania.

Double-team OPERA method in strategy work

The following problems are familiar to many people in meetings when dealing with matters that affect all the participants:

- some speak and some are quiet
- time management of the meeting
- discussions not related to the matter being solved
- yes-no discussions
- end results stay in the air, or some of the people do not commit to anything
- some leave the meeting in a disappointed / bad mood

The Opera working method is one solution to the above mentioned problems. With the help of Opera, a group can produce the best common view efficiently, for example a solution to a mutual problem or the best possible decision for the matter being handled or the group's opinion about a certain question. The method is in its psychological effect. When the method allows you to participate and "absorbs" you in the handling of the matter, it, at the same time, commits the participants to the end results. The most typical use areas for Opera are: problem solving for areas of mutual concern

[4] OPERA is registered trademark of Innotiimi Ltd, Finland. Those interested in getting consultants to use the method, please contact Innotiimi Oy, nina.oshea@innotiimi.fi.

to the participants, for example developing ways of proceeding, outlining processes, work or project plans and other development situations from small daily problems to the analysis of large subject areas. The optimal case is that in the group running the Opera are people used to analysing problems, those able to make decisions and those having the power to implement decisions.

The basic stages of the Opera working method[5] when a group is solving a mutual problem:

- ***O****wn suggestions*: The participants think and write down their own thoughts on a piece of paper as an individual task. Everyone has therefore a phase to concentrate on the subject matter without any other person dominating or interfering.
- ***P****airs suggestions*: The individual thoughts are improved through pair discussion. The pair writes down their most essential thoughts on individual pieces of paper, which are then placed on a Opera Work Board for everyone to see them. Through pair discussion, everyone gets to explain their own views during the meeting.
- ***E****xplanation*: The pairs explain their suggestions briefly to the other participants.
- ***R****anking*: Each pair choose from all the suggestions the most important ones and marked their choice on the papers on the board. Through this positive method the best possible views are found without wasting time criticising and arguing bad suggestions. In this way the ”killing” of other peoples views is also avoided.
- ***A****lignment*: The facilitator groups the suggestions according to their content on the board with the participants. The result is a new mutual view of all the participants.

Working in pairs, i.e. double teams, have a big role in Opera. According to our experience, an effective group can include from five to seven pairs. It is best to combine different kinds of people in the double teams in order to get plenty of new ideas and fresh solutions.

In Table 5.12 is an example of the double-team Opera method. The table presents the competitiveness problems that the textile and clothing industry meeting recognised and also their strategic solutions to these problems. Later the impact study and the results of team working were used actively when the Light Industry Association prepared a strategy for the Lithuanian textile and clothing industry.

SWOT analyses in strategy work

We use SWOT analyses when drawing conclusions and preparing policy proposals for Lithuanian wood based industries. The results are shown in Table 5.13. SWOT is based on company interviews and a conclusion of the researcher and SWOT analyses of European Union forest based industries, which were used as comparison material, see European Commission DG III Enterprise, Communication on the State of Competitiveness of the EU Forest Based industries, 1999. The results were presented and confirmed in the industry conference.

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[5] **Opera** comes from the basic stages of the teamwork method: ***O****wn suggestions*, ***P****airs suggestions*, ***E****xplanation*, ***R****anking*, ***A****lignment*.

Table 5.12 Industrial policy suggestions produced by team-work using Double-Team OPERA Method

The Main Competitiveness Problems of Lithuanian Textile and Clothing industry

Lack of strategic planning	Poor business environment	Low productivity	Weaknesses in entrepreneurship and business culture	Problems in marketing	Lack of investment capital
Lack of strategy (4)	Unfavourable business, legal and fiscal systems, many regulating institutions (3)	Quality and efficiency of production (3)	Lack of entrepreneurship (3)	Lack of information (market research, marketing) (1)	Lack of investment resources (2)
Lack of co-operation (2)	Shortcomings of macro-environment: unstability, complexity (1)	Insufficient productivity (2)	Lack of professional skills in the market economy (2)	Lack of systematic market management (1)	Unfavourable environment for foreign investments and expensive credits (2)
Lack of industrial strategy (1)	Imperfections of legal basis (1)	Lack of qualified labour force (1)	Lack of business culture understanding of the Single Market (1)	We sell our labour force instead of selling our products (1)	Technological underdevelopment because of the lack of capital (1)
Short perspective (1)	International economic policy of the country (1)			Limited local demand, lack of international market knowledge (1)	
				Lack of information on markets: co-operation possibilities, partners, investment (1)	
Votes 8	***Votes 6***	***Votes 6***	***Votes 6***	***Votes 5***	***Votes 5***

Solutions for Competitiveness Problems of Lithuanian Textile and Clothing industry

Strategy development	From state superiority to public-private partnership	Technology development	Training of qualified etrepreneurs	Databases and business services	Improvements in financing attraction of investors
Prepare development strategy for Lithuanian industry (3)	Creation of business representatives institution under the Government (2)	As part of joining the EU-to negotiate money for technological development (3)	Establishment of qualifications system (2)	Information databases(on markets and business conditions) (3)	Search for strategic partners and attract them (2)
Co-operation with foreign companies (2)	Develop new taxation system supporting business development (2)	Strengthen the relationship between science and industry (2)	Introduce sort of "Nobel" prize for the best entrepreneur (2)	Development of consulting services and finance it (2)	Attract foreign banks to Lithuania (1)
Prepare development strategy for light industry in market economy conditions (deregulation) (1)	State and business community-partners (1)	Find the best practice production and learn from it (1)	Development of managerial competence, promotion of foreign education (1)	Create information databases on international business conditions (1)	Attraction of investment (1)
	To reduce the state regulation and even abolish it (1)		Prepare information on professional qualifications for our system of education (1)		
	Economy as a priority versus politics (1)				
	Change the State's attitude towards business, improve the competence of state officials (1)				
Votes 6	***Votes 8***	***Votes 6***	***Votes 6***	***Votes 6***	***Votes 4***

Source of method: Double-team OPERA method of Innotiimi Ltd, Finland. Source of the content of the Tables: Joint teamwork of the Board of the Lithuanian Light Industry Association, Industrial policy officials and researchers of SEIL projects.

Table 5.13 SWOT analyses used for defining strength, weaknesses, opportunities and threads of Lithuanian Wood based industries

STRENGTHS **Tangibles: Input cost factors:** ▪ Sustainable and relatively cheap raw wood material ▪ Relatively low labor costs ▪ Relatively low energy costs ***Intangibles: Quality & performance:*** ▪ Relatively good product quality ▪ Favorable market geography ▪ high forest/wood cultural consciousness of enterprises	***OPPORTUNITIES*** ***Tangibles: Input cost factors:*** ▪ fully use domestic wood resources ▪ supply opportunities from Russia ▪ potential for FBI cluster development ▪ elimination of border formalities (→cost savings, improved delivery) ***Tangibles: Technological factors:*** ▪ specialisation ▪ FBI–related R&D ▪ Development of Trans European Networks ▪ Capitalise on environmental investments ▪ Promotion of wood as lifestyle product ▪ Complementarity with new media ***Intangibles: Legislative and institutional framework:*** ▪ Improved tax system ▪ Legislation supporting company restructuring
WEAKNESSES **Tangibles: Input cost factors:** ▪ bad structure of domestic raw wood material base (less valuable species predominant) ▪ low profitability resulting in low re-investment ▪ lack of capital for modernisation **Tangibles: Technological factors:** ▪ relatively low productivity ▪ underused production capacity (related to lack of capital and insufficient raw wood material) ▪ outdated technologies ▪ insufficient use of ICT Intangibles: Quality & performance ▪ underdeveloped supporting services (i.e. logistics) ▪ lack of end user/market orientation ▪ insufficient knowledge of languages ▪ insufficient know-how & skills ▪ insufficient training ▪ relatively week environmental performance ▪ often conservatism and lack of innovation ▪ lack of experience in data management ***Intangibles: Legislative and institutional framework:*** ▪ underdeveloped forestry policy and forest-based industry policy co-ordination ▪ non-predictability of tax policy	***THREATS*** ***Tangibles: Input cost factors:*** ▪ increasing wood costs and lower supply ▪ environmental issues/costs ▪ fiercer competition within the Internal market, including from third countries ***Intangibles: Quality & performance:*** ▪ competition from other raw materials ▪ potential limitations of the use of wood ▪ decreasing budgets of schools and libraries resulting in lower qualification

Source: Industry Impact Study of Lithuania Forest Based Industries

The acronym SWOT analysis comes from the words Strength, Weaknesses, Opportunities and Threats. Strength and Weaknesses describe the present day situation, but are of course a base for the future. Opportunities and Threats are things that might take place in the future. SWOT analysis is an extensively used tool of strategy planning.

There are also several other useful methods. We recommend training to use them so that the methods become familiar. In any case the most important thing is that industrial policy thinking is done systematically in industrial associations and among in-

dustrial policy officials, and that from time to time joint work is done in order to form a common understanding, which is a solid base for real private-public co-operation.

5.4 AVAILABILITY OF DATA AND OTHER INFORMATION

Information sources of the impact analysis projects

In the beginning of the project we identified the data and other information sources available for the studies. They were presented to the researchers in the first research seminar. Table 5.14 presents the list supplemented by some relevant later published sources. Along the process researchers also identified a lot of important sources not mentioned here.

Table 5.14 Information sources recommended for the Lithuanian Industry Impact Studies

Statistical data:

Lithuanian statistics

- Financial Indicators of Enterprises, Statistics Lithuania, B805
- Industry, Statistics Lithuania, B400
- Industrial activity results, Statistics Lithuania, B402
- Economic and Social Development in Lithuania, Statistics Lithuania, B111
- Transportas ir rysiai, Statistics Lithuania, A710
- Research Activities in Lithuania, Statistics Lithuania, B364
- General Information on Innovation in manufacturing, Statistics Lithuania, Vilnius 1998
- Foreign Trade, Statistics Lithuania, A600 and later versions
- Foreign Direct Investment in Lithuania, Statistics Lithuania, B413
- Lithuanian National Account in 1997

Lithuanian Statistical Department offered for free also the data we asked in electronic form, for example detailed foreign trade data. At the end of the project they also gave upp dating to the most important data.

International data

Data in electronic form

- Annual National Account, Detailed Tables 1960-1997, 1999 Edition, Volume 2, OECD August 1999
- International Sectoral Database, ISDB 98, OECD Paris 1999
- The OECD STAN Database for Industrial Analysis 1978-97, 1998 Edition
- Europroms 2nd Edition 1999, European Communities 1999
- Panorama of EU Industry, Monthly CDs
- International Trade by Commodities, HS Rev.1 Harmonised System 1978-1997, QECD 1998: 1,2,3,4 and later version covering the 1998
- International Trade by Commodities, SITC Rev 3, 1990-1998, OECD 1999: 1,2,3
- Intra- and extra EU-trade, monthly data – Combined Nomenclature, European Commission, 1999

Table 5.14 continues

Statistical Publications

- Industrial Structure Statistics, volume 1, core data, 1999 Edition, OECD
- National Accounts, Detailed Tables, volume II, 1984-1996,OECD 1998 (Later versions only in electronic form)
- International Direct Investment Statistics Yearbook, 1999 Edition
- Eurostat Yearbook, A statistical eye on Europe, Data 1987-1997, Eurostat Edition 98/99

Earlier studies

There are five kinds of sources, which we used

- Single Market Reviews, see Table 5.7
- Firm interviews, See the questionnaire
- Industry organisations of new member countries, especially Finland and international industry organisations which are following EU regulation and lobbying in EU
- Documents of EU effecting the industries concern
- Studies of research institutes like WIIW and ETLA concerning enlargement of EU

Benchmarking the industries

- Panorama of EU Industry 97, The key to European industry volume 1 and 2, European Commission 1997. (Sample of the series are published as monthly CDs)
- Panorama of European Business, 1999. Data 1988-1998, Eurostat. This is valuable source for benchmarking, unfortunately it came too late for the first four industry impact studies
- The Competitiveness of European Industry, 1998 and 1999 Reports, European Commission, Luxembourg

Competitiveness of Industries

- Theoretical Background: Michael E Porter (1990), The Competitive Advantage of Nations, The Free Press, New York, and Collier MacMillan, Toronto.
- Examples of cluster studies from different countries: Hernesniemi-Lammi-Ylä-Anttila (1996): Advantage of Finland – The Future of Finnish Industries, ETLA B 113, Helsinki; Sölvell-Zandler-Porter (1991): Advantage Sweden, Norsteds, Stockholm.
- A Summary of studies: Reve-Mathiesen (1994), European Industrial Competitiveness, SNF-report 35/94.SNF, Bergen

Improvements needed in Lithuanian statistics

After working with Lithuanian statistics we have identified following development needs:

- Data content of the Lithuanian National Accounts should be increased and harmonise more using EU methods (see European system of accounts, ESA 1995, Eurostat). Fixed priced series and more detailed industry series are needed also.

- Enterprise statistics level data content should be increased as well as harmonised with that of international standards. Especially more and more accurate information about firms' intangible investments and technological development is needed.
- Connections and understanding of these links between National Account Statistics and enterprise statistics should be strengthened. They are parallel tools of social development and public-private partnership.
- The availability of especially international statistics (EU and OECD) but also national statistics should be better, especially for the main universities and research institutes, industrial policy officials and associations of industries. Part of the EU accession financing should be reserved for this purpose.
- Training and education about statistical concepts and use of statistics should be upgraded. This is necessary, for example, to utilise better the benchmarking and competitiveness analysis recommended in this manual.

5.5 USE OF RESULTS

Membership negotiation

One of the main criteria for accession to the EU is the applicant country's capacity to cope with the competitive pressure and market forces. The competitive pressure will be mainly that prevailing in the EU Internal Market since the Lithuanian markets will become part of it. This is the reason why this approach has been taken as the criteria for the socio-economic impact of EU accession.

In the accession negotiations the Lithuanian negotiation delegation will need to agree about the timetable for meeting this pressure. In selected areas also some special arrangements can be created to help the adjustment, but in the end Lithuanian enterprises will have to be genuinely competitive in the Internal Market.

Technically the negotiations will be carried out according to chapter breakdown and every individual piece of the EU acquis communautaire will be listed and analysed. As presented elsewhere in this document the SEIL project has created a methodology for the assessment of the impact of individual directives. It was also demonstrated that the compliance cost of an individual directive might be totally irrelevant if the company does not have the capacity or the interest to finance the needed investment and additional costs accruing due to ALL relevant directives. Instead the company may withdraw from the markets if it assesses that it can not meet the competition with this cost structure.

In the negotiations it is crucial to know what the complete picture for the future development of Lithuanian enterprises is likely to be. The method presented here offers a way to collect this information for the use in the negotiations. As it has been demonstrated the negotiation delegation or the government alone cannot collect and assess all this information. Rather, the industry needs to provide as accurate information as possible of its position. This information will be useful also for the European Commission and the member states since it gives a background for the assessment of Lithuania's negotiation positions. The positions should be backed up with as much factual information as possible.

6. NEXT STEPS AND RECOMMENDATIONS

6.1 CONCLUDING RECOMMENDATIONS

The methodology presented here should be adopted as widely as possible by Lithuanian government agencies, industry organisations and companies and research and academic institutions. Therefore it is recommended that the Ministry for Economy and the European Committee undertake appropriate measures to circulate the material and prepare adequate training and consulting.

The analysis should be carried out and updated regularly in all main parts of Lithuania's manufacturing and services industries. There should be a programme to that effect. The ongoing work at Kaunas University of Technology should be completed and circulated. A most urgent round of analysis should be carried out with regard to the preparations for the accession negotiations.

The analytical results should be used as one main tool in the implementation of the industrial strategy in each sector. The Lithuanian Light Industry Association example could be made to a best practice –case and publicised as such. The Ministry for Economy could report regularly to the Government on the overall development of the competitive position of the Lithuanian companies and industries.

A special attention should be given to co-operation and networking between companies in order to promote the use of cluster potential as part of the Industrial Strategy Implementation.

The statistical basis for the analysis should be improved in the following ways: the data content of national account statistics should be augmented, because compilation according to EU standards offers a good tool for international benchmarking and development based on it. Business statistics should be developed so that they better describe the intangible investment and technological development of Firms. Fixed priced series are needed more, for example regarding value added of manufacturing industries and about tangible investments. This helps a lot to measure the socio-economic impact of single markets. It is necessary also for developing the competitiveness of Lithuanian industries.

6.2 NEEDS TO IMPROVE COMPETITIVENESS

It is obvious that nowadays the competitiveness of Lithuania is mostly based on low labour costs, on inherited capital stock with lower demand of return on capital, cheap raw materials or favourable location. Of course there are also several exceptions to that. In this situation Single Market brings competitive pressures but also opens new opportunities. If prices of factor inputs adapt more rapidly to the EU level, and at the same time prices lag behind, enterprises in several Lithuanian industries face a serious pressure and the socio-economic impacts could be unpleasant.

On the other hand Single Market is an opportunity. Realisation of it demands a lot of improvements on competitiveness of the companies in form of new high value added products and increase in productivity of different inputs. As we could see in the appendix tables Lithuanian labour productivity in one tenth of that of leading countries

in different industries. This nearly displaces the benefits due to low salary level. Although this comparison is harsh, and there are good reasons to compare with other transition countries, the strongest companies in the market set the benchmark. A lesson for conduct of competitiveness policy could be learned for other applicant countries, but this was beyond the scope of this project.

We suggest a comprehensive productivity improvement program for Lithuania. The core in this program should be the improvement of productivity whilst maintaining a high employment rate in different industries. More investment in new production technology, product development, specialisation on core competitiveness, more networking and use of synergy and high qualified training and professional education, development of business services, improved business environment, tax legislation encouraging upgrading etc.

This demands a lot of education and know-how accumulation, transfer of technology and best practices and especially long-term systematic business planning on company level. On governmental levels systematic industrial strategy work and implementation are needed in close co-operation with the industry. Also the whole professional education system, research institutes and many other governmental or voluntary institutions fall within the scope of this work. For this future long-term competitiveness campaign we suggest the following definition for competitiveness and detailed competitiveness criteria and indicators connecting to it. Definition defines competitiveness on the company level, on industry and cluster level and finally on the national level.

Table 6.1 Definition of Competitiveness

Company level
A company has got a competitive edge, if it can produce and sell homogenous products more cost effective than other companies without any subsidies in competitive markets or it can create unique products or special features to existing products i.e. innovative new products or product improvements, which other firms cannot create.
Industry and cluster level
An industry an a cluster has got competitive edge if a) there is enough competition, which improves productivity and promote innovations, b) customers served are more demanding and progressive than those of competitors, c) there are synergies between firms and open networks to start new businesses and positive externalities (like information spill-overs), d) firms have got advanced inherited and created factors available.
National level
A country can have a competitive edge if it can offer best home base for competitive clusters and clusters are able pay higher compensations to the input factor (labour, capital, human capital, raw material etc.) suppliers than those in competing countries. This means that positive cluster effects exist, business environment supports clusters and economy can mobilise resources for the most productive use.

Table 6.2 Detailed Competitiveness and Criteria and Indicators

DETERMINANT OF ECONOMIC DEVELOPMENT	CRITERIUM	INDICATOR
	Firms	
Factor competitiveness	1. Labour costs 2. Cost of capital 3. Raw material cost 4. Etc	1. Unit labour cost; salary level 2. Unit capital costs; interest rates, rents 3. Raw material costs 4. Etc
Dynamic competitiveness	Formal theory leave this unexplained 1. Organisational innovations 2. Product innovations 3. Production technology innovations 4. Social innovations	Sub indicators: 1. New ways to organise production 2. Number of new products 3. Investment in new production technology 4. Business ethics and responsible care of people and environment
Productivity	1. Labour productivity 2. Capital productivity 3. Raw material productivity 4. Etc 5. Dynamic productivity 6. Total factor productivity	1. Value added/labour inputs; and change 2. Value added/capital inputs; and change 3. Value added/Raw material input; and change 4. Etc. 5. Increase in value added/investments done 6. Value added/All inputs; and change
Profitability	1. High margins and ability to invest	1. ROA, ROI, Profit margin, Investment rate etc.
	Clusters	
Absolute advantages	1. Growth of clusters 2. Market power of clusters in domestic and foreign markets 3. Market power of clusters in domestic markets	1. Production and employment growth 2. Positive trade balance and export growth, Number of markets and high export market shares 3. In closed sector high consumption per capita
Comparative advantages	1. Export and production specialisation 2. Concentration of resources	1. RCA-indexes, SRA-indexes 2. Relative shares of labour, capital employed in clusters
Upgrading and renewing	1. Labour force and education 2. Fixed capital 3. Intangibles 4. Technology development	1. Relative number and level of educated, job matching, number of high skills jobs 2. Investment ratio 3. Public and private R&D investments 4. Patenting, new products, investment in new technology
Competition and networking	1. Competition in industries of clusters 2. Networking of firms	1. Share of dominating companies (CR3, CR5), number of firms and new firms, import ratio, number of foreign firms, diversification of firms 2. Outsourcing ratio, number of subcontractors, intermediate employment effects on an industry, joint product development projects, number of internet

		connections
Demand and customer relationship	1. Content of production portfolio 2. Customer satisfaction	1. Job creation, kilo price, share of high tech products, share of growth products 2. Number of key customers, joint product development projects, customer satisfaction measures
International activities	1. Export activities 2. International activities	1. Number of exporting companies, Export : local sales 2. Number of companies having foreign activities, Turnover share of foreign activities, Amount of service and capital incomes by cluster
Nation		
Optimal use of resources	1. Effective use of labour 2. Effective use of capital 3. Effective use of raw materials 4. Organisational effectiveness 5. Transfer of resources	1. Labour productivity 2. Capital productivity 3. Raw material productivity 4. Unemployment rate, capacity utilisation ratio, utilisation ratio of renewable resources 5. Labour enrolment rate, Changes in industry structure, number of new and exit companies by industry
Competitiveness of economy	1. Overall success in open sectors 2. Hosting of competitive clusters 3. Attractiveness of the country	1. Goods and service export incomes per capita comparing to other countries 2. Number of competitive clusters, Their share of GDP, Share of emerging clusters, New clusters 3. Foreign direct and portfolio investment, immigration
Social impacts	1. Employment 2. Mobility by upgrading 3. Incomes	1. Number of employed, unemployment rate, job satisfaction 2. Number of new jobs, job change rate, number of new entrepreneurs, 3. Value added per capita, income distribution. Reserves for education, pension, unemployment,

If Lithuania is able to generate and run the comprehensive productivity improvement campaign affecting the widest range of the above criteria in a positive way, it would unquestionably bring Lithuania to a benchmark position among the applicant countries. This would also be the needed policy leading sustainable improvements in living standards, employment rate and productivity and their convergence towards the EU level.

Appendix 1: Questionnaire of the Industry Impact Studies

GENERAL INSTRUCTIONS

Minimum 20 firms per industry will be interviewed. Sample should contain the biggest, the most export oriented and the most progressive firms of the industry. There should be also included some small companies. Add to these also experts of industry associations, ministries etc. should be interviewed.

The following question list is a base for the interviews. Researcher should adjust the questions suitable for the industry he or she is studying and for the firms researcher is visiting.

Interviews will be confidential. Only the respective researcher and research group at their meetings will use the company's information. Interviewed firms will read the text written about them before publication.

Chapter 4 and partly chapter 3 will be written using the material collected by these interviews. For other sources, please consult the methodology paper. If some firm is a good example for the other firms in some respect it is possible to write a special case story about it (not more than one page per firm).

Instruction to firms' representatives

Please, compare your firm to your foreign competitors. Especially to EU competitors, but also the other applicants (most important: Poland, Estonia, Latvia, Check Republic and Hungary)

QUESTIONS

Factor conditions

What are the most important production factors you have?

- raw materials
- labour force
- location
- something else, what?

Are there some important shortages? How have you compensated them?

Have you got the research and development activities of your own?

Which kind? Give some examples!

How much is invested in it comparing to the turnover?

Have you got some co-projects with the governmental bodies like universities and research institutes? If yes, what kind?

What is the structure of you work force?

- Workers and their superiors
- Management officials
- Marketing personnel
- Research and development personnel?

What are the main institutions you are hiring your workforce?

What skills you are specially looking for?

Have you got you own educational activities? If yes, what kind?

Please mention the most important lack of work force:

- Language skills
- Marketing skills
- Management skills
- Others, what?

Is there anything governmental bodies could do?

Basic R&D, Risk financing etc, education

Is there something you could do with in the business association?

Relating and supporting industries

What is your value added chain?

- What are the core activities of your firm? What activities you want to perform by yourselves?
- What you have outsourced?
- What other activities you want to outsource, if possible?

What are the most important input industries to your industry?

What special advantages your could get from them?

Compare them to the respected industries in your competing countries

What are the most important related industries to you industry?

How they are related to your businesses?

Are there possibilities to build up new related activities? What kind of?

Have you got plans to diversify to the supporting or related industries?

What are your other important networks:

- Industrial associations, business clubs etc.
- Professional education institutes?
- Research institutes?

Customer relationship

What are your most important customer segments?

What are their future potentials: Increase of demand in the future (3 to 5 years period)? What factors will accelerate the demand?

What are your most important customer markets now: Countries, segments there? What new markets you are going to penetrate?

What are the main ways you are going to do that? What help you would like to get and who could provide it?

Are there possibilities to co-operate whit other firms? What are the roles of the associations? What are the roles of the governmental bodies?

What is the quality of your marketing officials? What is the normal background of them? What kind of education and retraining they need? What elements or subjects should be added more into professional education?

Evaluate your domestic customers:

- Are they demanding customers? In what way?
- Are their needs a head forward comparing foreign customers or are they following foreign customers
- Are they willing to test new products, new business concepts, new co-operation forms?

Please, evaluate same way customers in the most important countries?

Where customers are the most demanding, the most progressive and the most desire to experiments?

Who are your key customers at the home market? Why they are key customers?

- Are others following them? Are they good references?
- Can they and are they giving feedback? What kind?
- Can you use them in developing new products, services or business concepts

Competition

Describe the competition in the home market:

- Local competitors
- Foreign competitors

What are the main arguments in the competition: prices, quality, related services etc.?

What are the main sources or factors of your competitiveness?

How you are going to improve your competitiveness in the future (3 to 5 years perspective)? Are there some good new possibilities to develop your businesses?

What are the main weaknesses of the companies in your industry comparing to the foreign competitors? What are the possible threats your industry can face?

What are your expectations concerning the development of your industry:

- What will be the number of major players?
- What is optimal size of the firm now and in the future (5 years perspective)
- Are there obvious scale advantages in some functions?
- The possibilities of the newcomers to enter into the business in your industry?
- What are the most possible diversification industries?

What will be the role of foreign investors:

- Will there be green field investments into Lithuania?
- Are they filling to by existing companies? What and why?
- What value add foreign owners can give?
- What are Lithuanians' advantages to them?

Have you got activities in foreign countries. What and where?

What future plans you have concerning activities abroad?

Impacts of EU membership

What are the main barriers now?

Are there some advantages not to be the EU-member?

What are your expectations concerning effects to the exports of the industry?

What other advantages you expect?

What happens to the import competition?

How you business possibilities will change in CIS countries and other important markets outside the EU?

Go trough the cost structure?

What are the most important costs?

Compare them to costs of competitors in EU-member countries, in other candidate countries.

What are the main improvement needs and possibilities?

What new activities (training, education, R&D etc.) and investments are necessary in new situations?

What are there costs?

What are the benefits?

What other important changes EU membership will bring:

- Will there be lack of labour force because of emigration?
- Can you firm compete about educated, high skill officials with foreign companies?
- Will the labour costs integrate between countries?
- What other costs will rise because of harmonisation effect.
- Will the price levels integrate?
- What are the changes because of the common Euro currency?
- What other changes there will be?

What are main new demands (standards, rules etc.)?

What are their costs to your firm?

What are the benefits?

(Please make a list for yourself, and ask one by one it through?)

- Describe your firm’s strategy to enter into EU-markets. Free question!

- Go trough the checking list. See the following checking list. Please, do the necessary industry changes, but use the same list for all firms, if possible, so that you can make the figure from the results.

Importance of the UE membership for the development of your firm's strategies

	Small importance	Important	Very important
Price competition			
Product specialisation			
Standardisation of products			
Diversification into the other products			
Quality of products and services			
R&D activities			
Training and professional education			
Adjustments of production capacity			
Improvements in production methods			
Number of production units			
Setting up production units in the EU.			
Advertising			
Packing			
Distribution network in the EU			
Transportation			
Purchases of raw materials from EU			
Purchase of financial services			
Purchase of other services, what			
Inward investment from other enterprises			
Investment in other enterprises			
Co-operation with other enterprises			

Role of public sector

Please, what should be the role of government and governmental bodies and local officials and institution in improving the competitiveness of your industry?

How should the government and governmental bodies and EU prepare your industry for the membership?

Appendix 2: How to get interviews?

Problems have risen concerning the interviews. How to work with questionnaire? How to get time commitments from firm managers? These are normal problems. Here are some general advice: Your need not to get answers for every questions as was stressed in the first seminar. There are two major targets:

1. To find out the most important factors explaining the competitiveness of the respective company and as a summary the industry. And next step, how to improve the competitiveness.

2. To find out what are the most important effects of EU membership - benefits and costs. And next step, what measures are needed.

Remember that also the lack of competitiveness is valuable information. Or if managers cannot answer or do not want to answer some questions (lack of managerial skills, bad reporting system, secret information etc.) it is also important information.

I have done some hundreds of interviews. Here are some hints based on my experiences:

- Do your homework. If there is some material about company, read it carefully before the interview. You can get already answers for many questions. And the manager will notice that you know the firm and issues relating its activities. He/she starts to respect you and he will get enthusiasm to tell more.

- It helps to put on the paper the most important selected questions and see that they very well fit to the firm. This list drives the interview. If the manager is a busy one, he can see what answers are very necessary and how long it takes to answer the questions. If he gets the list advance, he is able at least passively think what to say.

- It might be good to put on paper some facts you know. Turnover, number of employees, products, export markets etc. plus the sources you have got the information. Manager will correct possible mistakes and to give the most resent ones. Basically we are using the official statistics. So don't worry if you do not get the complete data. Anyhow, what you will get is valuable for understanding the industry behind the statistics. If you plan to publish a table about the most important firms etc., please make it based on old (if you do not have new) and possible imperfect information. They have high motivation to fulfil or supply the new information especially if it is a positive one.

- Let the managers speak about themes they like and in order they want. You can get a lot of information and also answers. Reorganise the answers later.

- How to get into the company? We have often a short presentation of the project underwritten by respected person from outstanding organisation. In the presentation there is also the name list of the steering group. It helps. In phone contacts we have also mentioned who will be interviewed or whom we have already inter-

viewed. They are thinking: ‘Ok, he has given the interview’. or 'They are going to interview him.' Sometimes this helps.

- You can promise that interviews are fully confidential. Interviews are important source material for generalisations and most part your study is concerning the industry as a hole or part of it. If you want to write a special story about the particular firm (it is a good example etc.) they can see the story and make the possible corrections and changes into the text.

- One possible motivation is the forthcoming use of the study. It will be a base material for negotiation and it can effect the amount, objects and distribution of the adaptation money.

- If you have drawbacks, go on. It is the study which others will see later. If you are not successful to get some interviews other material and other interviews will compensate it.

We will prepare suitable introduction letter, which you can send or fax to the managers you want to interview.

Appendix 3: International Benchmarking of Lithuanian Industries

Figure A3.1 Relative Importance of Food, Beverages & Tobacco Industries

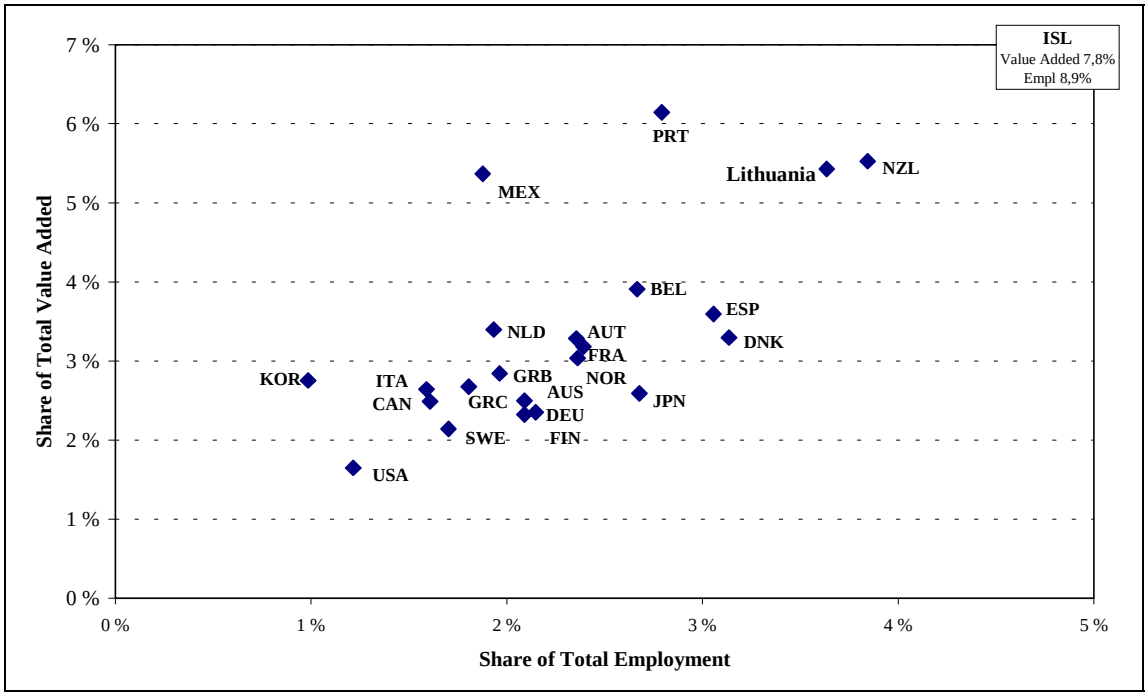

Figure A3.2 Relative Importance of Textiles, Apparel & Leather Industries

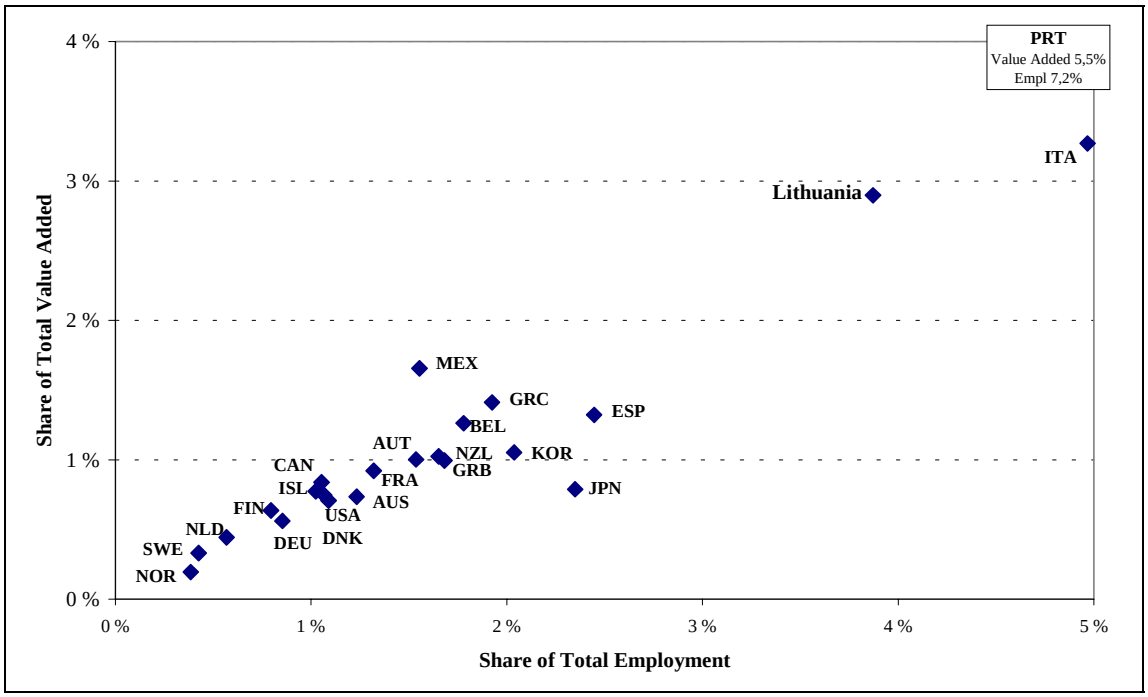

Figure A3.3 Relative Importance of Wood Products & Furniture Industries

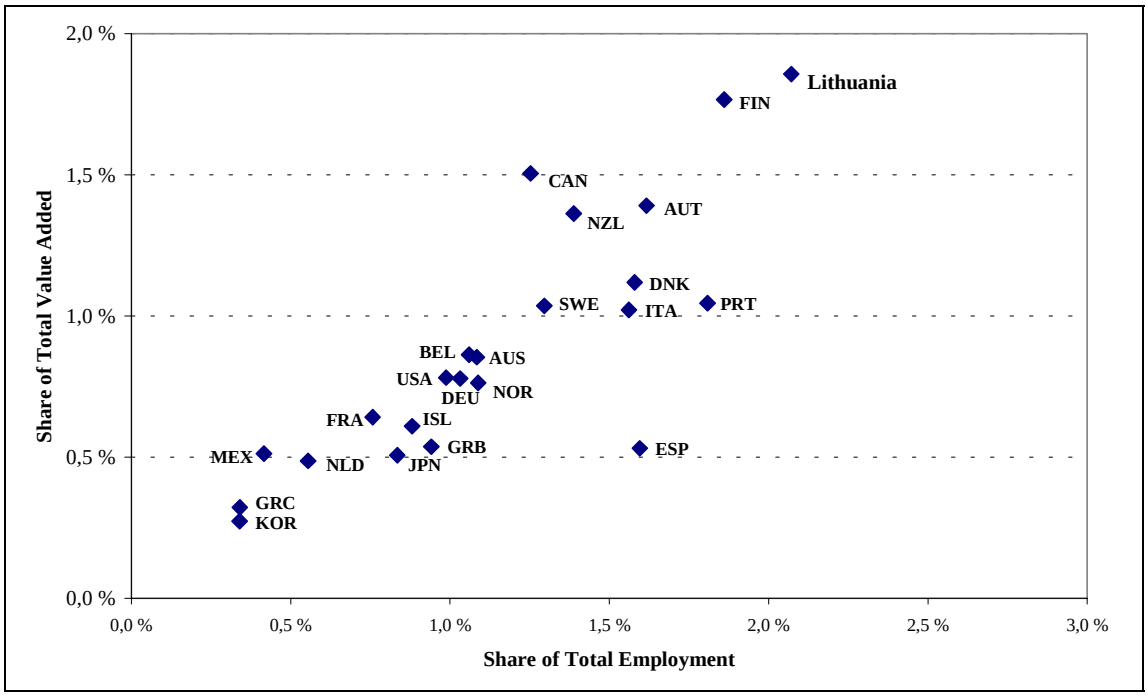

Figure A3.4 Relative Importance of Paper, Paper Products & Printing Industries

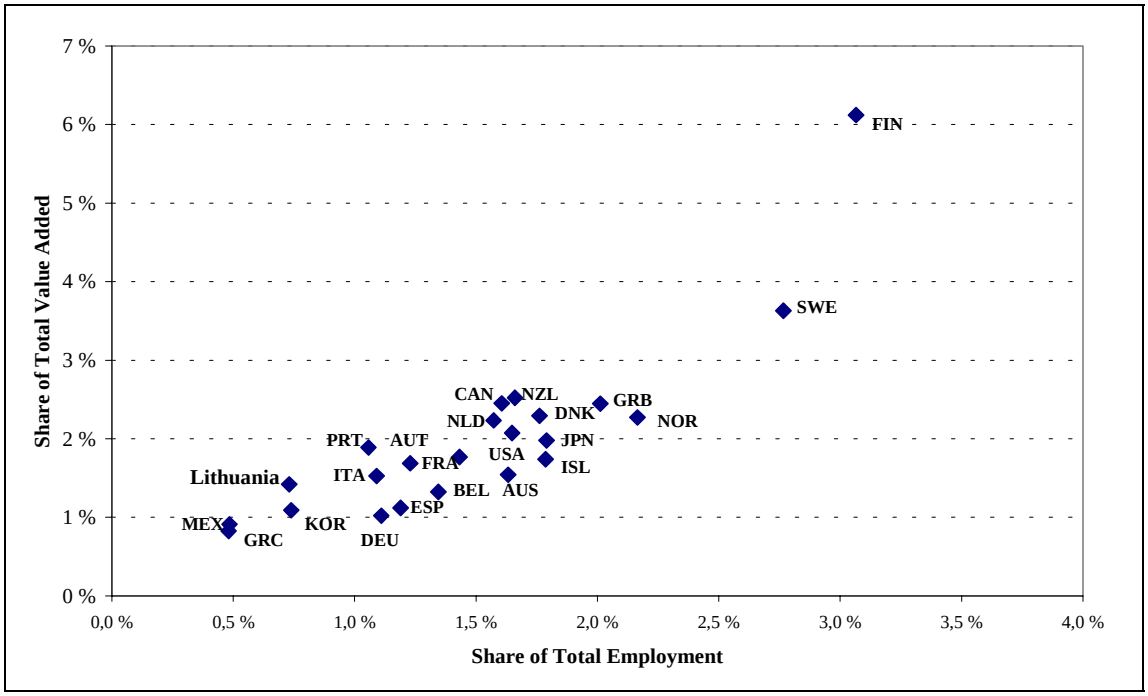

Figure A3. 5 Relative Importance of Chemical Industries

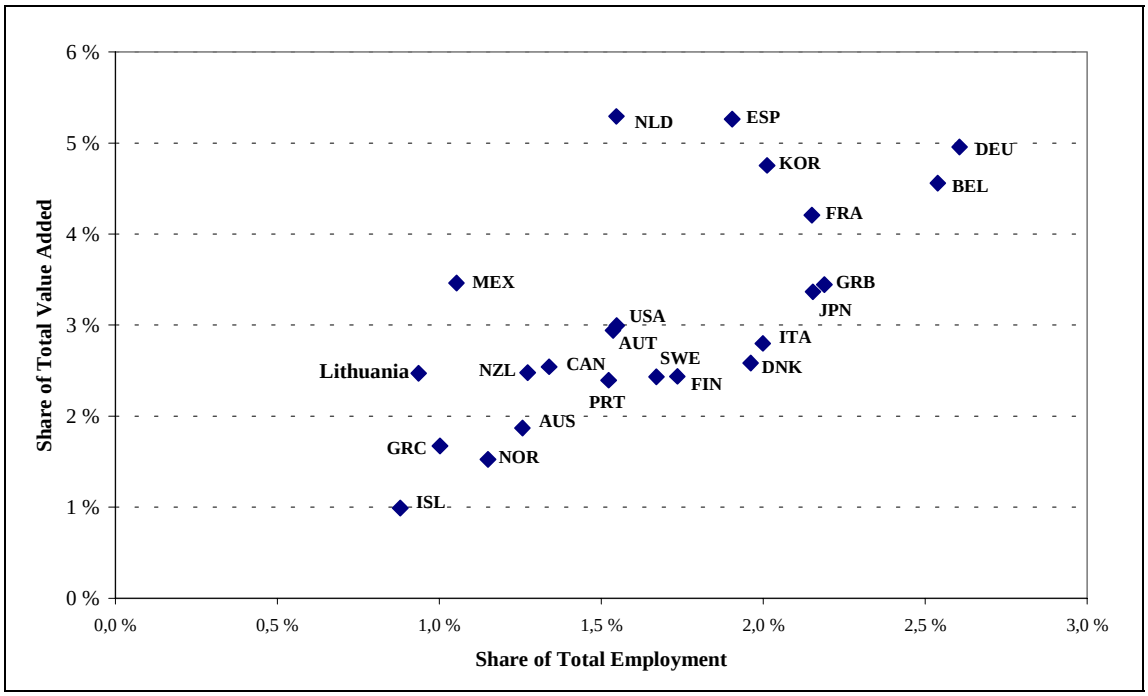

Figure A3.6 Relative Importance of Chemical Industries Excluding Drugs, Petroleum, Plastic and Rubber Products

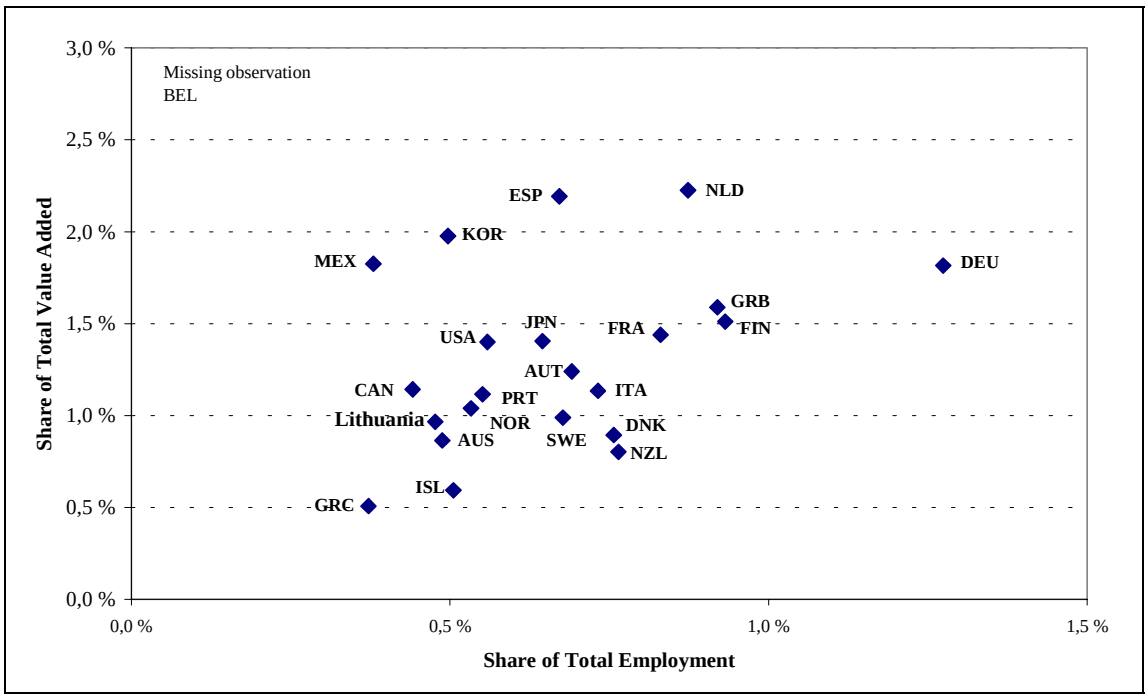

Figure A3.7 Relative Importance of Non-Metallic Mineral Products Industries

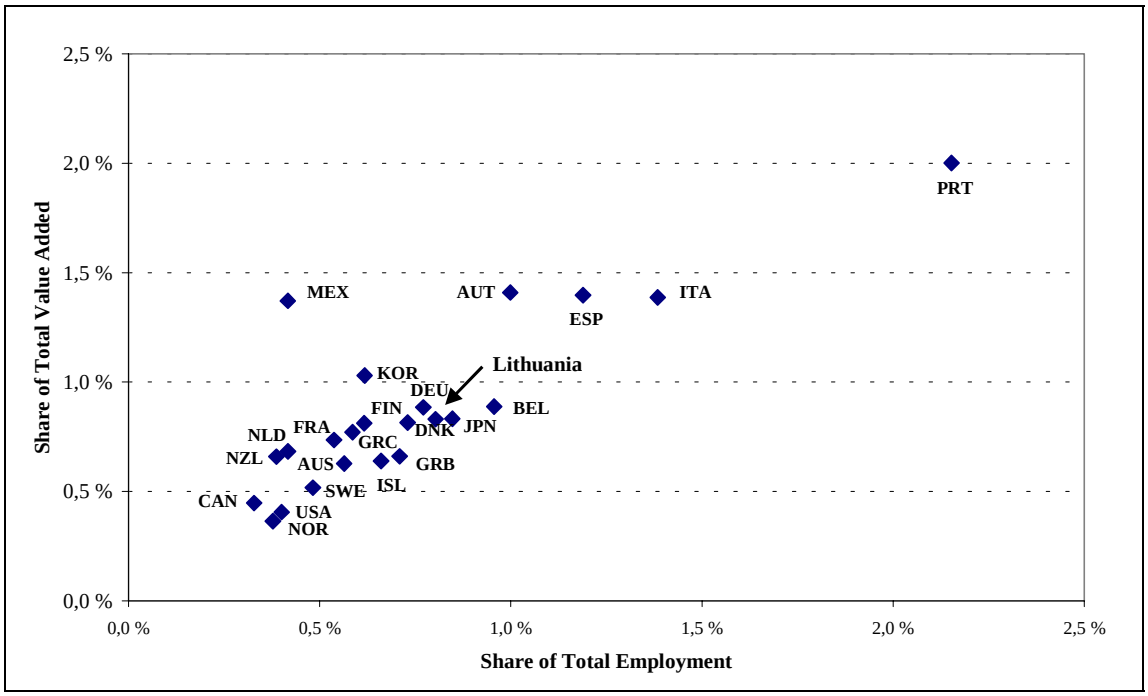

Figure A3.8 Relative Importance of Fabricated Metal Products Industries

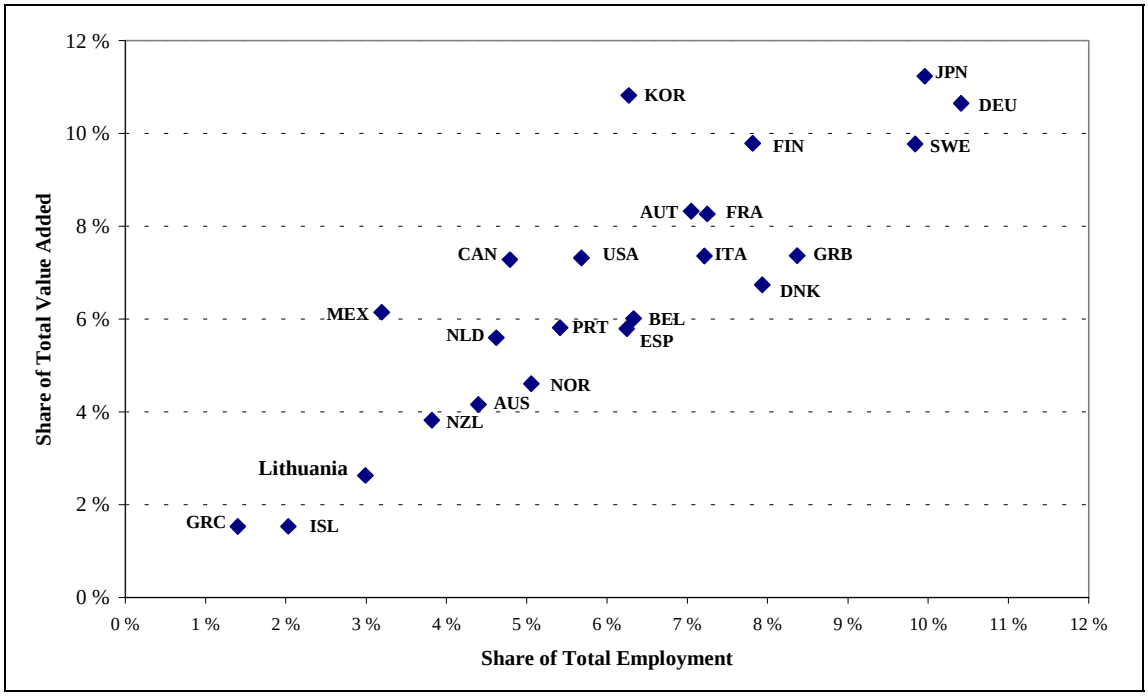

Figure A3.9 Relative Importance of Machinery and Equipment Industries

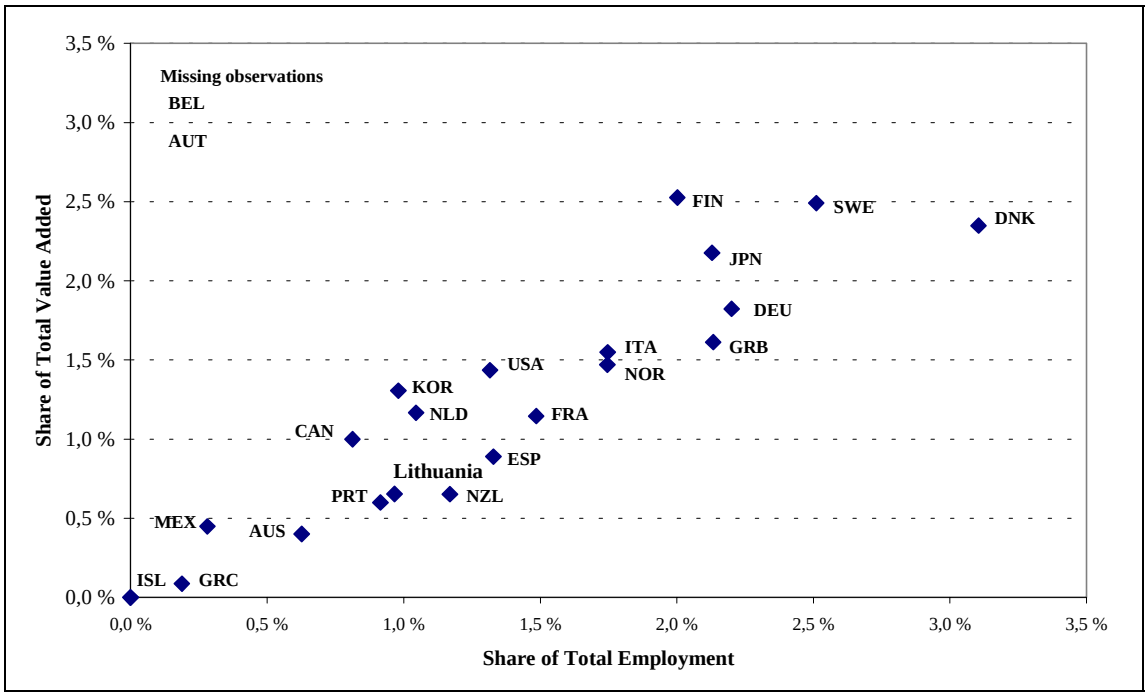

Figure A3.10 Relative Importance of Electrical Machinery Industries

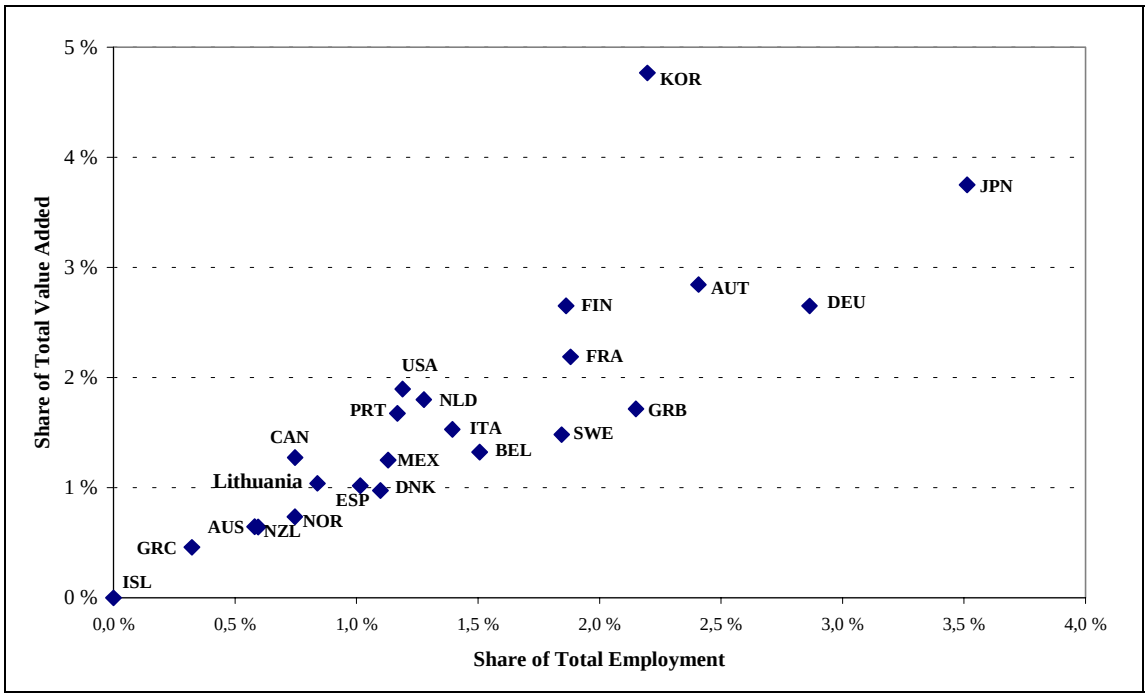

Figure 3.11a Value Added per Employed in Selected Industries, USD

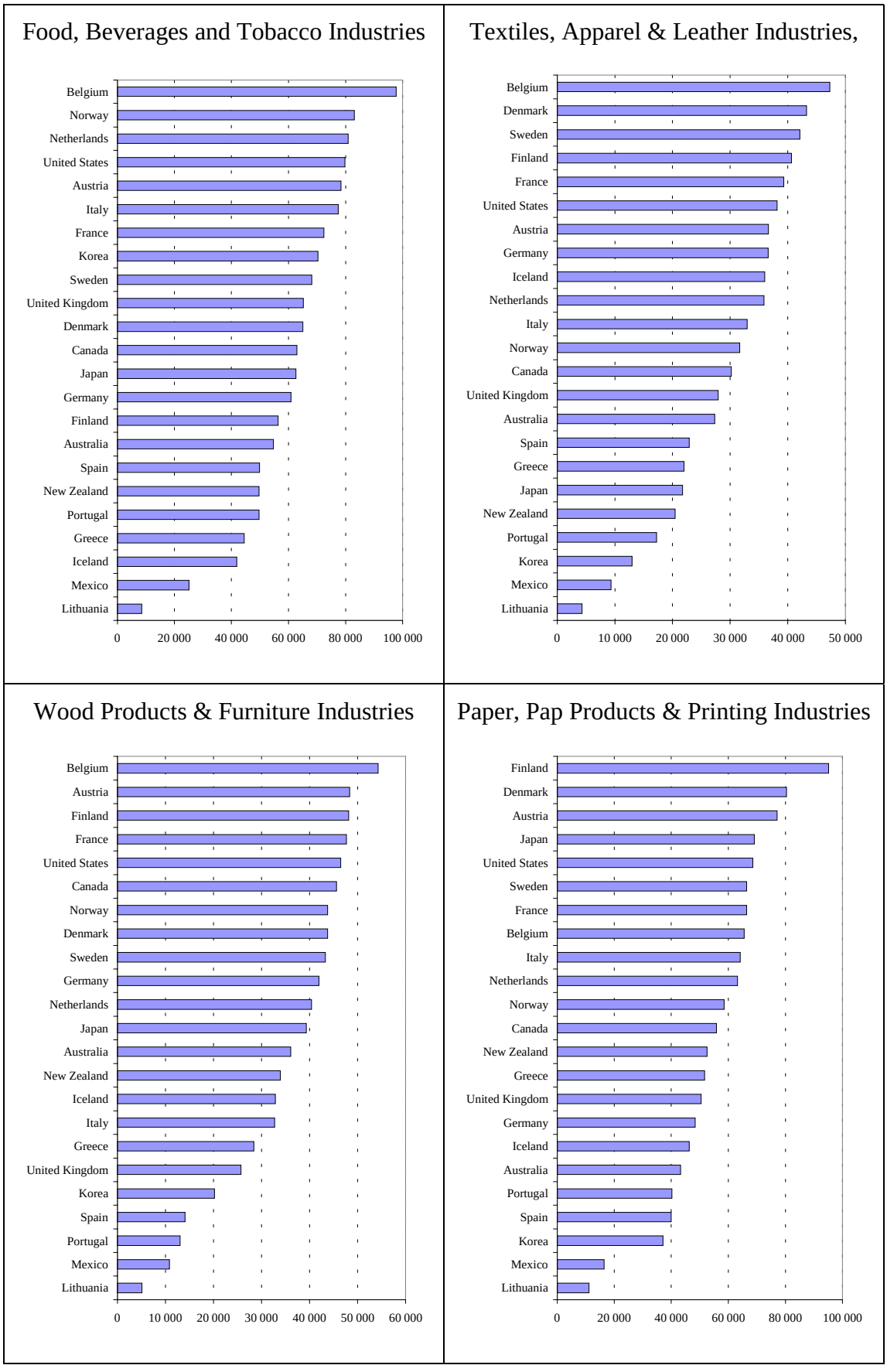

Figure 3.11b Value Added per Employed in Selected Industries, USD

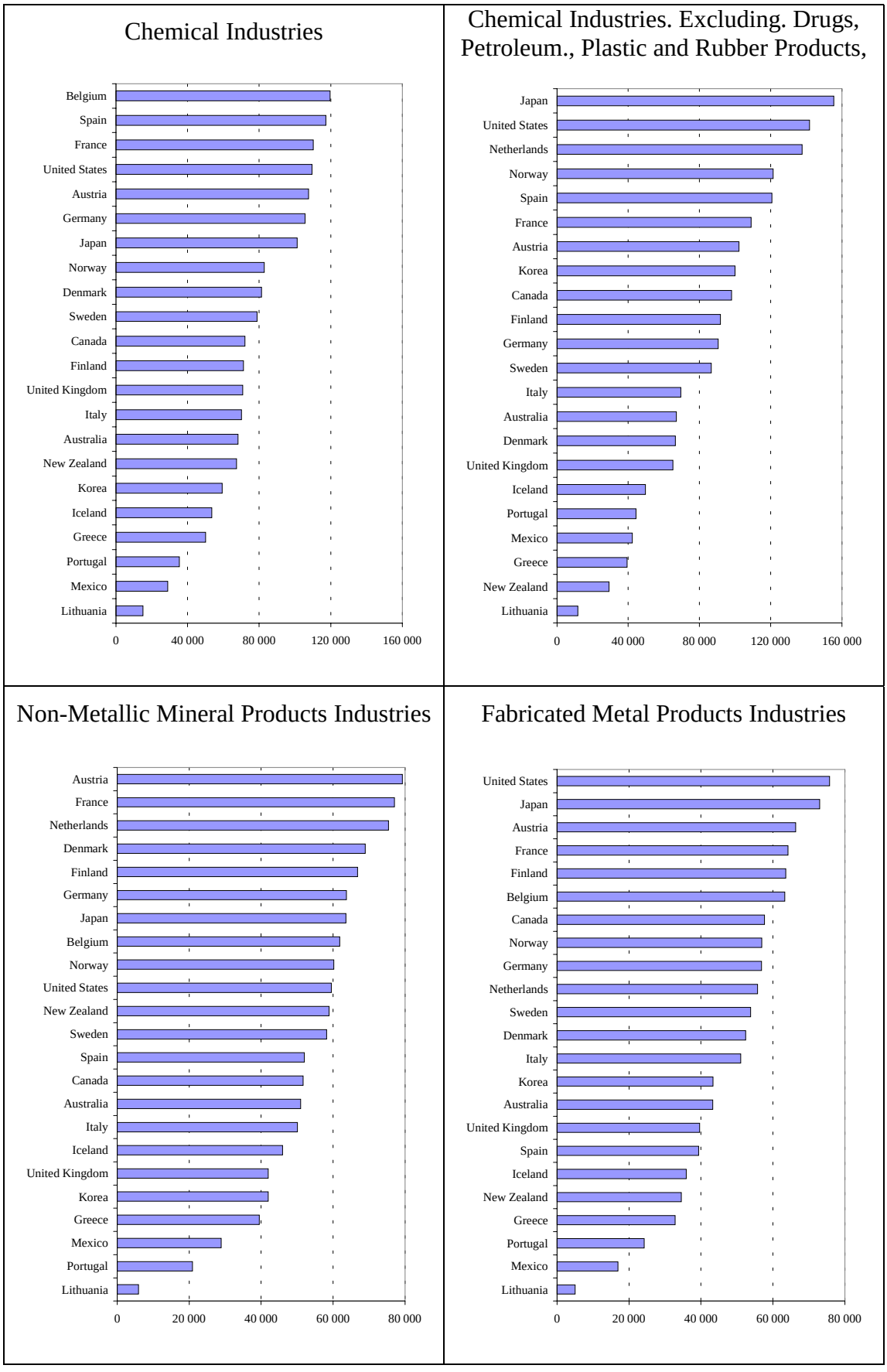

Figure 3.11c Value Added per Employed in Selected Industries, USD

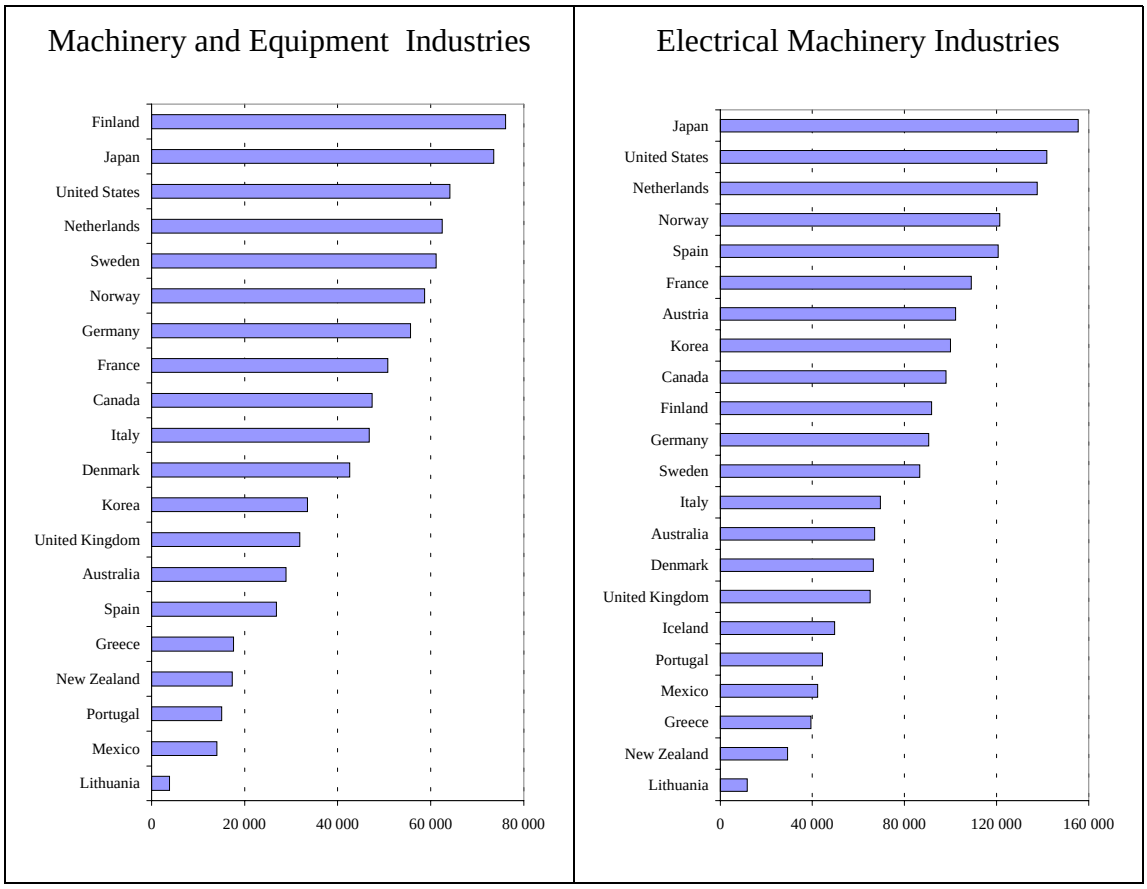

Table A3.1 Lithuanian Competitive Edge in Export Markets

RCA = Revealed Comparative Advantage: Lithuanian Share of OECD Exports of a Commodity Group/ Lithuanian Avarage share of OECD Total Exports
Rating of Competitive Edge: AA = Positive Trade Balance and a Higher Import Share than the Lithuaninan Average Share of OECD Exports,
A - = A Higer Import Share than The Lithuaniann Averege Share of OECD Imports; - A = Positive Trade Balance for Lithuania at least in an other year.

HS-code and Product Group		Total Exports, Mill. USD			Lithuania's		Trade Balance, Mill. USD		Rating of Competi-tive Edge
		Lithuania 1999	Lithuania 1998	OECD Countries 1998	Share of OECD Exports in 1998	RCA-Index	of Lithuania 1999	of Lithuania 1998	
Total		**3 004**	**3 711**	**4 439 900**	**0,08 %**	**1,0**	**-1 830,7**	**-2 083,0**	
00	Commodities and transactions not classified elsewhere in the	0,0	0,0	17 239	**0,00 %**	**0,0**	**0,0**	**0,0**	
01	Live animals.	5,9	4,3	8 265	**0,07 %**	**0,9**	**3,8**	**1,7**	**- A**
02	Meat and edible meat offal.	13,4	6,9	34 293	**0,04 %**	**0,5**	**-6,5**	**-16,7**	
03	Fish & crustacean, mollusc & other aquatic invertebrate	13,2	34,3	23 241	**0,06 %**	**0,7**	**-27,2**	**-26,2**	
04	Dairy prod; birds' eggs; natural honey; edible prod nes	113,0	195,2	26 872	**0,42 %**	**5,1**	**100,2**	**173,2**	**AA**
05	Products of animal origin, nes or included.	2,6	2,7	3 561	**0,07 %**	**0,9**	**-5,4**	**-6,3**	
06	Live tree & other plant; bulb, root; cut flowers etc	0,4	0,8	6 725	**0,01 %**	**0,1**	**-4,6**	**-4,0**	
07	Edible vegetables and certain roots and tubers.	16,4	21,0	19 111	**0,09 %**	**1,0**	**-3,5**	**2,8**	**A -**
08	Edible fruit and nuts; peel of citrus fruit or melons.	12,6	15,2	20 096	**0,06 %**	**0,8**	**-46,5**	**-41,8**	
09	Coffee, tea, matû and spices.	6,2	9,0	5 460	**0,11 %**	**1,4**	**-33,0**	**-37,7**	**A -**
10	Cereals.	29,9	23,5	25 727	**0,12 %**	**1,4**	**22,2**	**12,1**	**AA**
11	Prod mill indust; malt; starches; inulin; wheat gluten	1,9	7,0	4 956	**0,04 %**	**0,5**	**-7,8**	**-2,6**	
12	Oil seed, oleagi fruits; miscell grain, seed, fruit etc	23,8	30,4	14 839	**0,16 %**	**1,9**	**8,2**	**-6,6**	**A -**
13	Lac; gums, resins & other vegetable saps & extracts.	0,0	0,2	1 673	**0,00 %**	**0,0**	**-1,0**	**-0,7**	
14	Vegetable plaiting materials; vegetable products nes	0,0	0,0	262	**0,01 %**	**0,1**	**0,0**	**0,0**	
15	Animal/veg fats & oils & their cleavage products; etc	4,5	5,2	16 189	**0,03 %**	**0,3**	**-37,6**	**-46,3**	
16	Prep of meat, fish or crustaceans, molluscs etc	20,8	22,2	11 132	**0,19 %**	**2,2**	**14,0**	**15,2**	**AA**
17	Sugars and sugar confectionery.	6,9	8,0	9 758	**0,07 %**	**0,8**	**-4,4**	**-8,4**	
18	Cocoa and cocoa preparations.	9,3	20,2	8 307	**0,11 %**	**1,3**	**-1,2**	**4,4**	**A -**
19	Prep of cereal, flour, starch/milk; pastrycooks' prod	1,7	2,6	14 641	**0,01 %**	**0,1**	**-14,4**	**-14,6**	
20	Prep of vegetable, fruit, nuts or other parts of plants	8,4	9,0	16 504	**0,05 %**	**0,6**	**-24,3**	**-23,3**	
21	Miscellaneous edible preparations.	19,2	28,7	13 942	**0,14 %**	**1,6**	**-38,6**	**-30,2**	**A -**
22	Beverages, spirits and vinegar.	4,8	11,3	31 480	**0,02 %**	**0,2**	**-41,2**	**-36,4**	
23	Residues & waste from the food indust; prepr ani fodder	35,6	46,1	13 642	**0,26 %**	**3,1**	**11,4**	**16,9**	**AA**
24	Tobacco and manufactured tobacco substitutes.	26,7	17,0	17 835	**0,15 %**	**1,8**	**-26,9**	**-38,1**	**A -**
25	Salt; sulphur; earth & ston; plastering mat; lime & cem	18,9	21,0	13 262	**0,14 %**	**1,7**	**-69,2**	**-52,7**	**A -**
26	Ores, slag and ash.	0,2	0,2	9 438	**0,00 %**	**0,0**	**-0,9**	**-0,9**	
27	Mineral fuels, oils & product of their distillation; etc	433,3	691,3	130 610	**0,33 %**	**4,0**	**-281,0**	**-136,8**	**A -**
28	Inorgn chem; compds of prec met, radioact elements etc	9,2	6,1	29 604	**0,03 %**	**0,4**	**-13,2**	**-18,9**	
29	Organic chemicals.	8,6	14,9	110 894	**0,01 %**	**0,1**	**-10,7**	**-14,1**	
30	Pharmaceutical products.	36,6	52,1	68 427	**0,05 %**	**0,6**	**-146,9**	**-125,5**	
31	Fertilizers.	177,7	182,8	10 386	**1,74 %**	**20,8**	**160,4**	**157,2**	**AA**
32	Tanning/dyeing extract; tannins & derivs; pigm etc	10,5	15,2	29 473	**0,04 %**	**0,4**	**-58,2**	**-64,3**	
33	Essential oils & resinoids; perf, cosmetic/toilet prep	9,6	29,2	25 714	**0,04 %**	**0,4**	**-49,9**	**-43,1**	
34	Soap, organic surface-active agents, washing prep, etc	6,2	15,1	14 801	**0,04 %**	**0,5**	**-32,1**	**-26,1**	
35	Albuminoidal subs; modified starches; glues; enzymes.	18,0	29,3	8 317	**0,22 %**	**2,6**	**4,9**	**11,2**	**AA**
36	Explosives; pyrotechnic prod; matches; pyrop alloy; etc	0,1	0,3	1 497	**0,00 %**	**0,1**	**-1,1**	**-1,0**	
37	Photographic or cinematographic goods.	1,6	2,9	16 372	**0,01 %**	**0,1**	**-8,4**	**-8,1**	
38	Miscellaneous chemical products.	5,8	7,6	45 166	**0,01 %**	**0,2**	**-46,5**	**-44,6**	
39	Plastics and articles thereof.	74,1	74,9	151 157	**0,05 %**	**0,6**	**-134,4**	**-154,6**	
40	Rubber and articles thereof.	9,2	12,4	44 571	**0,02 %**	**0,2**	**-38,1**	**-50,8**	
41	Raw hides and skins (other than furskins) and leather.	33,0	24,5	14 478	**0,23 %**	**2,7**	**9,0**	**9,5**	**AA**
42	Articles of leather; saddlery/harness; travel goods etc	2,9	10,2	23 004	**0,01 %**	**0,2**	**-4,8**	**1,7**	**- A**
43	Furskins and artificial fur; manufactures thereof.	14,9	16,0	3 864	**0,39 %**	**4,6**	**3,4**	**2,4**	**AA**
44	Wood and articles of wood; wood charcoal.	192,5	177,6	45 750	**0,42 %**	**5,1**	**128,6**	**114,9**	**AA**
45	Cork and articles of cork.	0,0	0,0	1 262	**0,00 %**	**0,0**	**-0,6**	**-0,4**	
46	Manufactures of straw, esparto/other plaiting mat; etc	0,9	0,7	1 233	**0,07 %**	**0,9**	**0,7**	**0,5**	**- A**
47	Pulp of wood/of other fibrous cellulosic mat; waste etc	2,9	6,3	12 998	**0,02 %**	**0,3**	**-3,2**	**-3,8**	
48	Paper & paperboard; art of paper pulp, paper/paperboard	29,7	41,7	86 839	**0,03 %**	**0,4**	**-96,7**	**-102,8**	
49	Printed books, newspapers, pictures & other product etc	12,0	14,6	22 252	**0,05 %**	**0,6**	**-31,0**	**-28,6**	
50	Silk.	0,0	0,0	2 704	**0,00 %**	**0,0**	**-1,8**	**-0,8**	
51	Wool, fine/coarse animal hair, horsehair yarn & fabric	12,9	19,8	11 557	**0,11 %**	**1,3**	**-30,6**	**-28,3**	**A -**
52	Cotton.	33,1	45,0	26 811	**0,12 %**	**1,5**	**-30,7**	**-33,3**	**A -**
53	Other vegetable textile fibres; paper yarn & woven fab	43,2	40,8	2 596	**1,69 %**	**20,2**	**9,4**	**11,0**	**AA**
54	Man-made filaments.	50,6	67,4	25 978	**0,20 %**	**2,3**	**-26,6**	**-5,4**	**A -**
55	Man-made staple fibres.	35,3	36,9	22 353	**0,16 %**	**1,9**	**-67,8**	**-62,6**	**A -**
56	Wadding, felt & nonwoven; yarns; twine, cordage, etc	16,5	14,2	8 597	**0,19 %**	**2,3**	**3,3**	**0,1**	**AA**
57	Carpets and other textile floor coverings.	0,4	1,1	7 185	**0,01 %**	**0,1**	**-5,7**	**-7,7**	
58	Special woven fab; tufted tex fab; lace; tapestries etc	1,4	2,4	6 905	**0,02 %**	**0,2**	**-11,0**	**-11,9**	
59	Impregnated, coated, cover/laminated textile fabric etc	1,3	4,6	9 841	**0,01 %**	**0,2**	**-10,3**	**-11,3**	
60	Knitted or crocheted fabrics.	4,4	7,2	11 547	**0,04 %**	**0,5**	**-25,1**	**-19,7**	
61	Art of apparel & clothing access, knitted or crocheted.	124,1	123,6	68 939	**0,18 %**	**2,2**	**88,9**	**91,9**	**AA**

Table A.3.1 Continues

Table A.3.1 continued

62	Art of apparel & clothing access, not knitted/crocheted	323,2	293,4	87 109	**0,37 %**	**4,5**	**286,5**	**256,1**	**AA**
63	Other made up textile articles; sets; worn clothing etc	39,3	34,2	15 236	**0,26 %**	**3,1**	**8,5**	**0,1**	**AA**
64	Footwear, gaiters and the like; parts of such articles.	18,7	17,2	45 069	**0,04 %**	**0,5**	**-8,3**	**-16,2**	
65	Headgear and parts thereof.	0,5	0,6	2 572	**0,02 %**	**0,2**	**-0,6**	**-0,4**	
66	Umbrellas, walking-sticks, seat-sticks, whips, etc	0,0	0,0	2 087	**0,00 %**	**0,0**	**-1,0**	**-1,2**	
67	Prepr feathers & down; arti flower; articles human hair	0,1	0,1	2 894	**0,00 %**	**0,0**	**-0,3**	**-0,2**	
68	Art of stone, plaster, cement, asbestos, mica/sim mat	8,3	13,4	15 274	**0,05 %**	**0,6**	**-24,5**	**-18,2**	
69	Ceramic products.	9,4	9,4	19 662	**0,05 %**	**0,6**	**-13,8**	**-21,0**	
70	Glass and glassware.	21,5	24,0	24 965	**0,09 %**	**1,0**	**-7,3**	**-12,4**	**A -**
71	Natural/cultured pearls, prec stones & metals, coin etc	4,7	3,5	68 601	**0,01 %**	**0,1**	**-4,2**	**-4,3**	
72	Iron and steel.	44,3	65,2	94 593	**0,05 %**	**0,6**	**-39,8**	**-55,7**	
73	Articles of iron or steel.	27,2	30,6	80 015	**0,03 %**	**0,4**	**-71,1**	**-107,1**	
74	Copper and articles thereof.	7,2	9,8	23 475	**0,03 %**	**0,4**	**-1,2**	**-0,1**	
75	Nickel and articles thereof.	0,0	0,1	4 571	**0,00 %**	**0,0**	**-0,1**	**-0,2**	
76	Aluminium and articles thereof.	16,7	17,8	45 441	**0,04 %**	**0,4**	**-11,6**	**-18,4**	
78	Lead and articles thereof.	0,1	0,1	1 477	**0,01 %**	**0,1**	**0,0**	**-0,1**	**- A**
79	Zinc and articles thereof.	0,3	0,3	4 657	**0,01 %**	**0,1**	**-0,5**	**-0,5**	
80	Tin and articles thereof.	0,0	0,1	1 100	**0,00 %**	**0,0**	**-0,1**	**0,0**	
81	Other base metals; cermets; articles thereof.	0,2	0,5	5 408	**0,00 %**	**0,0**	**-0,7**	**0,0**	**- A**
82	Tool, implement, cutlery, spoon & fork, of base met etc	3,7	6,4	20 186	**0,02 %**	**0,2**	**-11,3**	**-14,1**	
83	Miscellaneous articles of base metal.	8,6	10,2	19 725	**0,04 %**	**0,5**	**-20,2**	**-23,4**	
84	Nuclear reactors, boilers, mchy & mech appliance; parts	121,0	162,4	705 674	**0,02 %**	**0,2**	**-427,8**	**-466,0**	
85	Electrical mchy equip parts thereof; sound recorder etc	221,7	239,3	610 854	**0,04 %**	**0,4**	**-119,3**	**-198,5**	
86	Railw/tramw locom, rolling-stock & parts thereof; etc	4,5	9,6	12 984	**0,03 %**	**0,4**	**-8,4**	**-23,9**	
87	Vehicles o/t railw/tramw roll-stock, pts & accessories	106,8	255,0	490 376	**0,02 %**	**0,3**	**-210,2**	**-402,7**	
88	Aircraft, spacecraft, and parts thereof.	19,1	12,1	106 410	**0,02 %**	**0,2**	**3,0**	**1,8**	**- A**
89	Ships, boats and floating structures.	32,3	25,4	37 921	**0,09 %**	**1,0**	**14,9**	**15,5**	**AA**
90	Optical, photo, cine, meas, checking, precision, etc	32,2	37,1	146 565	**0,02 %**	**0,3**	**-82,0**	**-91,6**	
91	Clocks and watches and parts thereof.	0,6	0,9	14 585	**0,00 %**	**0,1**	**-3,5**	**-4,2**	
92	Musical instruments; parts and access of such articles	0,3	0,3	3 390	**0,01 %**	**0,1**	**-0,8**	**-1,2**	
93	Arms and ammunition; parts and accessories thereof.	0,1	0,1	5 951	**0,00 %**	**0,0**	**-1,2**	**-1,0**	
94	Furniture; bedding, mattress, matt support, cushion etc	109,3	87,5	62 566	**0,17 %**	**2,1**	**53,1**	**27,7**	**AA**
95	Toys, games & sports requisites; parts & access thereof	3,0	4,0	45 995	**0,01 %**	**0,1**	**-15,2**	**-17,9**	
96	Miscellaneous manufactured articles.	3,8	3,4	13 033	**0,03 %**	**0,3**	**-18,5**	**-20,1**	
97	Works of art, collectors' pieces and antiques.	0,9	0,5	6 953	**0,01 %**	**0,1**	**0,2**	**0,3**	**- A**
98	Special Classification Provisions	5,1	5,8	26 540	**0,02 %**	**0,2**	**-101,0**	**-92,3**	
99	Special Transaction Trade.	0,0	0,0	73 857	**0,00 %**	**0,0**	**0,0**	**0,0**	

Appendix 4: Reports (Impact studies) of SEIL sub-project

SUPPORT FOR SOCIO-ECONOMIC IMPACT OF LITHUANIA'S INTEGRATION INTO THE EU ON THE LITHUANIAN INDUSTRIES:

Agne SESELGYTE (textile and clothing)

Ramune NORKUTE (foodstuffs)

Egle KAZLAUSKAITE (wood)

Gintas BARANAUSKAS (road transport)

Those interested to get reports, please, contact the European Committee under the Government of the Republic of Lithuania.

Three other reports are forthcoming, covering the chemical, construction products and (a joint report about) the electronic and machinery manufacturing industries under the supervision of Professor Robertas Jucevicius of the Kaunas University of Technology.

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