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Determinants and Influence of Foreign Direct Investments in the Hungarian Food Industry in a Central and Eastern European Context

An Application of the FDI-Concentration Map Method

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INVESTMENTS IN THE HUNGARIAN FOOD INDUSTRY

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A PhD Thesis

submitted to the University Doctoral Committee of the

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by Csaba Jansik

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Preface

Foreign direct investments in the food processing industries has been the focal point of my research interest since 1995, and I have been watching closely the course of privatisation events in the Hungarian food industries and the behaviour of foreign investors there throughout this period.

During my postgraduate work I had the opportunity to study the food sector and foreign direct investment abroad. I became acquainted with the economics and main characteristics of food production at Purdue University in Indiana in 1994 and with general aspects of the agrifood sector at Iowa State University under the instructions of Prof. William Meyers in 1997. A scholarship to Helsinki University in 1998-99 granted by CIMO (Centre for International Mobility) provided an opportunity to deepen my knowledge of foreign direct investment (FDI) theories and to start examining the motivational factors lying behind the penetration of an industry by FDI. I subsequently carried out research into foreign direct investments in the food sectors of the Baltic states at the Agricultural Economics Research Institute (MTTL) in Helsinki, a project which familiarised me with practical applications of some aspects of FDI theory.

This dissertation is therefore the outcome of several years of research, a synthesis in which observations on FDI determinants and FDI influence in the Hungarian food sector are organised thematically and chronologically in a systematic manner. One essential element in this systematisation has been the concept of FDI-concentration maps, conceived on the basis of lines of argument related to FDI and industrial organisation and finally brought to life in the context of this dissertation by my further investigations into food industry FDI determinants in Central and Eastern Europe (CEE).

It is important to note in the case of such a rapidly changing field as that of the CEE food markets that data collection for the present work came to an end in March 2000. This nevertheless means that the history of the first full decade of liberalisation, privatisation and operation in the market economy is documented in the dissertation and the role of foreign direct investment is assessed, so that the long-term tendencies in the CEE food industries presented here make the findings extremely relevant at the present time.

A full-length list of all the professors, researchers and experts who assisted me in the various phases of accomplishing this work would be embarrassing, and I would hereby like to express my thanks to them all.

In particular, however, I would first like to take this opportunity to express my appreciation to all the professors at the Budapest University of Economic Sciences and Public Administration (BUESPA), who laid a solid foundation for this research with their lectures and seminars in the PhD programme. I am personally indebted to Professors Csaba Csáki, Csaba Forgács and Mária Sebestyén-Kostyál of the Agricultural Economics Department for their continuous support and kind encouragement over the years of my studies, research and practical work in the agrifood sector.

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Abstract. The food processing sectors of the Central and Eastern European countries were a scene of unprecedented institutional and economic reforms during the post-socialist era of the 1990s. The ownership changes aroused the interest of foreign investors. Hungary had nearly two-thirds of its food processing capital in foreign hands by 1998, the highest proportion of any country in the region for this sector. Hence it serves excellently as an object for detailed investigations into the foreign direct investments.

The dissertation is centred around three major objectives. The first is to identify the motives behind food industry FDI in Hungary, the second is to assess the influence it has had. Since foreign investors have expressed greatly differing levels of interest in the various food processing industries not just in Hungary but in the entire CEE region, a third objective is to reveal and compare the motivating forces behind such investments in a group of countries comprising Hungary, Poland, Estonia, Latvia and Lithuania.

The motives behind FDI were searched for by means of a regression model and cluster analyses of the national food industries. Based on preliminary results, a new methodological concept, the FDI-concentration map, was developed to trace trends in foreign direct investments in particular industries over time and to refine the international comparison of FDI motivations in a demonstrative way. The influence of FDI was examined by calculating the dynamic performance gap between domestic and foreign food processors in Hungary.

The findings obtained from the analyses and the FDI-concentration maps confirm that foreign investors were clearly driven by the market power attainable in the CEE food industries. The concrete implementation of privatisation slightly modified the main tendency country by country. As for the influence of FDI in Hungary, the superior performance of foreign-owned companies relative to domestically owned ones was shown to be in evidence by the late 1990s, but the overall performance of the food industry was improving steadily.

The results indicate that foreign investors attempt to maximise future profits by conquering market shares. This is a macro-regional manifestation of the world-wide tendencies crystallised in the global FDI-concentration map, which implies that the food industries are becoming globalised at different rates. It is concluded that food industry FDI may bring joint benefits both to the investors and the CEE food industries upon the accession of these countries to the EU.

Contents

List of Figures

List of Tables

19

List of Acronyms

AKII	*Agrárgazdasági Kutató és Informatikai Intézet* (Research Institute for Information and Agricultural Economics, Budapest Hungary)
BAFTA	Baltic Free Trade Agreement
BCE	Business Central Europe
CEE	Central and Eastern Europe(an)
CEFTA	Central European Free Trade Agreement
CIS	Commonwealth of Independent States
CR	Concentration Rate
EAAE	European Association of Agricultural Economists
EC	Entropy Coefficient
ECI	Entry Concentration Index
ÉFOSZ	*Élelmiszerfeldolgozók Országos Szövetsége* (National Association of Food Processors in Hungary)
ESA	*Eesti Statistikaamet* (Statistical Office of Estonia)
EU	European Union
FSU	Former Soviet Union
FDI	Foreign Direct Investment
GDP	Gross Domestic Product
GUS	*Glówny Urzad Statystyczny* (Central Statistical Office of Poland)
HHI	Herfindahl-Hirschman index
IAMO	*Institut für Agrarentwicklung in Mittel und Osteuropa* (Institute of Agricultural Development in Central and Eastern Europe)
IMF	International Monetary Fund
IO	Industrial Organisation theory
KSH	*Központi Statisztikai Hivatal* (Central Statistical Office of Hungary)
LCSP	*Latvijas Republikas Centrala Statistikas Pavalde* (Central Statistical Bureau of Latvia)
LDÁ	Latvian Development Agency
MAFEP	Ministry of Agriculture and Food Economy of Poland
M&As	Mergers and Acquisitions
MBO	Management Buy-Out programme
MNB	*Magyar Nemzeti Bank* (National Bank of Hungary)
MTA	*Magyar Tudományos Akadémia* (Hungarian Academy of Sciences)

MTTL	*Maatalouden Taloudellinen Tutkimuslaitos* (Agricultural Economics Research Institute, Helsinki; since March 2001 Economic Research department of MTT Agrifood Research Finland)
NACE Rev. 1	*Nomenclature générale des Activités économiques dans les Commu-nautés Européennes* (General Nomenclature of Economic Activities in the European Union, Revision 1)
OECD	Organisation for Economic Cooperation and Development
OLI	Ownership-Location-Internalisation advantages
PAIZ	Polish Agency for Foreign Investments
PGAP	Performance Gap
R&D	Research and Development
ROE	Return on Equity
ROS	Return on Sales
SAB	South African Breweries Co.
SDL	*Statistikos Departamentas prie Lietivos Respublikos Vyriausbes* (Statistical Department of the Republic of Lithuania)
SCP	Structure-Conduct-Performance
SME	Small and Medium Enterprises
UN	United Nations
UNCTAD	United Nations Conference on Trade and Development
UNIDO	United Nations Industrial Development Organisation, Vienna
WIR	World Investment Report
WTO	World Trade Organisation

1. Introduction

The reforms that took place in the early 1990s brought dramatic changes to the food processing industries of Hungary and the entire Central and Eastern European region. State-owned companies were restructured and privatised, economic freedom and new regulations encouraged the establishment of new enterprises, and the result was a reshaping of the ownership and production structure of these industries. Foreign investments affected and participated in these fundamental structural changes in all the countries concerned, although with varying intensity.

1.1. Objectives and Scope of the Research

The privatisation of food processing generated fierce debates in Hungary during the early 1990s, and particularly concern was raised by the high proportion of foreign ownership, although the minds of the public have been set at ease now that the substantial structural changes have been completed. The fact that companies that once lived in the midst of stormy institutional, economic and legal reforms have now resumed regular manufacturing indicates a consolidation of the operating environment, corporate forms and ownership.

The process of capital reallocation in the food processing industries has been completed. The amount of existing national assets affected the emerging configuration of capital ownership, in which foreign involvement constituted the most powerful force. By 1998, foreign investors owned nearly two-thirds of the equity in the Hungarian food processing sector, an extraordinarily high share in the Central and Eastern European context.

Our understanding of the process involved has broadened considerably since the completion of privatisation in the food industry in 1997. A great deal of information and data have accumulated, facilitating a comprehensive and unprejudiced analysis of the determinants and influence of foreign direct investments.

Since no industry-specific, empirically supported retrospective analysis has been made of the determinants and influence of foreign capital in the Hungarian food sector, this dissertation sets out to fill the gap.

The dissertation also investigates the era of transitions in the food processing sectors of other Central and Eastern European countries that have followed a similar path to that of Hungary, with special emphasis laid on discovering the reasons for the widely differing levels of foreign capital participation. In order to maintain an appropriate depth of analysis, the present international comparison covers five countries that are representative of the diversity of food sectors in the region both in terms of their restructuring and privatisation history and in terms of output volume. The other countries selected for the comparative analysis are Poland, Estonia, Latvia and Lithuania.

23

This investigation into particular industries within the food sectors of the selected countries was designed to reveal the preferences and motives of foreign investors in Central and Eastern Europe. It addresses the question of how political directions and the initial status of the food sector in each country affected the investors' priorities among the individual food processing industries. The international comparison has two objectives:

♦ to delimit the ways in which Hungary stands out from other countries in the region in the context of the international environment, and

♦ to state hypothetical general tendencies for Central and Eastern Europe based on common patterns observable in these countries.

The objectives of the dissertation can be summarised by delineating three primary research areas:

1. *The first objective is to analyse the motives behind the inflow of foreign capital into the Hungarian food processing sector, with* special emphasis on market structure and industry profit rates.

2. *The second objective is to place the situation described for Hungary into its Central and Eastern European context.*

3. *The third objective is to measure the impact of FDI* by comparing the economic performance of Hungarian food processing companies with predominantly foreign and domestic ownership.

The objectives can be rephrased into questions, which in turn also form the basis for five theses. Answers will be sought to the following main questions:

❑ *What are the main motivational factors that attract foreign capital into the Hungarian food processing sector?*

❑ *What are the reasons for the differing preferences of FDI among the food processing industries?*

❑ *How do the determinants identified as driving the choices of food industry FDI in Hungary affect the situation in other CEE countries?*

❑ *Is there a significant gap between the performance figures of foreign-owned and Hungarian-owned food processors?*

The analysis will be introduced and justified by means of a review of the relevant economic literature and theoretical framework, and of previous scientific and empirical results. Since it is not possible to achieve full coverage of the extremely rich and multitudinous literature in one work, efforts were consciously focused on reviewing the main theoretical directions that provide an essential background for the dissertation.

The dissertation is strictly an analysis of facts, and does not intend to take a stance on political, social or emotional issues. Economic procedures that have been heavily influenced by politics, such as privatisation or compensation, will similarly be assessed from a purely economic point of view.

The lessons and conclusions arising from this dissertation will provide useful information for a number of groups of domestic and foreign economic actors and for politicians. *Participants in the Hungarian agrifood chain,* and *food processors* in particular, will definitely gain the most explicit knowledge. The detailed international chapter is designed to furnish *foreign investors* who have already settled down in the region or plan to do so later, *actors in food processing chains across Central and Eastern Europe* and *national policy makers* with concrete information. Each group can learn from the results and lessons from the dissertation regarding foreign direct investments in the Hungarian, Polish and Baltic food sectors and draw the necessary conclusions.

1.2. Theses Put forward in the Dissertation and Methodology Employed

The issues delineated in the above research objectives and the questions to be resolved by means of the dissertation *may be embodied in five concrete theses.* We will look here at the five theses and review their theoretical basis and the databases and econometric and statistical methods used in support of each.

Thesis I: **The primary determinants which have motivated foreign capital inflows into the Hungarian food processing sector are favourable natural endowments, food processing traditions and FDI-enhancing government policy.**

The Porter diamond, initially developed to analyse the competitiveness of nations or industries, is employed to identify the motives lying behind foreign direct investments in the food processing sector in Hungary. In support of Thesis I, a Central and Eastern European (CEE) component will be added to the detailed Porter diamond as previously extended by Scandinavian researchers.

Thesis II: **The industrial preferences and choices of foreign investors within food processing have followed the tendencies observed in Central and Eastern Europe in general: the uneven penetration level of FDI in the various industries has been driven by the attainable market power and profit expectations.**

One of the weightiest elements in the dissertation can be found in Thesis II, in which the allocation of FDI among industries is examined using a multivariant regression model. Indicators such as market concentration, profitability, export opportunities and the industry's share of total food manufacturing sales are used to explain foreign participation in the individual food processing industries. The method employed is stepwise modelling, in which the presumed group of FDI determinants is narrowed down through the gradual removal of insignificant variables.

The data on the individual food industries are grouped for use in the analysis by means of international classification categories, which in turn facilitates consistent comparison at the CEE level.

<u>Thesis III:</u> **The Hungarian food processing industries are highly divergent in terms of their concentration rates and proportions of foreign capital, and they also form distinct groups on other market and performance criteria. They follow four typical routes in terms of concentration and their penetration by foreign capital.**

The first sections devoted to Thesis III rely methodologically on cluster analysis, by which the food processing industries are grouped by reference to the two dimensions investigated here: market concentration rate and participation of foreign capital. Due to the limited number of industries, the application of a hierarchical clustering algorithm was most appropriate. The data used for the cluster analysis in testing Thesis III are equivalent to those employed in the context of Thesis II.

Given the close correlation between market concentration ratios and the proportion of foreign capital in individual industries established in connection with the confirmation of Thesis II, the direction of the causal link is then tested under Thesis III, by means of the Granger causality test.

<u>Thesis IV:</u> **The examples taken from selected Central and Eastern European food processing sectors verify the industry preferences of FDI. The choices of foreign investors in the food processing industries of the entire region are driven by a pursuit for market power.**

The principal scientific achievement of the dissertation is the developing of the concept of *FDI-concentration maps* and its application to the food processing sectors of the Central and Eastern European countries. These maps are based on the two dimensions of investigation used in the cluster analysis.

Although foreign direct investments in the food processing sectors of Central and Eastern European countries are being studied in a number of well-known research institutes throughout Europe, the scope and depth of these research activities are hindered by the confidential nature of the company data and the varying levels of reliability of the sources of second or third-hand information on which the national data are based.

One of the virtues of the research methodology adopted in this dissertation is that the analysis is built upon a large body of first-hand information collected directly from companies, development institutes, product councils and national statistical offices in the course of the author's research trips to Estonia, Latvia and Lithuania. This accumulated experience allowed a thorough, insightful examination to be made of the Hungarian and Baltic food processing sectors. The Polish data originate partly from second-hand sources such as research reports and official publications and partly from research performed on site by colleagues.

<u>Thesis V:</u> **FDI has contributed to reinforcing the international competitiveness of the Hungarian food industry and has consolidated the position of the agrifood chain in the national economy. The performance of the pre-**

dominantly foreign-owned food processors differed significantly from that of the predominantly domestically owned food processors in the second half of the 1990s, surpassing them in all the important efficiency and performance categories. The major tendency has been for the performance gap between the two groups to widen since the mid-1990s.

The research procedure involved in the demonstration of Thesis V starts with a grouping of the Hungarian food processing companies on the basis of their majority owners and continues with a comparison of the two major groups. The economic performance of the companies in each group is measured by means of indicators that are familiar from accounting and auditing, combined with data from the related international literature.

The concept of *performance gap* is applied in order to capture the dynamic patterns of differences between the foreign and domestically owned food processing companies. Dynamic changes in the size of the performance gap are examined in terms of company data for 1995-1998.

1.3. Structure of the Dissertation

The dissertation is divided into ten chapters, each thesis being discussed in one or two chapters. The structure of the dissertation and the relations among its components are set out in the form of a comprehensive overview chart in Figure 1.

Chapter 1 explains the research objectives, and delimits the area to be studied. It includes a description of the five theses, the methodology employed and the structure of dissertation. The division of the discussion among the five theses and ten chapters is illustrated in Figure 1.

Chapter 2 is designed to set the stage for the subsequent detailed analysis of FDI flowing into the food processing sectors of Hungary and Central and Eastern Europe. It is devoted to sketching the international, regional and national setting and main trends observable in globalisation and the international flow of capital.

Chapter 3 lists the theoretical foundations. The approach adopted in this research can be placed within the field of industrial organisation theory. Selected parts of its terminology and causal relations which are indispensable for illuminating the position represented by the dissertation in the field of industrial organisation will be touched upon in this explanation. Chapter 3 defines the SCP paradigm and the major causal relations prevailing among its three components. It also rephrases the research objectives of the dissertation and places them into the causal framework of the SCP paradigm.

The literature on foreign direct investment will be surveyed in two aspects. First, the main FDI theories presented in the international literature will be reviewed, and research into foreign direct investment flows into Central and Eastern Europe, and particularly Hungary will be discussed.

Chapters 4 to 7 are concerned with the motives behind foreign investments in the food processing industries in Hungary, beginning with a survey of the forces attracting investment in the food industries in general in Chapter 4.

Chapter 5 examines the reasons for the uneven distribution of foreign capital among the individual food processing industries and identifies the major FDI determinants at the industry level and measures their explanatory power over the past decade.

Chapter 6 is a detailed examination of the Hungarian food processing industries in terms of the further development of the market-seeking aspect of foreign investments. The chapter seeks to typify the food industries by means of a cluster analysis. The same chapter contains a discussion of the causal direction of the relationship between industry concentration ratios and the influx of foreign capital.

A definition of FDI-concentration maps and a detailed description of their dynamic extension in the form of industry life-curves are provided in Chapter 7. As well as explaining the general driving forces affecting FDI-concentration maps, this chapter lists the four major types of life-curve and provides detailed analyses of specific examples from the Hungarian food industries.

Chapter 8 presents a detailed comparative analysis of foreign direct investments flowing into the food processing industries of Central and Eastern Europe through the medium of a selected group of representative countries: Hungary, Poland, Estonia, Latvia and Lithuania. This chapter, the longest in the dissertation, highlights the importance of a regional outlook. It reports first the main trends in the food processing sectors of the five selected countries over the past decade and gives a summary of the important features of FDI in the context of the food industries. After an explanation of the forces governing the disposition of national FDI-concentration maps, the food processing sectors of the five selected countries are compared within this analytical framework. The differences between the national maps are accounted for by a detailed review of the privatisation of the food industries in the countries concerned and of general attitudes towards FDI. Common rules and discrepancies are detected by running a cluster analysis of the food processing industries for each country.

Chapter 9 addresses the influence of foreign direct investments on the food industries. Section 9.1 places the impacts into the context of the food chain and weighs up the costs and benefits associated with the presence of foreign food processors from the viewpoint of the various strata involved in the chain: the agricultural producers, the domestically owned food processors and the consumers. It also discusses the implications for the state budget and the regional impacts of foreign-owned food processors.

The influence of foreign capital within the food processing sector is then examined in section 9.3, in which companies are analysed according to their ownership structure and economic performance, measured by the performance gap

28
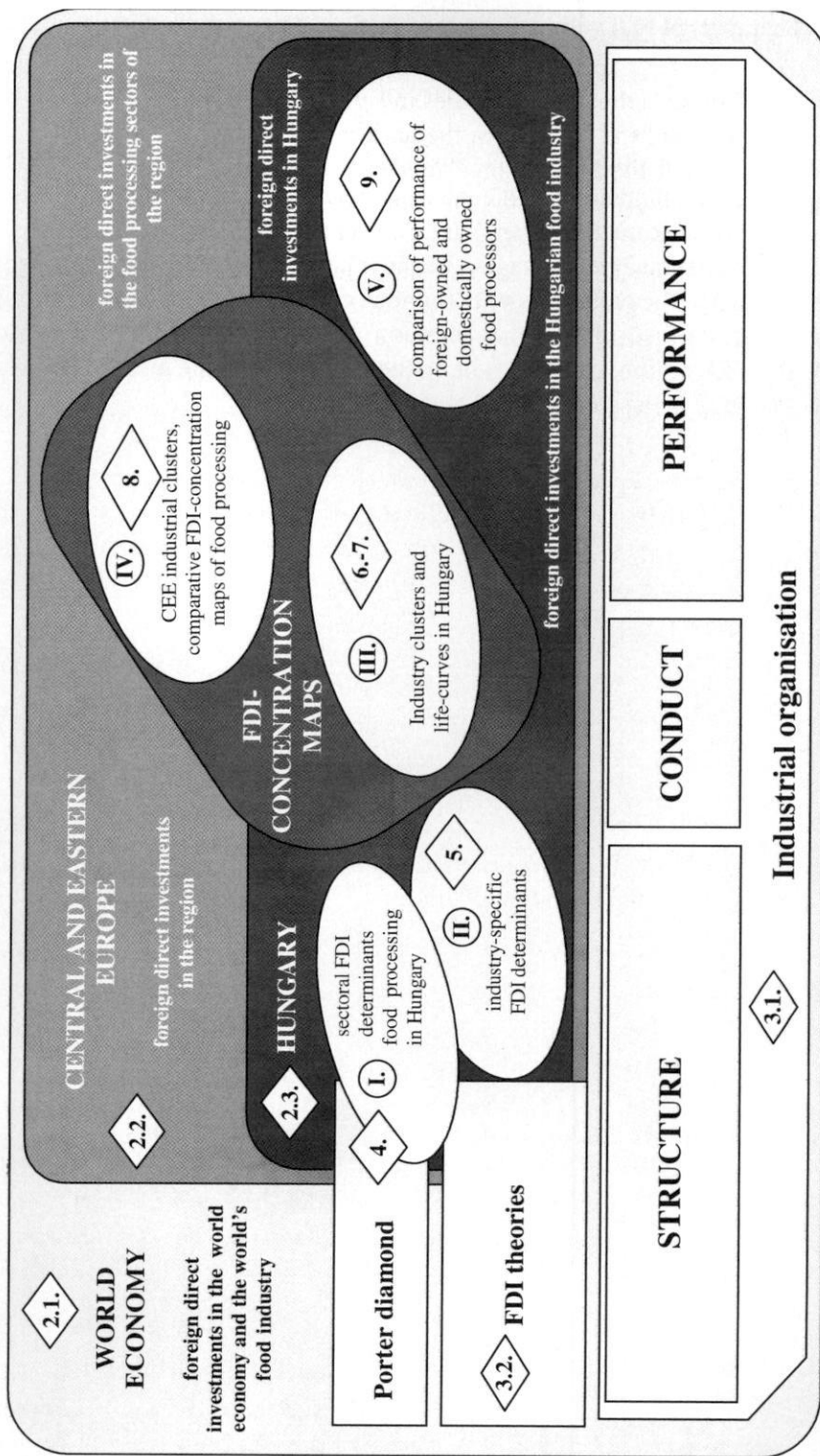
Figure 1. Structural overview of the dissertation.

method. The impact of FDI within the individual food processing industries is also discussed.

Chapter 10 provides a concise summary of the major scientific results, new findings and conclusions.

The structure of the dissertation is illustrated in Figure 1, in which rectangles indicate theoretical foundations and concepts, while ovals contain brief identifications of the theses (Roman numbers) and chapters (Arabic numbers). The positions of the ovals denote inter-linkages and the relations of the theses to the theoretical foundations. The rectangles with rounded corners encompass segments of the dissertation, defined either on a common geographical basis – the world economy, the CEE region, Hungary – or on the basis of the same methodological approach – such as the use of FDI-concentration maps.

2. Determining the Context – Geographical Aspects of Foreign Direct Investments in General and in the Food Industry

2.1. Definitions

Before detailing the background, it is relevant to review the basic definitions and terminology concerned with foreign direct investments and food processing that will be in use throughout this work.

2.1.1. Definitions of Foreign Direct Investments

The international flow of capital is a significant constituent of the global integration of the world's economy, i.e. the increasing international activities of economic players, or in one word, *globalisation*.[1] *International production,* production of goods and services that is controlled and managed by foreign enterprises, is at the core of the globalisation process. Another definition approaches international production in terms of the summed activities of *transnational corporations.*[2]

A transnational corporation consists of a parent enterprise and foreign affiliates, where the parent enterprise controls the assets and holds partial or full title to the equity of other companies located in other countries. Internationally, ownership over 10 percent of a foreign company's equity is regarded as FDI. Foreign affiliates are enterprises in which a foreign owner has a share that exceeds 10 percent (UNCTAD 1999, p. 465). The rate of transnationality is measured by a composite index[3] calculated on the basis of the proportion of foreign assets, foreign sales and foreign employment controlled by a particular company. The Harvard definition of multinationality considers an enterprise multinational when it has more than six foreign affiliates (Borsos-Torstila 1999, p. 21).

Mergers and acquisitions (M&As) are concrete manifestations of the integration of multinational enterprises across national borders. M&As involve one company acquiring another, or two companies concurrently trading shares in each other's equity.

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[1] A more detailed definition of globalisation will be presented in section 8.2.1.1 on pages 159-164.

[2] "Multinational enterprises" is a widespread equivalent for transnational corporations, and the two terms will be used as synonyms here.

[3] The accurate formula for the transnationality index is the arithmetic mean of three rates: (1) foreign-based assets as a proportion of the company's total assets, (2) foreign sales as a proportion of total sales revenues, and (3) foreign employment as a proportion of total employment (UNCTAD 1999, p. 80).

Internationally approved definitions of *foreign direct investment* have been set out by both the OECD and WTO, and the two do not materially differ. The alternative given by the World Trade Organisation defines foreign direct investment (FDI) as *a transaction through which an investor based in one country* (the home country) *acquires assets in another country* (the host country) *with the intent to manage these assets*. This management dimension explains the "direct" aspect of FDI, distinguishing it from portfolio investments in foreign stocks, bonds and other financial instruments (WTO 1996).

The United Nations Conference on Trade and Development (UNCTAD) publishes annually an encyclopaedic work called the World Investment Report, which features a detailed definition of FDI. "Foreign direct investment is defined as an investment involving a long-term relationship and reflecting a lasting interest and control of a resident entity in one economy (parent enterprise) in an enterprise resident in an economy other than that of the foreign direct investor (foreign affiliate)" (UNCTAD 1999, p. 465).

Foreign direct investment flows constantly from resident countries to host countries, a characteristic that explains its flow-based interpretation. These flows comprise capital mobilised by the investing company for the use of the recipient company, or received by the host company from the investor. *FDI inward and outward flows* are distinguished based on the direction of analysis. FDI has three components: equity capital, reinvested earnings and intra-company loans, or intra-company debt transactions (UNCTAD 1999, pp. 465-466). FDI flows are interpreted within the scope of one economic period, usually one calendar year. The indicator measures the amount of foreign direct investment that flowed into or out of a particular country in a given year.

The accumulation of foreign direct investment flows is a stock measure, and *foreign direct investment stock* may also be interpreted in two ways according to the direction of investigation: the total foreign capital investments of companies headquartered in the resident country – *outward FDI stock* – or the cumulated sum of capital infusion received by companies in a host country from foreign enterprises – *inward FDI stock*.

2.1.2. Definitions of Food Processing

Food processing is a branch within the manufacturing sector of a national economy. It is part of the agrifood chain, which encompasses the various stages that convert agricultural inputs into food items and convey them to consumers. The linkages between the individual segments within the chain are illustrated in Figure 12. The notion of agrifood sector is employed in this dissertation to cover the combined production of agricultural raw materials and their processing into food.

As food processing is one branch in the secondary, or processing sector, it will usually be referred to here as the *food processing industry* or shortly *food industry*.[4] The concept is defined precisely in the NACE classification,[5] where it comprises divisions 15 and 16, including the manufacture of food, beverages and tobacco. This definition will be used both in the verbal discussions contained in this dissertation and in the empirical calculations. The same approach is employed widely in the international and Hungarian literature on the food processing industry.

Special emphasis is laid on the further classification of food processing by reference to specific groups of products. The food industries, or segments within the overall food processing industry, represent markets possessing homogenous characteristics with respect to identical products, similar groups of products, or the use of similar raw materials. The exact definition of the food industries or segments concerned comprises the set of groups and classes contained in division 15 of NACE, Rev. 1.[6] In the same approach, division 16, the manufacture of tobacco, is looked on as a separate segment. Annex 1 gives the detailed statistical definition of food processing including a full list of groups and classes of division 15.

The most frequently quoted characteristics of individual food industries will be *market concentration* – a definition of the CR_k concentration ratio can be found on page 86 – the *proportion of foreign ownership*, which is the stake that foreign enterprises have in the aggregate registered capital of the industry, and the *profit rate,* which is the gross profit margin[7] for the particular industry in accounting terms, i.e. the ratio of profit before taxes to sales revenues.

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4 In some cases the term of *food processing sector* may also be used for the food industry.

5 NACE, Rev. 1 (Nomenclature générale des Avtivités économiques dans les Communautés Européennes), is a statistical classification of economic activities drawn up and applied by the European Union. It consists of sections denoted by alphabetical codes and divisions denoted by numerical codes. Further divisions are made into groups (three-digit numerical codes) and classes (four-digit numerical codes) (Eurostat 1996, p. 147). The NACE system was launched in the 1970s and revised in the early 1990s, since when the revised version has become a widespread statistical classification for the whole of Europe. The primary concept and concrete classification approach to the manufacturing sector is equivalent to the ISIC (International Standards of Industrial Classification) system observed by the United Nations, which used to be in use in Hungary in earlier times (KSH 2000a, p. 8).

6 In order to avoid confusion between NACE 15 and NACE 15xx, the *food industry* will be taken to refer to the entire sector (NACE 15), while *food processing industries* will denote the individual segments within food processing (NACE 15xx).

7 Profit margin is regarded as a basic indicator of profitability, its most frequent form being profits as a proportion of net sales revenues. International standards use the expression *Return on Sales* (ROS) for the profitability indicator. Several versions of ROS are known, based on the concrete accounting specification in the numerator (Béhm 1998, pp. 309-310). The formula used in this dissertation includes profit before taxes in the numerator.

2.2. World Economic Background

2.2.1. Foreign Direct Investments in the World Economy

International capital flows increased to unprecedented magnitudes by the late 1990s, FDI outflows reached a peak of USD 649 billion in 1998, while inflows amounted to USD 644 billion (Table 1). This expansion in capital flows occurred despite a number of unfavourable factors such as the recession in Asia, the shaky financial markets in Russia and the Latin American countries, the decrease in world trade, the decline in certain raw material prices, retardation in privatisation activities and a slowing down in world economic growth. FDI outflows increased by 39 percent in 1998 relative to the previous year, while the growth in FDI inflows reached 37 percent. These growth rates were the highest recorded since 1987. The world's foreign direct investment stock exceeded USD 4 trillion in 1998 (Table 1).

The most dynamic increase of all was in the value of mergers and acquisitions, which amounted to over USD 400 billion in 1998, a rate of expansion of 70 percent relative to the year before. The process also continued into 1999, as the total value of mergers and acquisitions had already exceeded the 1998 level in the first half of the year, reaching USD 574 billion.

Table 1. Indicators of foreign direct investment flows and international production, 1986-1998.

	Value at current prices (billion dollars)			Annual growth rate (percent)				
	1996	1997	1998	1986-1990	1991-1995	1996	1997	1998
FDI inflows	359	464	644	24.3	19.6	9.1	29.2	38.8
FDI outflows	380	475	649	27.3	15.9	5.9	25.0	36.6
FDI inward stock	3,086	3,437	4,088	17.9	9.6	10.6	11.4	18.9
FDI outward stock	3,145	3,423	4,117	10.5	10.7	8.9	8.8	20.3
International mergers and acquisitions	163	236	411	30.2	15.5	45.2	44.8	74.2
Indicators of foreign affiliates								
- sales revenues	9,372	9,728	11,427	10.7	11.7	3.8	3.8	17.5
- assets	11,246	12,211	14,620	13.8	8.8	8.6	8.6	19.7
- exports	1,841	2,035	2,338	13.1	-5.8	10.5	10.5	14.9
- employment (in thousand)	30,941	31,630	35,074	5.6	4.9	2.2	2.2	10.9

Source: UNCTAD (1999, p. 9).

International production – the aggregate production of parent companies and their foreign affiliates – has become significant factor in the world economy in the course of the 1990s. The significance of transnational corporations had been increasing rapidly, so that by 1998 there were 60,000 parent companies operating half a million foreign affiliates all over the world.

Although the transnational corporations include small, medium-sized and large companies, they are highly concentrated, the 100 largest accounting for 15 percent of the total assets of the 60,000 companies in 1997, and 22 percent of the sales. Over 90 of the 100 largest companies have originated from the United States, the European Union or Japan.

International production has expanded at almost as rapid a rate as foreign direct investment over recent years. The production output, value of assets and labour force of the foreign affiliates of transnational corporations having increased spectacularly in 1998 (Table 1).

2.2.1.1. Trends in International Production

Trends in international production and their significance are summarised in the World Investment Report under the following major points (UNCTAD 1999):
1. Transnational corporations contribute one-fourth to the world's total production, out of which one-third originates from the capital recipient countries as the combined production of foreign affiliates. The foreign and domestic sales of affiliates reached USD 11 trillion in 1998, while world trade in goods and services amounted to only USD 7 trillion in the same year. In the supply of external markets with goods and services, *international production and foreign direct investments have surpassed traditional world trade in their significance.*
2. Technology flows are important phenomena accompanying international production. The overall value of expenditure on patents, know-how payments, and licensing has steadily grown since the mid-1980s, and the process has accelerated particularly in recent years. *The accent* within the sectoral structure of foreign direct investments *is moving towards technology-intensive branches.*
3. *The high expenses of innovation and R&D activities compel firms to make use of ownership advantages internationally.* There is a general tendency for innovation and development activities to be typically concentrated at corporate headquarters. Parent companies spend much more on research and development than their foreign subsidiaries.
4. *International production and international trade are tightly interrelated.* On the one hand, international trade is reinforced by intra-company trade among the segments of transnational corporations, while on the other hand, world trade impediments are among the primary factors that drive the expansion of international production.

5. *International production generates additional employment,* which can be of utmost importance, particularly in host countries suffering from acute unemployment.

6. The *financial resources* needed for international production – i.e. for the establishment, acquisition or expansion of foreign affiliates – *may be procured internally by the transnational corporation itself.* The capital may originate from the parent company, or it may take the form of internal debt or reinvested earnings of the foreign affiliate. Alternatively, *the source of financing can be external capital* mobilised by the transnational corporation in the host country or on the international capital market.

2.2.1.2. Geographical Distribution of Global Foreign Direct Investment Stock

Global foreign direct investments are characterised by extremely pronounced geographical concentration, the 10 principal resident countries accounting for

United States
FDI stock[a]
outward: 861 bn $ (25,1 %)
inward: 682 bn $ (19,8 %)

369

102

36

285

European Union
FDI stock[a]
outward: 1,511 bn $ (44,1 %)
inward: 1,230 bn $ (35,8 %)

13

53

Japan
FDI stock[a]
outward: 272 bn $ (7,9 %)
inward: 27 bn $ (0,8 %)

Global FDI stock (1997)
outward stock: USD 3,423 billion
inward stock: USD 3,437 billion

Global FDI flows (1997)
outflows: USD 475 billion
inflows: USD 464 billion

[a] Figures in parentheses are calculated as shares in global FDI stock.

Figure 2. Significance of the Investment Triad in the world's foreign direct investment flows and stock in 1997 (UNCTAD 1999, pp. 22, 479, 483, 489, 495).

four-fifths of the world's FDI outflows. Foreign direct investment flows and stock are in fact centralised on the developed countries, with the United States, the European Union and Japan constituting an *Investment Triad* which handles the majority of global FDI flows (Figure 2).

The dominant position of the developed countries can be ascribed to the extraordinary rate of growth in mergers and acquisitions (Table 1). As a result of the liberalisation of global trade, intensifying competition has induced the emergence of global industries. The principal means of market consolidation has been the merging of existing assets.

The extent of foreign direct investment flows and stock among the developed countries is explained by the nature of mergers and acquisitions:

1. The largest transactions rarely involve real capital infusion, since they can be resolved with the simple exchange of shares.
2. Acquisitions typically entail the attaining of a share in the ownership of an existing company, which is not necessarily followed by capacity growth.

The developed countries that account for the majority of the foreign direct investment flows almost without exception shed more capital than they absorb. The difference ends up in the developing countries, for which foreign direct investment inflows make up the most important source of development funds. In fact, the developing countries have been engaged in a constant race for the remainder of global FDI. The host countries are continuously changing their set of investment preferences, while the market perspectives of each region also change from year to year.

The figures in Table 2 provide information on the origin and distribution of foreign direct investment inflows. Developing regions are primarily recipients of

Table 2. Regional distribution of the world's foreign direct investment flows between 1995 and 1998 (in percent).

	FDI inflows				FDI outflows			
	1995	1996	1997	1998	1995	1996	1997	1998
Developed countries	63.4	58.8	58.9	71.5	85.4	84.2	85.6	91.6
Developing countries	32.3	37.7	37.1	25.8	14.5	15.5	13.7	8.1
out of which: Africa	1.3	1.6	1.6	1.2	0.1	0.0	0.3	0.1
Latin America	10.0	12.9	14.7	11.1	2.1	1.9	3.3	2.4
Asia	20.4	22.1	18.9	12.0	12.3	13.0	9.6	5.3
Other	0.6	1.1	1.9	1.5	0.0	0.6	0.5	0.3
Central and Eastern Europe	4.3	3.5	4.0	2.7	0.1	0.3	0.7	0.3
World total	100	100	100	100	100	100	100	100

Source: UNCTAD (1999, p. 20).

capital, while the magnitude of their capital outflows is negligible. Developing countries attracted over one-third of all global capital up to 1997, but their share dropped dramatically in 1998. Similarly, Central and Eastern Europe received a notable proportion of global capital flows, but this had diminished considerably by 1998.

The reason for the structural realignment is the above-mentioned dynamic growth in mergers and acquisitions in the developed countries. The decline of the developing countries in this respect is therefore primarily a proportional matter. The absolute value of capital flowing into the developing countries decreased only minimally between 1997 and 1998, from USD 190 billion to USD 183 billion (UNCTAD 1999).

2.2.2. Foreign Direct Investments in the World's Food Economy

The sectoral distribution of global capital inward stock indicates a predominance of services, which attracted nearly half of total foreign investments in 1997. The most popular branches of the tertiary sector were financing, including banking and insurance (14.4 percent), trade (10.2 percent), real estate (7.3 percent) and business services (6.8 percent). Within the secondary sector, the chemicals industry (7.5 percent) proved to be the most appealing branch, while basic metals, metallurgy and machinery manufacturing each accounted for approximately 3 percent. The most important branch in the primary sector was mining, with 5.6 percent.

The food processing sector did not account for a particularly notable proportion of the global capital inward stock, scarcely reaching 3 percent in 1997 (Table 3). Agriculture achieved a greater weight within the total foreign direct investment stock in the developing countries than in the developed ones, but its overall FDI appeal remained rather weak. Food processing, on the other hand, was a more popular investment target in the developed countries, which is definitely attributable to the greater purchase power, higher relative prices of foodstuffs and more advanced level of processing.

Of the top 100 transnational corporations in the developed countries in 1997, nine were food processing companies (compared with 12 in 1996), and seven food processors were in the top 50 in the developing countries, whereas there were only two such companies among the top 25 in Central and Eastern Europe.[8] The headquarters of the largest food industrial companies are all located in the developed countries, only two of the top 30 being located outside the Triad (Annex 2).

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[8] The list of transnational corporations ranks the companies based on the intensity of foreign activities, that is the transnationality index (see footnote 3 on page 31), and not on absolute figures such as total sales or total assets.

Table 3. Sectoral distribution of foreign direct investment inward stock in 1997.

	Developed countries		Developing countries		Total [a]	
	Value billion $	Share %	Value billion $	Share %	Value billion $	Share %
Total economy	1,849.9	100	990.7	100	2,840.6	100
Primer sector	141.2	7.6	37.5	3.8	178.7	6.3
of which: Agriculture	3.0	0.2	16.3	1.6	19.3	0.7
Secondary sector	617.7	33.4	589.0	59.5	1,206.7	42.5
of which food processing	*65.7*	*3.6*	*16.5*	*1.7*	*82.2*	*2.9*
Tertiary sector	1,033.4	55.9	343.5	34.7	1,376.9	48.5
Other (not specified)	57.6	3.1	20.7	2.1	78.3	2.8

Source: UNCTAD (1999, pp. 424-425).
[a] Without the figures of Central and Eastern Europe.

Of the largest 90 mergers and acquisitions in 1998, all valued above USD 1 billion, only four transactions were concluded in the food processing sector (UNCTAD 1999, pp. 436-437). Food processing accounted for 3.4 percent of the world's total M&As and 9.7 percent within the secondary sector (UNCTAD 1999, p. 534). These figures demonstrate two facts:

♦ Mergers and acquisitions in the food industry are smaller than those in other industries, even though their combined share may be considerable.

♦ The consolidation of food processing companies is proportional to the contribution of food processing to the global FDI inward stock.

Technology diffusion[9] plays an important role in driving foreign direct investments in the food industry, as in most other processing branches. Capital flows among the developed countries within the food industry are characterised by two-way technology flows and mutual licensing contracts, while FDI flows to the developing countries and to the CEE region typically imply a one-way diffusion of technology.

Intellectual property, know-how and research and development take on special emphasis in the food processing industry, where the pursuit of the maximum possible returns on high innovation costs is one of the major driving forces be-

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[9] Technology diffusion is the distribution or transfer, usually through M&As, of innovative and intellectual capital accumulated by the investing and/or recipient companies.

hind FDI (Henderson 1996). In other processing industries, areas of technology development may occasionally be delegated to the foreign affiliates, but food processing investors tend in particular to centralise innovation and R&D activities at their headquarters. The transfer of existing knowledge, know-how and technology plays a key role within FDI in the food processing sector.

2.3. Regional Background – Central and Eastern Europe

2.3.1. Foreign Direct Investments in Central and Eastern Europe

The countries of Central and Eastern Europe started to break out from their former isolation in 1989. The system of foreign trade relations, which had been directed and controlled centrally, changed at the beginning of the reforms, and the liberalisation of trade in goods and services played a role of crucial importance in the development of the transition economies, so that the new trade opportunities had repercussions for the profile of the economy and helped to shape its structure.

The opening up of the markets for goods and services was followed by the liberalisation of the capital market, which was of no less significance. During the command economy era the Central and Eastern European countries had remained outside the mainstream of international capital trading and had been restricted to managing their own accumulated national capital. The international influence of working capital had been an unknown phenomenon in the region.

The reforms that took place in the early 1990s brought about fundamental changes in economic conditions, prominent among which was ownership reform. The rules and institutional framework for property redistribution and the rights and entitlements of the new owners were determined according to different sets of priorities in each country. The laws and regulations in question were the outcome of long political debates and resulted in a turbulent period in terms of ownership relations in the entire region. Companies were put to the test in the international arena that had suddenly opened up, and many of them were found too weak to survive. Due to their inferior levels of competitiveness and technology relative to companies in the developed countries, they faced tough competition even on their domestic markets. In addition, the trade mechanisms that had formerly existed in Eastern Europe collapsed, and many companies lost their markets. The majority were driven into a state of serious crisis, as they did not have the resources for accumulating working capital. Consequently, the national economies of Central and Eastern Europe were characterised by an acute shortage of capital, deepened by the inexperience of the banking sector and the reduced levels of sectoral development funding obtainable from the state budgets.

The liberalisation of the capital markets induced a one-way flow from the developed countries to the transitional economies (Figure 66, page 264). Capital

40

Table 4. Balance of foreign direct investment flows in Central and Eastern Europe[a] between 1987 and 1998 (million USD).

	average for 1987-1992	1993	1994	1995	1996	1997	1998
FDI inflows, of which:	1,576	6,757	5,932	14,266	12,406	18,532	17,513
Poland	183	1,715	1,875	3,659	4,498	4,908	5,129
Czech Republic	533[b]	653	868	2,561	1,429	1,301	2,540
Russia	..	1,211	640	2,016	2,479	6,243	2,183
Romania	61[c]	94	342	420	265	1,229	2,063
Hungary	675	2,339	1,146	4,453	1,983	2,085	1,935
Bulgaria	34[b]	40	105	90	109	505	401
Lithuania	..	30	31	73	152	355	926
Ukraine	..	200	159	267	521	624	743
Slovakia	91[b]	168	245	195	251	177	466
Estonia	..	162	214	201	151	267	581
Latvia	..	45	214	180	382	521	274
FDI outflows	44	292	286	460	1,105	3,425[d]	1,903

Source: UNCTAD (1999, pp. 480, 486).

[a] Total regional figures (FDI outflows and inflows) is calculated summing the data of the following countries: Albania, Belorussia, Bulgaria, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Moldavia, Romania, Russia, Slovakia, Ukraine.

[b] Average of years 1990-1992.

[c] Average of years 1991-1992.

[d] Three-fourths of the record capital export in 1997 was registered by Russia.

imports intensified from the mid-1990s onwards and approached the level of USD 20 billion annually. At the same time, capital exports from the CEE region remained minimal (Table 4).

Foreign investors attained positions in Central and Eastern Europe predominantly through privatisation. The top recipient of capital in terms of cumulate FDI stock until 1996 was Hungary, where the speed of the reform instigated foreign capital participation driven by privatisation, although green-field investments became predominant in the last years of the decade. Thus the proportion of non-privatisation-based foreign investments reached 94 percent in 1998, having been 34 percent in 1995. The example of Hungary may serve as a prediction of the future routes of other countries. Exploitation of the privatisation opportunities opening up in Poland, the Czech Republic, Slovakia, Romania and the Baltic States culminate in 1997-2003, and the peak is anticipated to occur

Table 5. FDI inward stock (1999) and its proportion of GDP (1998) in the countries of Central and Eastern Europe.

	FDI stock [a] (billion USD)	FDI stock/capita (USD/capita)	FDI stock as a % of GDP [b]
Poland	26.6	689	11.6
Hungary	22.5	2,184	34.7
Russia	10.3	70	3.2
Czech Republic	7.6	738	22.8
Romania	2.8	123	10.4
Slovenia	2.4	1,200	12.1
Croatia	2.1	438	7.5
Latvia	1.9	779	23.0
Estonia	1.4	966	24.5
Slovakia	1.4	259	8.2
Lithuania	1.0	270	10.9
Bulgaria	1.0	119	9.4

Source: [a] Business Central Europe, December 1998/January1999, p. 65. Note: beginning of 1999. [b] World Investment Report, UNCTAD 1999, pp. 519, 522-523.

much later in the CIS countries.[10] Hungary's role of leading capital recipient was taken over in 1997 by Poland, where the privatisation of services provided the chief motivation for foreign investments by the end of the decade. The dramatic drop in capital inflows into Russia in 1998 is associated with the financial crisis, while foreign capital inflows into the Czech Republic and Romania increased considerably in 1998. Provided the Central European countries enjoy further stabilisation of their political and economic environment, their FDI stock will reflect their economic potential and purchasing power in the long run.

The leading four countries, Poland, Hungary, the Czech Republic and Russia, accounted for 80 percent of the total foreign direct investment stock of USD 83 billion in 1998 (Table 5).

The weak FDI attraction of the remaining countries was the main reason for their low level of FDI stock as a proportion of GDP in the early 1990s. FDI stock as a proportion of GDP in the CEE region increased from 6 percent in 1996 to 8.4 percent in 1998, but still remains well below the 10.5 percent average for the developing countries and the 16.6 percent average for the developed countries.

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[10] The FDI opportunities created by privatisation are understood here in their extended sense, covering the acquisition of any existing and operating capacity. They also include transactions in which foreign investors acquire already privatised companies from their new private owners (employees, corporations or other private persons), as has occurred in the Baltic countries.

On the other hand, there is a significant discrepancy in the per capita figures between the individual CEE countries, as foreign direct investments reach notable proportions of GDP in Hungary, the Czech Republic, Latvia and Estonia, while the proportion can be considered around average in Poland, Romania, Slovenia and Estonia.

The European Union accounted for 61 percent of total inward foreign direct investment stock in the Central and Eastern European countries in 1998, the most active countries having been Germany (19 percent), the Netherlands (15 percent), Austria (7 percent), the United Kingdom (6 percent) and France (5 percent). The largest investor outside the European Union was the United States, which supplied 15 percent of the region's inward FDI stock. Annex 3 includes the geographic distribution of Central and Eastern European inward foreign direct investment stock by origin of major regions and by the host CEE countries.

2.3.2. Foreign Direct Investments in the CEE Food Industries

Foreign direct investments flow predominantly into manufacturing and services (Annex 3). The primary sector has attracted only four percent of the foreign capital, whereas the secondary sector has absorbed altogether 41 percent and the tertiary sector 47 percent. Food processing was the most significant recipient among the various branches of the secondary sector, as it soaked up 11 percent of the total foreign direct investments.

Since food production is traditionally a weighty segment in the economies of Central and Eastern Europe, foreign capital may be said to have favoured one of the most important manufacturing sectors. Besides ensuring a domestic food supply and processing the raw materials generated by agriculture, it also contributed to improving the balance of foreign trade in numerous countries. As a result of the restructuring and economic reforms, however, food processing in the region was driven into a deep recession, and the shortage of capital became the primary impediment to modernisation and productivity growth.

The food processing sector absorbed 5-15 percent of the total FDI stock in the countries of Central and Eastern Europe (Figure 3), whereas food processing did not reach three percent of the world's total foreign investment stock (Table 3). The explanation is to be found in several factors:

1. *Sudden opening of the markets.* Economic liberalisation in the CEE region shifted the attention of Western European food processors from the saturated home markets to new investment and market perspectives.
2. *Privatisation.* Ownership changes in the manufacturing industries were usually implemented earlier than the privatisation of other economic branches such as energy, telecommunications or banking. Food processing was one of the very first sectors to be put on the privatisation agenda in many CEE countries.

43

billion USD

USD/capita

3.0 — 238

2.5 — 15.1% | 16.9%

2.0 —

1.5 —

1.0 — 14.0%

0.5 —

0 —

250

200

150

100

50

0

Legend

■ Food industry FDI (left scale)

□ Food industry FDI inward stock per capita (right scale)

| 7.5% | Percents in the boxes are the proportion of food industry FDI in total FDI inward

7.5% 47 | 18.1% 25.8% | 17.0% | 80

59 | 37 46 | 61 | 7.3%

19 | 8.3% 9.7% | 22

7

Hungary · Poland · Russia · Czech R. · Romania · Bulgaria · Lithuania · Latvia · Estonia · Croatia

Figure 3. Cumulative stock of FDI in the food industries of the Central and Eastern European countries in 1997 (OECD 1998 and Business Central Europe 1999).

3. *Consumption.* CEE consumption patterns bear close similarities to those of the developed countries. The developed economies of the CEE region possess relatively good purchasing power, real incomes have begun to recuperate and there will be a demand for more high quality foodstuffs in the future.

4. *Multinational enterprises and the proximity of Western Europe.* The majority of the investments in the food industry were made by the world's largest multinational enterprises.[11] Most of the investors have gained a foothold in several Central and Eastern European countries, which says something of their regional strategies. The high weights placed on the food industry within the total FDI stock were reinforced by the activities of small and medium-sized Western European enterprises taking advantage of their geographical proximity.

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[11] Annex 2 presents the world's top thirty multinational food-processing enterprises. The list includes only one company that is located outside the Investment Triad, while 16 are based in the United States, eight in the European Union and five in Japan.

Foreign capital entering the food industry did not favour all the target countries evenly, as also happened in the case of total FDI, in the sense that the food sectors of certain countries proved to be more popular than those of others. Due to the greatly differing sizes of the transition economies, the relative "per capita" figures carry more important information than those for the absolute FDI stock, as they indicate the real power of attraction among the national food sectors (Figure 3).

The remarkably high attractiveness of Hungarian food processing is evident in Figure 2, and further investigations show that the large markets have had a low relative capital appeal. This applies particularly to Russia and Romania, but even the indicator for Poland was fairly modest in 1997. The figures suggest a gradual and reserved penetration of the large markets by foreign capital. A potentially rapid increase in foreign involvement was impeded by the high risk in the case of the CIS countries, the slowly growth in purchasing power in Russia and Romania, and the protracted process of privatisation in Poland. The relative capital appeal of a large country typically grows at a slow pace compared with that of a very small country such as Estonia or Latvia, where even smaller investment projects resulted in high relative foreign capital influence. Nevertheless, this may be regarded as a temporary anomaly, as it is predicted that the inequality will fade with time as the large countries gradually come to attract more foreign capital.

2.4. The National Level – Hungary

2.4.1. Foreign Direct Investments in Hungary

Hungary was the most popular target country in the region for foreign direct investments until 1996, and was still the leading one in terms of relative foreign
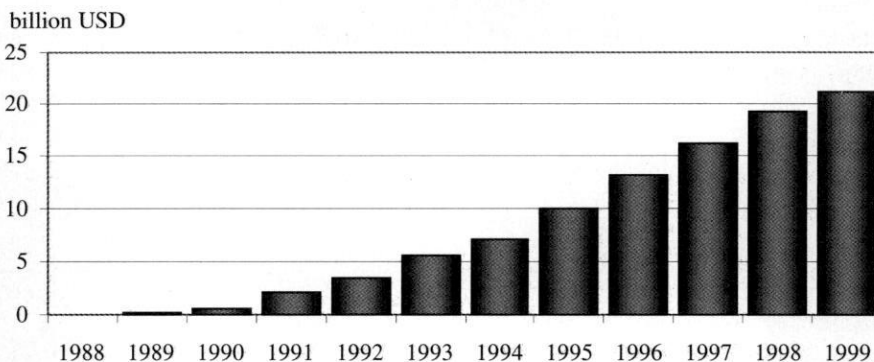
Figure 4. Growth of foreign direct investment stock in Hungary between 1988 and 1999 (MNB 1996, p. 90; BCE 1995-2000; KSH 2000b, p. 10).

investments per capita even in January 1999. Hungary alone absorbed one-fourth of the region's inward foreign direct investments, and its FDI stock exceeded USD 20 billion by the end of 1998 (Table 5).[12]

Foreign capital participation had not been entirely unknown even before 1990, though it was limited to a few joint ventures at that time. Foreign capital influx accelerated from 1991 with the start of privatisation, and the FDI stock rose dynamically over the whole decade. As indicated in Figure 4, the end of privatisation did not break the trend in FDI inflows.

The majority of foreign investments in the early 1990s concerned the manufacturing sector, while the second half of the decade saw spectacular growth in the service sector. This can partly be ascribed to the privatisation schedule, since this affected energy generation, telecommunications and banking only from the mid-1990s onwards. The proportion of registered company capital in foreign ownership, which may be considered an indicator of foreign influence, is de-

Table 6. Foreign investments as proportions of the registered capital of enterprises in selected branches of the Hungarian economy between 1995 and 1998 (in percent).

	1995	1996	1997	1998
Agriculture, forestry, fishing	4.9	6.1	5.9	7.5
Manufacturing,	45.9	52.5	56.6	59.7
of which:				
Food processing	*53.2*	*51.4*	*61.4*	*61.8*
Textile and leather	41.6	47.8	47.8	51.4
Wood, paper, and publishing	41	42.5	47.9	47.1
Chemicals	38.7	51.1	54.8	55.6
Non-metallic mineral products	67.8	69.2	71.3	68.8
Metallurgy and basic metals	31.3	35	43.5	56.5
Machinery and equipment	50	64.9	62.1	66.4
Other manufacturing	29.5	28.1	33.5	38.7
Energy	16.4	21.7	25.8	31.9
Trade	32.9	36.5	40.9	43.3
Transport, storage, communications	25.6	23.1	23.9	24.1
Financial activities	33.1	46.6	50.2	57.2
National economy total	27.9	32.3	34.9	37.9

Source: KSH (1997, p. 9), (2000b, pp. 12, 34-35).

[12] According to the most recent data, for 1999 and 2000, intensive flows of capital into Poland, the Czech Republic and Romania had led to a decrease in the proportion entering Hungary (BCE 2000).

tailed for selected branches of the Hungarian economy in Table 6. The figures show an increase of 10 percentage points in this foreign influence between 1995 and 1998, implying a proportional increase of 35 percent, and indicate a consistent growth in foreign participation in almost all branches. Nearly 60 percent of the secondary sector was owned by foreigners in 1998, and *foreign involvement was above average* in the manufacture of non-metallic mineral products and machinery and *in food processing*.

The geographical distribution of foreign investment in the Hungarian economy by origin reflects the regional trends in the foreign direct investment stock in Central and Eastern Europe as a whole: i.e. European investors account for the largest stake, followed by the United States (Table 7).

Germany, taking advantage of its economic power and geographical proximity, ranked first among the European countries. Austria, which accounted for one fourth of inward foreign direct investment in 1992, saw its share drop to around 10 percent by 1998. This illustrates the fact that geographical advantages can help a country to exploit investment opportunities rapidly, but a relatively small resident body of capital will inevitably result in a decrease in the proportion over the years.

The participation of the United States is perceived through investments by its giant transnational corporations, while the presence of the European Union is reinforced by the activities of small and medium-sized enterprises alongside the large multinational companies.

Table 7. Inward FDI stock in Hungary by investing countries (in percent of FDI stock).

	1992	1993	1994	1995	1996	1997	1998
Germany	18.5	28.5	22.2	24.6	23.8	24.8	28.0
Netherlands	8.9	5.6	11.1	10.5	9.5	14.6	15.5
USA	12.4	21.0	14.3	16.0	17.1	15.2	12.2
Austria	25.1	15.8	19.1	15.9	14.5	10.9	11.7
United Kingdom	4.9	3.9	4.5	3.8	5.8	7.6	6.4
France	5.1	4.8	5.1	8.1	7.8	5.8	6.1
Italy	3.2	3.9	4.7	3.8	3.8	3.4	3.2
Switzerland	4.3	2.0	3.9	2.9	2.3	2.6	2.9
Belgium	2.9	3.2	2.1	3.1	2.6	2.9	2.7
Japan	2.6	2.6	1.9	1.3	1.6	1.5	1.9
Other	12.1	8.7	11.1	10.0	11.2	10.7	9.4
Total	100	100	100	100	100	100	100

Source: KSH (2000b, pp. 20-21).

Foreign investments are somewhat oriented towards Budapest, the capital city itself and the surrounding county of Pest having been the primary targets for investors. This region of Central Hungary had absorbed 62 percent of the country's total FDI by 1998. Of the provincial territories, Western Transdanubium has been the most popular, while Southern Transdanubium and North-east Hungary received the least foreign capital (KSH 2000b, p. 21).

2.4.2. Foreign Direct Investments in the Food Industry in Hungary

Hungary attracted the most foreign capital to its food processing sector, both in absolute and in relative per capita terms, of all the CEE countries up until 1997, since when Poland took over the leading position – as it also did in terms of total FDI stock. The attractiveness of Hungarian food processing sector, measured in relative figures, was nevertheless still the highest in the region in the end of the 1990s.

The food processing sector was placed at the top of Hungary's privatisation agenda in the early 1990s, and foreign investments were typically made through acquisitions up to the middle of the decade. Privatisation of this sector was virtually completed by 1997, by which time state ownership had shrunk to as low as one percent (Table 8), while the proportion of foreign capital had increased rapidly, to exceed 50 percent of the sector's aggregate registered capital in 1996. The investment stock continued to grow with almost unchanged intensity after 1996 as well, mainly in the form of expansions in capacity.

Domestic ownership was centralised in the hands of certain companies, with domestic enterprises owning one fourth of the aggregate registered capital in the food processing industry in 1998. Private persons, who had acquired their stakes primarily under the compensation laws, had achieved a 8.4 percent stake by the

Table 8. Ownership structure of the Hungarian food processing sector between 1992 and 1998 (percentages of aggregate company capital).

Form of ownership	1992	1993	1994	1995	1996	1997	1998
State	49.3	28.3	17.5	12.4	6.2	1.1	0.9
Foreign	34.8	43.2	48.0	53.0	53.2	60.4	62.6
Domestic corporate	0.0	13.5	17.9	21.0	25.2	25.2	24.7
Domestic private persons	12.0	7.3	7.8	7.6	9.7	9.1	8.4
Cooperatives	3.8	3.8	3.9	1.8	2.1	1.2	1.0
Municipalities	0.0	1.6	1.3	1.0	1.0	1.1	0.8
Other	0.0	2.3	3.5	3.2	2.6	2.0	1.6
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Source: AKII (1998a, p. 57).

same year. The proportion owned by cooperatives had diminished to a minor level.

The food processing industries had received 30 percent of the total foreign direct investment stock in the manufacturing sector by 1996, whereas they accounted for only 20 percent of total manufacturing sales. The Hungarian food processing sector absorbed USD 3 billion of foreign capital between 1990 and 1998, out of which company acquisitions amounted to USD 1.2 billion. The remainder was spent on technology and other improvements (Eurofood 1998). The proportion of the total registered capital owned by foreign investors in 1998 was as high as 62.6 percent.

2.5. Closing Remarks to the Review of International Capital Flows

The objective of the current chapter was to introduce the world-wide trends in foreign direct investments and to determine the position of Central and Eastern Europe and of Hungary in particular in this process. The CEE countries, which are engaged in liberalising their economies, have been actively involved in the pattern of dynamically expanding global foreign direct investment flows. Hungary is one of the top countries in the Central and Eastern European region as far as its ability to attract FDI is concerned, and foreign influence can be considered significant at the level of the national economy. Foreign investors owned one third of the total registered capital of Hungarian enterprises in 1998, but over 60 percent in the manufacturing sector.

Although the food processing sector is not a significant FDI recipient in global terms, it was a prominent one in Central and Eastern Europe throughout the 1990s, *absorbing over 10 percent of the total FDI inward stock of the region, a proportion four times higher than the global average.* Foreign ownership has been playing a dominant role in the Hungarian food sector for years, a fact that gives this country an extraordinary status not only in Central and Eastern Europe but also in the whole of Europe.

The high proportion of foreign capital makes a detailed investigation into the characteristics of FDI in the Hungarian food industries relevant and necessary. The popularity of the CEE food sector for foreign investors has been fostered by the stabilising of consumption and purchasing power, the opening up of markets, privatisation and economic liberalisation. Moreover, the growth pressure exerted by European-based multinational enterprises and small and medium-sized food processors has propelled investments in the same direction. Most CEE countries also have abundant agricultural raw materials and relatively low labour costs.

There are a number of factors that may have motivated foreign direct investments in Hungary and in Central and Eastern Europe. The question is what have been the most important determinants and in what combination, and how intensely these factors have exerted their impact. The analyses in Chapters 4-8 will provide detailed replies to this question.

3. Theoretical Framework for the Dissertation, Laying the Foundations

3.1. Position of the Dissertation in the Theory of Industrial Organisation

This research with its topic and objectives can be fully subsumed into the theoretical framework of industrial organisation. In order to place the topic into a wider context and comprehend the logic of the dissertation's structure, it is useful to review the theoretical antecedents that had led to the SCP paradigm and the evolution of the main streams of IO theory.

3.1.1. Historical Review of Economic Theories

3.1.1.1. A Brief Overview

Written evidence confirms the existence of monopolies and economic players with market dominance way back in ancient history. Market power has rarely been divided equally among the ventures engaged in a particular market.

The monarchies of the Middle Ages – as exclusive holders and beneficiaries of numerous economic activities – distributed monopolistic rights as gifts to the aristocracy and to companies or inventors. In fact, the pro-monopoly or "anti-competition" approach was a substantial pillar of the mercantilist way of thinking (Galbraith 1987).

The mercantilist policies of the monarchs, striving for restrictive and transparent control, were broken down by the industrial revolution in Great Britain in the 1770s. This was the time when Adam Smith laid the foundation of classical economics with his work *Wealth of Nations*, which shifted the emphasis from mercantilism to free competition. From that time on, competition became the core issue and the focal point for classical economics, with monopoly remaining the only black sheep that failed to fit into the "harmonic settings".

The revolutionary changes in the field of transportation, shipping and communication that took place in the 19th century widened the local markets first to the national and then to the international level. Capital markets started to develop and the sphere of public utilities emerged. Competition became more and more intense as industries developed and markets expanded. The railway and oil monopolies in the United States became consolidated, and at the same time there was an increasing public awareness of the market positions and unreasonably high profits enjoyed by the large corporations.

Neo-classical economics began flourishing in response to the economic process at the end of the 19th century. A theoretical system encompassing marginal

utility, marginal productivity and a consistent terminology was rapidly gaining in popularity, and equilibrium models based on a competitive environment became the established means of performing economic analyses. The assumption that market procedures are constantly heading towards a social optimum was gaining in strength at that time.

3.1.1.2. Merger Waves and the Resulting Economic Theories

Economic and political events greatly influenced the evolution of economic theories in the 20th century. Anti-monopoly and anti-trust opinions were loudly voiced during the economic recessions, while the attitude was more tolerant at times of economic progress, so that the anti-trust policy measures taken in the United States and the development of new directions in economic theory fluctuated systematically as a function of these economic periods (Shepherd 1990). The major steps in the historical evolution of the respective economic theories will be reviewed below.

The emergence of trusts marked the consolidation of business in numerous industries in the late 1800s, which was thought to happen through the adoption of predatory tactics by the market leaders, i.e. the acquisition of smaller competitors (Clarkson and Miller 1982, p. 412). Thus mergers and acquisitions became a characteristic shaping force in the US economy. Greer (1992) identifies four major peaks in M&As in the 1900s: (1) at the very beginning of the century, (2) towards the end of the 1920s, (3) in the late 1960s, and (4) an extensive wave beginning in the 1980s.

Three special phenomena coincided at the turn of the 19th and 20th centuries in the United States, at the time of the first M&As peak:
1. the structure of the markets was moving towards monopoly and market dominance,
2. some basic concepts were outlined that served as a foundation for IO theory,
3. strict anti-monopoly regulations were enacted.

The wave of mergers and the period of anti-monopoly measures was interrupted by the First World War, after which the regulations returned in a reinforced manner at the time of the world economic recession of 1929-33, when dominant or oligopolistic market structures were declared to have been the main reasons for the economic problems. Chamberlin (1933) and Robinson (1933) laid the foundations for the theory of oligopolistic prices in the 1930s (Niehans 1990). Anti-monopoly policy gained ground again in the 1930s, but was allayed by the Second World War.

During the war Schumpeter published his concept of protecting the monopolies, arguing that "it was a necessary part of the creative process of competition, not a mere distortion from efficient allocation" (Shepherd 1990, p. 524). This line was continued by the Chicago school in the 1940s and 1950s, when its fol-

lowers published numerous studies demonstrating the advantages of monopolies, which were said to stem from economies of scale and the minimal loss of wealth in society.

Merger activities intensified in the 1960s, and then grew to an unprecedented level in the 1980s. Anti-trust policies and related regulations usually revived in response to vivid merger tendencies. The various periods in which particular economic theories enjoyed precedence had a great influence on the attitudes reflected in public policy and the means employed by it. The ambivalent shifts in the competition and antitrust policies made Machlup to comment on them sarcastically: "governments, apparently, have never been able to make up their minds, which they dislike more, competition or monopoly" (Greer 1992, p. 198).

The most recent merger and corporate acquisition boom started in the 1990s and has continued up to the present, introducing a revolutionary leap in the history of M&As, a shift from the national levels to an international arena. Control has passed out of the reach of national legislation, and the recent wave of M&As has become part of a new world economic phenomenon, globalisation.

As for economic theories, the tendencies that engender and accompany globalisation can no longer be explained using the conventional toolkit of classical economics. This has turned the attention of economists towards the *theory of industrial organisation*, which has deservedly been a frequent theoretical foundation for economic analyses.

3.1.2. History of Industrial Organisation Theory

The economic theory of industrial organisation was conceived in the 19th century to provide a counterbalance to classical economics based on an idealistic competition approach by recognising the phenomenon of imperfect markets. Its real emergence as a modern branch of economic science dates back to the 1930s, when tendencies which had been discovered earlier, such as concepts related to monopolistic and oligopolistic markets, were developed to formulate a coherent entity. The idea of market concentration and concrete calculations measuring concentration appeared concurrently in theoretical and empirical contexts, and the influence of market structure on the activities of economic players became commonly accepted. Shepherd (1990, p. 524) described the process that "the industry replaced the firm as the locus for economic thought and research", which marks a real milestone in the history of economic theories. Industries became concretised as homogeneous markets that encompass certain groups of ventures and possess special features. The industry-level approach to research was strengthened by the industry case studies method developed by a group of scientists at Harvard University headed by Edward Mason in the 1930s.

The work of Joe Bain (1956) stands out in the history of industrial organisation theory, as he improved the theory of oligopolistic markets and created the

concept of entry barriers for potential competitors. The theoretical constituents of market structure had crystallised by the 1960s into market shares, concentration, entry barriers, and vertical influence. A large number of empirical studies set the objectives of investigating the relations between these attributes of market structure.

Tirole (1990) called the above theoretical evolution the "Harvard tradition", taking it to include the logical connections between market structure and the behaviour and performance of firms in the particular market and the empirical evidence for such connections. He also identified a new wave of theoretical development that had started in the 1970s, in which concepts were formulated into a system of more rigorous and precise theories blurring the borders between industrial organisation and microeconomics.

From the 1980s on, increased attention has been paid to the international aspects of markets and industries. Michael Porter, one of the most significant contributors to recent IO theory, introduced a comparative concept of the competitiveness of nations and industries.[13] Some other new hypotheses have also determined the directions of development prevailing in modern IO theory; concepts that apply to international economic activities, multinational enterprises, the growth of capital markets and intensifying globalisation.[14] The FDI theories assuming imperfect markets to be elaborated in section 3.2.1.2 are components of the same theoretical system.

3.1.3. Definition and Elements of the SCP Paradigm

Industrial organisation (IO) surveys industries through the basic structure-conduct-performance (SCP) paradigm, which is widely accepted in the literature. The model for this relationship was first conceived by Mason in the 1930s, and later refined by several IO scholars (Scherer and Ross 1990, pp. 4-5). The definitions of the components are the following:

- ◆ *Structure* = (or market structure) incorporates the structural and market characteristics of a given industry,
- ◆ *Conduct* = encompasses the operational features or behaviour of manufacturers in the observed industry or sub-sector,[15]

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[13] The most notable books by Michael Porter are *Competitive Strategy: Techniques for Analyzing Industries and Competitors* (1980) and *The Competitive Advantage of Nations* (1990).

[14] The influential work of Stephen Hymer, John Dunning and Richard Caves is definitely worth mentioning in this field. Their role will be reconsidered in detail in connection with FDI theories.

[15] The "Conduct" component is occasionally replaced with *behaviour* in the IO literature.

♦ _Performance_ = includes the results, efficiency and performance achieved in the industry. Empirical studies employ indicators to measure the aggregate performance of ventures operating in the same industry or market.

3.1.4. Major Causal Streams in the SCP Paradigm[16]

Although economists had a wide agreement on the three basic elements, no clear consensus was reached in terms of the causal relations among them. The mainstream school placed emphasis on the causal direction from structure towards performance (Figure 5). Market structure influences the decisions of companies, hence also their behaviour in the market. Market structure and company behaviour then have a joint impact on the performance of the industry, which is manifested in the revenues, cost effectiveness and innovation activities of the indi-

DETERMINANTS

Demand Conditions	Supply Conditions
Elasticity of demand	Scale economies
Cross elasticity of demand	Vertical economies

Legend

primary causal relation ⟶
secondary causal relation ┈┈▶

STRUCTURE
Size distribution of firms
Market shares
Concentration
Entry barriers

CONDUCT
Collusion with rivals
Strategies against rivals
Advertising activities
R & D activities

PERFORMANCE
Price-cost and profit patterns
X-efficiency
Allocative efficiency
Technological progress

Figure 5. Underlying logic of IO theory (Shepherd 1990, p. 6).

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[16] This section is largely built on the categorisation of major causal streams presented by William Shepherd in _The Economics of Industrial Organization_, Prentice Hall, 1990, pp. 6-9.

vidual firms. Naturally, the opposite causal relation also applies, marked in Figure 5 with dotted arrows: i.e. a company having good performance and high profits will most probably enjoy growing market shares. Mainstream scholars do not deny the existence of this opposing causal relation, although in their view market structure exercises the predominant and initial impact in the causation mechanism. These scholars, referred to as *structuralists*, build the research approach on the following logic:

$$\text{Profit rate}_i = f(\text{Market share}_i, \text{Concentration}_j, \text{Entry barriers}_j, \text{Growth rate}_i),$$

where i denotes the corporate level and j the industry level.

Figure 6 on the next page presents the major causition concepts that diverge from that of the mainstream school.

The members of the *Chicago school* represent precisely the opposite direction. They argue that the performance of each firm determines its role and position in the market, and regard all market power, including that of a monopoly, as a result of the superior performance of certain firms. Their interpretation is a substantial modification of the mainstream view:

$$\text{Market share}_{ij} = f(\text{Profit rate}_i, \text{Behaviour}_j, \text{External Conditions}_j)$$

The liberal views of the Chicago school also have serious political implications. Following the logic of their arguments, the extreme manifestation of market power, monopoly, is not at all harmful, but a deservedly gained and enjoyed dominant position on the market owing to superior performance relative to all competitors.

The *behaviourists* represent a peculiar variant in terms of causal relations. In their view, it is not market structure or performance, which is the ultimate driving force of the relations but the behaviour of companies. This applies primarily to companies with dominant market power, since the market structure will be substantially modified if its leaders collude, or if they engage in an aggressive market strategy.

The followers of *potential competition* assert that the development of both market structure and performance is subordinated to a third factor: market entry. They emphasise that potential new entrants represent the major determinant, which is delimited only by entry barriers. If these barriers are low, then existing market shares and the behaviour of companies will not count for much, and new entrants will have the power to modify the prevailing conditions to an essential degree within a short period.
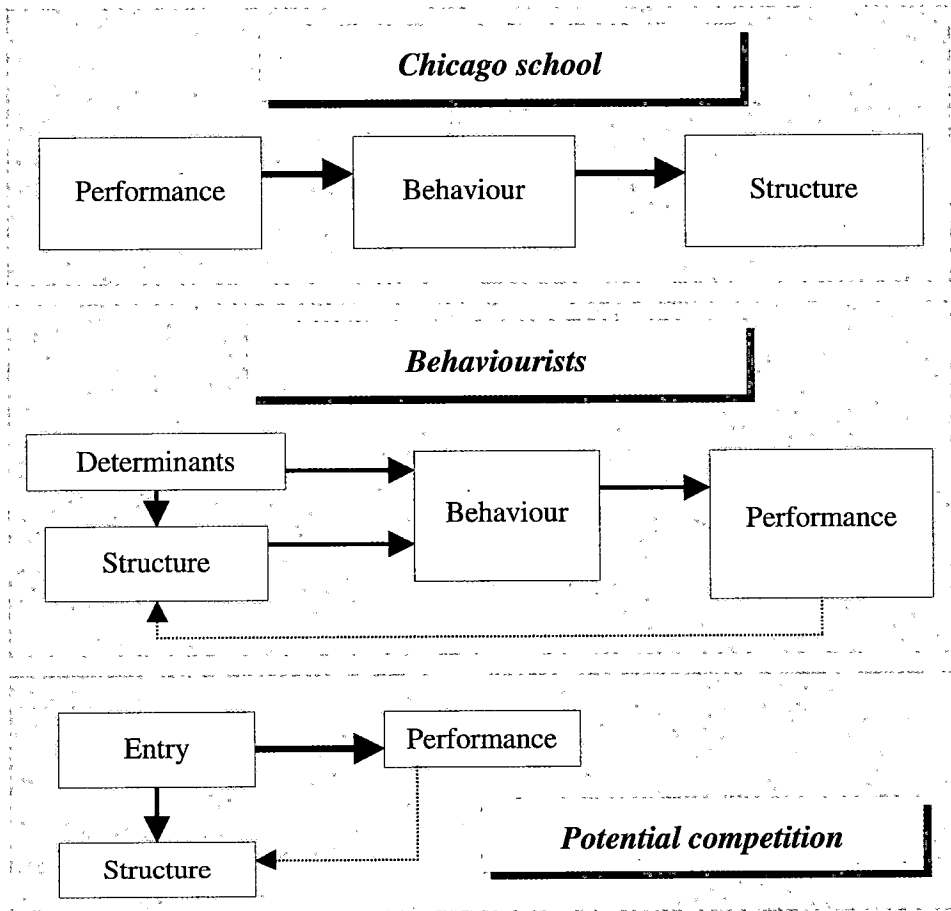
Figure 6. Causation concepts diverging from the mainstream view of IO theory (Shepherd 1990, p. 9).

3.1.5. Research Directions Pursued in the Dissertation

An overview of the above streams and schools of thought was indispensable in order to comprehend the theoretical foundations of the causal relations observed and tested in this dissertation. In the impact mechanisms of SCP paradigm, foreign direct investment will be considered an external factor which links up with each component of the SCP chain (Figure 7).

One of the topics highlighted in this research is the power of the market structure as a factor that motivates the arrival of foreign direct investment. The related analysis can be found in Thesis II, and the causal relation in question is marked by the letter *C* in Figure 7. The impact of foreign ownership on perform-
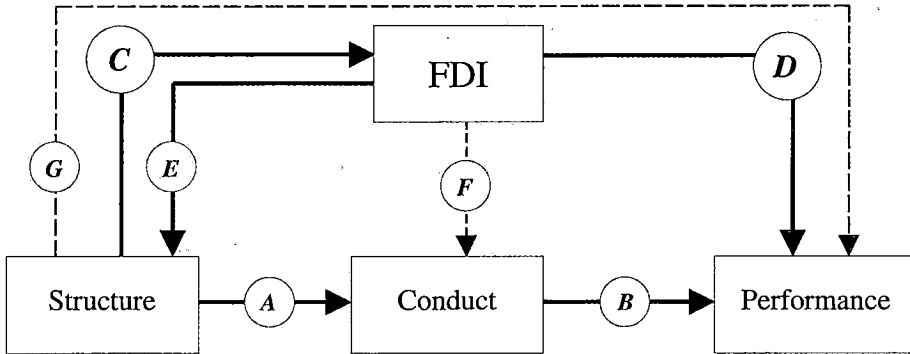
Figure 7. Causal relations analysed in the dissertation.

ance has a similar level of importance, and Thesis V includes the relevant analytical methods and calculations, indicated by the letter D in the figure.

The literature of IO theory and FDI also contains a great deal of empirical evidence for causation operating in a direction opposite to the two major relations that are to be tested in the dissertation. The plot charts of the cluster analyses in Thesis III will raise this issue in a persuasive manner. An effort will be made in Thesis III to test which of the causal relations C and E is more significant. Only passing reference will be made here to the causal relations marked by letters F and G (dashed lines) and no attempts will be made to quantify them, since they do not represent significant or independent causal paths in the system with respect to FDI.

Of the three components of the SCP paradigm, "Conduct" will be addressed only marginally in this dissertation, for two reasons: first, in the view of the dissertation, its role is only one of transmitting the effects of market structure, and second, scarcely any corporate data are available on the classical aspects of behaviour such as advertising outlays or proportional R&D costs in the case of Hungarian food processors.

It is evident from the above that the point of view adopted in the dissertation – as reflected in the priorities set for the investigation as a whole *– has cognate characteristics primarily with the "structuralist" and "potential competition" interpretations of the SCP paradigm.* This research accepts the mainstream (structuralist) view on the causal relations between the SCP components as the ultimate base and starting point for analyses, while FDI is considered in the role of a new entrant into the market of the capital recipient country (potential competition).

3.2. Overview of the Literature on Foreign Direct Investment

3.2.1. FDI Theories

Foreign direct investment theories include many important branches, and several classification methods are employed in the literature. The broadest approach divides the theories into two large groups: those concerned with the determinants and impacts of foreign investments.[17]

The following section is devoted to FDI theories relevant to the determinants of capital movement. Cantwell (1991) observes that empirical studies investigate the motivations for capital trade on three levels:

◆ macro-economic level: broad international and national tendencies,
◆ meso-economic level: interaction among companies from the viewpoint of industries or sub-sectors,
◆ micro-economic level: foreign direct investment and growth of particular companies.

I. Hypotheses Assuming Perfect Markets	II. Hypotheses Based on Market Imperfections
• Differential Rate of Return Hypothesis • Portfolio Hypothesis • Output and Market Size Hypothesis	• Industrial Organisation • Internalisation Hypothesis • Eclectic Paradigm • Production Cycle Hypothesis • Hypothesis of Oligopolistic Reactions
III. Hypotheses on the Propensity to Invest	IV. FDI determinants
• Liquidity Hypothesis • Currency Area Hypothesis • Other Determinant Variables	• Gravity Model • Prices of Production Factors • Political Instability and Risk • Governmental Incentives

Figure 8. Classification of FDI theories. Note: the figure includes an adaptation and development of the categories presented by Agarwal (1980), Lizondo (1993), and Borsos-Torstila (1999).

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[17] The literature concerning the influence of FDI is, in fact, not a set of theories, but it encompasses a large body of empirical studies that quantify the impacts.

Studies in the first group rely on trade theories, research at the middle level is supported by industrial organisation (IO), game theory, or innovation theory, while micro-level analyses are usually based on the theory of the firm. Determining the level of analysis is an important aspect in the case of foreign direct investment research, since the methodology itself also shapes the way in which the problem is delineated.

The most recent hypotheses make attempts to synthesise past theories, the emphasis being shifted from the national approach to the behaviour of industries or individual companies. Firm-specific advantages are considered necessary but not sufficient conditions for foreign direct investment (Caves 1996).

The necessity of possessing intellectual assets can be postulated from the micro-economic attributes of FDI. Empirical studies have confirmed that companies with high technology or intensive research and development activities express a strong propensity to launch foreign production capacities. On the economic level above this, industries, which are characterised by intensive research and development, high marketing expenses, a large proportion of scientific and technical labour, product development and differentiation, would have a high probability of containing multinational enterprises.

The classification in Figure 8 has frequently been adopted for reviewing FDI theories since the time when it was first proposed by Agarwal (1980). Group I embraces hypotheses which assume perfect or near-perfect competition on the markets for goods and production factors, while those in Group II take market imperfections for granted. An additional common characteristic is the assumption that the investing company has to possess comparative advantages over its competitors in one or more aspects. FDI concepts conceived on the basis of industrial organisation theory are classified into Group II. Hypotheses in Group III address the investment propensity of a given country, industry or company, while Group IV is a collective category of hypotheses geared to FDI determinants or motivational factors important to one host country or industry.

3.2.1.1. Theories Assuming Perfect Markets

The *differential rate of return hypothesis* originates in the profit maximisation strategy of companies. Firms assess where the highest return can be achieved with an additional unit of invested capital. If return expectations are higher than in the domestic economic environment, this will give incentives for foreign direct investment.

The hypothesis flourished in the 1950s, when US investments in the European markets grew rapidly. At that time the return rates of European manufacturing industries were regularly above those in the United States. The hypothesis could not explain the events of the 1960s, however, when European rates of return fell below the US figures but investments from the United States continued to flow in with the same intensity.

The differential rate of return hypothesis received little empirical support, primarily due to the problems of measuring profit rates. It is extremely hard to gain access to data on future profit rates. The assumption of a homogeneous rate of return for one particular country is another shortcoming of the hypothesis. The concept of capital moving from a country with a low rate of return towards another country with a high rate of return cannot explain two-way capital trade, nor can it explain the unequal distribution of capital among various sectors and industries. This led Lizondo (1993, p. 87) to maintain that the concept of differential rate of return is not capable of giving an appropriate means of identifying FDI determinants.

Since the rate of return by itself did not appear to provide a sufficient explanation, attention was turned towards risk. The *portfolio hypothesis* claims that the motivational power of the risk factor has an impact on the investments of a company beside return rate anticipations, leading it to divide its investments among several countries in order to alleviate the risks. In other words, the company sets up an international portfolio. Investments are influenced positively by return expectations and negatively by risks. Tobin and Markowitz formalised this theory in the late 1950s. As in the case of the differential rate of return hypothesis, the portfolio hypothesis did not acquire sufficient empirical evidence either. Measuring risk is just as difficult as measuring future rates of return.

As opposed to the rate of return concept, the portfolio hypothesis is nevertheless capable of explaining two-way capital flows between countries, but it still cannot cope with sectoral or industrial investment preferences.

The *output and market size hypothesis* approaches the process of investment from both ends at the same time. The size of the investing company, based on its sales revenues, is considered in terms of output, while the market size is the potential purchase power of a host country or industry. Although the theoretical foundations were not worked out fully, the size of the host country appears in the gravity model and several empirical studies to be a driving force for FDI flows.

3.2.1.2. Hypotheses Based on Market Imperfections

The hypotheses detailed so far have ignored potential distortions of markets. Due to the rapid changes in market structure in the 20th century, economic theories tended to take the imperfections of production factors and commodity markets into consideration.

As far as foreign investments are concerned, two kinds of market imperfections are of crucial importance: (1) imperfect market structures and (2) imperfect transaction costs (Lizondo 1993, p. 90). Imperfections in market structure strengthen the power of multinational enterprises. The advantages of economies of scales, know-how, distribution network and product differentiation form a background to their influence. Transaction costs motivate multinational enter-

prises to incorporate external transaction costs into the internal activities of the company. The evolution of FDI theories based on market imperfections is illustrated in Figure 9.

In his seminal dissertation, Hymer (1976) became the first to recognise the crucial role that market structure and corporate characteristics play in the international flows of foreign direct investment. The *hypothesis based on industrial organisation* was further developed by Kindleberger. These arguments originate from the fact that foreign investors are struck by numerous disadvantages in the form of rivalry on local markets: institutional, legal, cultural and linguistic differences, distance, discrepant technical standards, consumer preferences or insufficient information on local markets. Investors face great challenges in overcoming these disadvantages. If a foreign company still decides to become involved in investments, it should have strong advantages with which it can easily offset the disadvantageous factors, and in fact enjoy the position of competitive

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┌─────────────────────────────────────────────────────────────┐
│                    Market Imperfections                      │
└─────────────────────────────────────────────────────────────┘
    ┌──────────────────────┐          ┌──────────────────────┐
    │   Market Structure   │          │   Transaction Cost   │
    │     Imperfections    │          │     Imperfections    │
    └──────────────────────┘          └──────────────────────┘
              ▼                                   ▼
    ┌──────────────────────┐          ┌──────────────────────┐
    │ Industrial           │          │ Internalisation      │
    │ Organisation         │          │ Hypothesis           │
    │ (Hymer, Kindleberger)│          │ (Buckley)            │
    └──────────────────────┘          └──────────────────────┘
     ( international          )        (  choice of foreign     )
     ( enforcement of         )        (  direct investment as  )
     ( firm-specific advantages)       (  opposed to export     )
                                       (  or licensing          )
              ▼                                   ▼
    ┌─────────────────────────────────────────────────────────┐
    │         Eclectic Hypothesis – OLI paradigm              │
    │                     (Dunning)                           │
    │  ┌──────────────┐ ┌──────────────┐ ┌─────────────────┐  │
    │  │ Ownership    │ │ Locational   │ │ Internalisation │  │
    │  │ advantages   │ │ advantages   │ │ advantages      │  │
    │  └──────────────┘ └──────────────┘ └─────────────────┘  │
    └─────────────────────────────────────────────────────────┘
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Figure 9. Evolution of IO-related FDI theories.

advantages. These advantages are typically characteristic of a particular company, and they are easily transferable within the company, even over long distances. The advantages may be embodied in the human resources of the firm, patents, procedures, specific technology and techniques or the company's reputation, in addition to which superior knowledge and the practice of conventional management, marketing or logistic techniques may also carry advantages.

Graham and Krugman (1989), using the industrial organisation approach to explain international capital flows involving the United States, asserted that U.S. companies surpassed their European competitors in terms of management and technology in the 1970s. Consequently, relatively little foreign capital flowed into the United States, while outflows were fairly pronounced. The tendency became balanced after two decades, when U.S. firms lost their superiority over the European companies and a more equal, two-way capital trade emerged.

Firm-specific advantages provide an explanation for the competitiveness of a particular company on domestic and foreign markets, but they are unable to account for the choices of companies between exports, licensing agreements and foreign direct investment. Internalisation hypothesis made an attempt to uncover the reasons for choosing one of these three alternatives in preference to the others.

The *internalisation hypothesis* explains the existence of foreign direct investment by the fact that firms "internalise" market transactions, i. e. they move external transactions to the borders of the company. According to the interpretation of Buckley and Casson, these corporate endeavours are motivated by the market imperfections of intermediaries and inputs. The internalisation hypothesis for FDI is closely related to the theory of the firm, which originates from the basic question "why do firms exist?". Certain transactions work much more efficiently within the framework of a company than when externally organised by the market. A modern business venture necessitates the successful operation of transactions of numerous other kinds besides production and/or services: e.g. marketing, research and development, training of human resources. These all need certain inputs.

In the case of foreign investments, firms virtually internalise the costly international transactions, a fact that also explains the emergence of multinational enterprises.[18] Opponents of the internalisation hypothesis consider the theory too general and unable to support concrete research. Its empirical application has indeed been hindered by the problem of measuring transaction costs.

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[18] It is worth noting that the internalisation hypothesis is an extension of the theory of the firm to an international level. In the 1930s, the emergence of the firm was postulated from its superior internal transactions compared with market transactions. Similarly, the appearance of multinational enterprises is explained by internalising the expensive transactions of international markets.

Dunning integrated the statements contained in three hypotheses in order to overcome the shortcomings identified with each. He synthesised the elements of Hymer's industrial organisation approach, the internalisation hypothesis and the locational concept into a new construct that has spread rapidly under the name of the *eclectic paradigm*. This is one of the most frequently cited and most popular theories in the recent FDI literature. Dunning (1985) identifies three advantages which are necessary conditions for the successful accomplishment of foreign direct investment:

1. The investing company should possess specific *ownership advantages* over competitors.
2. Investment should be a more beneficial alternative for the company than exports or a licensing agreement (*internalisation advantage*).
3. Exploitation of the above advantages by means of a combination of locally available production factors should result in more efficient production than with a corresponding combination of resident inputs, otherwise the foreign market could be supplied through exports (*locational advantages*).

The eclectic paradigm is considered a sufficiently general concept to serve as a foundation for most research into foreign direct investment. Dunning adds that OLI advantages may alter as a function of time and location.

The *production cycle hypothesis* is related to the work of Vernon (1966), who developed the concept to describe the international expansion of U.S. companies in the post-war period. The theory assumes that the life cycle of all products starts with an innovation phase. Once the sales opportunities for a new product have been fully exploited on the domestic markets, multinational companies start redirecting production into foreign markets through foreign investments in order to counterbalance the potential domestic market loss. Agarwal (1980) mentions a whole list of empirical studies that verify the production cycle hypothesis by means of concrete Canadian, U.S., German and British examples.

Although Vernon argued in his subsequent works for a generalisation of the concept and its extendibility to the inward foreign direct investment of all developed countries, he admitted at the same time that the production cycle hypothesis narrows down FDI determinants to one single moment of decision and is therefore a rather simplified approach to capital flows (Vernon 1979).

The *oligopolistic reactions hypothesis*, founded by Frederick Knickerbocker in his PhD dissertation, interprets the foreign investments of multinational enterprises as their reactive responses to the investments of competitors. Analysing the post-war investment activities of US-based multinational enterprises operating in oligopolistic industries, he found that investments in the same industries follow each other at short time intervals (Knickerbocker 1973, p. 192). In order to quantify this, he constructed "entry concentration indices" (ECIs) for 23 target countries. These are indicators of the concentration of foreign investments

within the same industry in terms of time and space. He then found a statistically significant correlation between home industry concentration values and ECIs and interpreted this as suggesting that a tendency for reactive responses is a characteristic feature of oligopolistic industries.

Knickerbocker's hypothesis was also tested by Flowers with Canadian and European FDI flowing into the United States. His dissertation revealed a close correlation between foreign direct investment in a particular industry and the respective industry concentrations in the resident countries (Agarwal 1980, p. 753). Critics consider the major shortcoming of the oligopolistic reactions hypothesis to lie in its inability to provide an explanation for the initial investment project of the first company, or market leader, which engenders the responses from its competitors.

It is the FDI theories conceived on the basis of *industrial organisation* that have received the widest support and popularity. Lizondo (1993, p. 107) insists that a substantial attribute of foreign direct investment is an endeavour to manage the foreign subsidiary directly, which cannot be explained using the toolkit of FDI theories that assume perfect markets. Besides industrial organisation, the theory of firm provides solid ground for analysing foreign direct investment.[19] Since foreign direct investment constitutes the subject of the current research, market imperfection-based theories that use the terminology of industrial organisation will be of crucial significance hereafter.

3.2.1.3. Hypotheses Related to the Propensity to Invest and FDI Determinants

Due to the above weightings in this dissertation, only the major characteristics will be stressed for selected hypotheses in the remaining groups. The *liquidity hypothesis* explains investment propensity in terms of internally produced and available resources. The concept is based on the assumption that internal resources are always cheaper for a company than external resources and are therefore used to finance investments.

The *currency area hypothesis* assumes that the main reasons for foreign investments are to be found in the altering strength of foreign currencies. Although the concept may be useful for one-way capital flows, it cannot capture the reasons for two-way capital trade.

FDI determinants are driving forces that motivate capital flows among national economies. Empirical studies are continuously being carried out to test assumed determinants, the explanatory power of which always depends on the

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[19] It should be borne in mind, though, that foreign investments are made up of foreign direct investments and portfolio investments. Trends in portfolio investments may occasionally be more efficiently captured by other FDI theories.

time of investment, special characteristics of the host country, regional and world-scale economic circumstances and other factors.

Of the lines of research available for investigating FDI determinants, the *gravity model* is a coherent concept for analysing bilateral trade flows that was first mentioned in the work of Linnemann (1966). The concept rests on the basic observation that the weight of a country in international trade flows is determined by its size, economic power, population and distances from other countries. The tendency was proved for conventional trade in goods very early on; and the idea was then tested and proved to be applicable to empirical research into the geographical distribution of foreign direct investment (Brenton et al. 1998).

3.2.2. Literature Concerning FDI in the CEE Region

The food sectors of the Central and Eastern European countries experienced dramatic changes in the 1990s, when the restructuring and privatisation of the state-owned companies and liberalisation of the rules for founding enterprises – reshaped production and ownership structures in all of these countries. Political end economic reforms of the 1990s generated *an intensive one-way capital flow towards the post-socialist countries*. Foreign capital has been an influential and powerful actor contributing to these fundamental structural changes.

The conditions and characteristics typical of this capital transfer, which has been a unique economic manifestation of the historic constellation in the region, have been studied by a large number of researchers. Consequently, foreign direct investments in Central and Eastern Europe have inspired the birth of an extensive literature over the past decade.

3.2.2.1. Classification of FDI Studies

Various concepts have emerged to provide a classification of the multitude of FDI studies. Pye (1995) suggests a division into descriptive studies and surveys, while Szanyi (1998, pp. 28-29) sorts the literature into three large groups: (1) case studies, (2) questionnaire surveys, and (3) studies using national databases.

The above two classification approaches verify the importance of applied methodology in the categorisation of FDI-related research. In order to systemise the present overview, three groups of studies are distinguished, the classification being based on the methodology employed:

1. *Analytical-descriptive studies.* This group is the most populous. National or international databases are used to document the dynamics of FDI flows and stock and to describe the geographical origin and sectoral destination of foreign direct investments. The

methodology applied is usually verbal explanation of economic tendencies.

2. *Survey research.* Investors are sent questionnaires or interviewed in person to collect first-hand information on their motives and experiences in Central and Eastern Europe. The researchers then process the information and publish average or overall figures in support of their initial hypotheses or principal conclusions.

3. *Empirical studies.* Empirical analyses utilise databases at the macro-economic or micro-economic levels and apply statistical or econometric techniques or construct models to reach their results and conclusions.

Although the methodology employed provides an important perspective for categorising studies of foreign direct investments in Central and Eastern Europe, further classificatory aspects such as *geographical coverage, industry orientation* and *research topic* may also help determine the nature and position of individual studies within the body of FDI literature:

1. *Geographical coverage* concerns the choice of the host economy to be investigated, which may comprise (1) the entire CEE region, (2) a group of countries, or (3) one individual country.

2. In terms of sectoral destinations, a study may specialise in a certain recipient sector such as manufacturing or services or even in particular industries, such as various manufacturing or service industries, for instance banking. *Industry-specific analyses*, as represented by the present dissertation, form a rare group within the literature of FDI into the CEE region, however.

3. It is common for a study to investigate two aspects of FDI. In terms of the *research topic*, the primary objective may be to explore:
   - the determinants, or
   - the influence of foreign direct investments.

FDI determinants can further be divided into fostering or impeding factors, in other words *FDI motivations and FDI obstacles.*

Although the following overview will classify research primarily according to the methodology employed, their affiliation to certain categories defined by other grouping techniques may also be mentioned where the discussion requires.

3.2.2.2. Analytical-Descriptive Studies

Descriptive studies usually document annual foreign direct investment flows, or the value of the cumulative FDI stock. Their most frequent geographical coverage is the entire CEE region, their authors often being international organisations such as the World Bank, OECD, UNCTAD or IMF. The second largest group in terms of geographical coverage is national studies, often written by Western

European financial and investment institutions or the development agencies or governmental bodies of Central and Eastern European countries. Research institutes in both the European Union and Central and Eastern Europe regularly publish analyses of foreign direct investment inflows.

Countless studies have been written by independent researchers in Western and Eastern Europe, typically focusing on a narrower group of countries or one particular country.[20] Analytical-descriptive studies usually rely on secondary information sources or databases in order to outline capital flows and geographical or sectoral distributions of FDI stock. They also provide information on the motivations or impediments affecting foreign direct investment.

Unlike the capital trade among developed countries, the flow of capital into the Central and Eastern European region is characterised by its one-way nature. This necessarily results in a significant one-way pattern of technology diffusion. The impact of foreign capital in promoting economic progress has long been widely known in the developing countries, and the CEE region has had to compete with these countries for the freely available direct capital in the world. Heinrich (1996) discusses the motives behind the foreign capital flowing into Central and Eastern Europe using Dunning's eclectic paradigm, and suggests that the attractiveness of the CEE countries is a sum of locational advantages in the eclectic paradigm, of which the most important are labour force and political incentives.

The classification distinguishing the *market, resource, efficiency and strategic asset seeking* aspects of foreign direct investment is frequently cited in the international FDI literature (Szentes 1999, p. 465) and has been employed by many authors, e.g. Nachum (1997), who used it to review FDI motivations in Central and Eastern Europe. *Resource-seeking* foreign direct investment concentrates on the former Soviet Union republics in terms of natural resources. Labour force is an important resource that is abundantly available in the entire region at a much cheaper price than in the developed countries. The *market-seeking* aspect is of extraordinary importance in Central and Eastern Europe, a fact that is verified in almost all surveys and empirical studies. Nachum affirms that *efficiency-seeking* foreign direct investment has so far been hampered by the relatively underdeveloped infrastructure in the region.

In Nachum's view, Knickerbocker's oligopolistic reaction theses apply to the foreign direct investment flowing into the CEE region, and the explanatory power of this hypothesis is stronger than ever in the light of recent world market changes. Porter (1986) sees the globalisation of the world economy as fuelled by the emergence of global industries or sub-sectors. The transnational enterprises in most product groups already consider their positions to be defined by the global markets, all the segments of which are equally important. The opportunities

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[20] For an exhaustive review of independent FDI studies written in early 1990s, see Pye (1995).

opening up for them are therefore extremely meaningful, to the extent that first mover advantage and responsive or reactive strategies have become more and more important, in the CEE region as elsewhere.

Gabrisch (1993) classifies the negative determinants associated with establishing joint ventures, considering the rudimentary legal environment, high transaction costs and inflation to be the major impediments. The macroeconomic environment and economic risk also exert a significant impact on the geographical distribution of foreign capital.

The type of privatisation is widely regarded as one of the major determinants in the FDI literature, since approximately half of the foreign capital has arrived in the region through privatisation. While privatisation has become the engine for foreign investments in Hungary, compensation-based or insider privatisation has restricted the arrival of foreign capital in the Czech Republic, Slovakia, Slovenia and Russia (Hunya 1999).

In the case of large recipients of foreign direct investment, country-specific analytical-descriptive FDI studies are typically geared to the search of motivational factors, as in the works of Csáki et al. (1996) and Durka (2000). Other authors have analysed the cases of countries that have attracted a low amount of FDI, tending to focus on FDI impediments, e.g. Drábek (1993), Assonitis (1995) and Mukhetdinova (1995). Hunya (1998) asserts that the presence of foreign capital accelerates restructuring on both the micro and macro level in the host countries of the CEE region. FDI brings definite advantages by transferring financial resources, technology, know-how, management methods and positive spillover effects. The high level of participation in international capital flows will assist the integration of large FDI recipients into the European Union.

3.2.2.3. Survey Studies

Survey studies constitute a significant group within the FDI literature concerned with the Central and Eastern European countries. Since surveys collect first-hand information, they are particularly efficient tools for mapping FDI determinants, so that their typical objectives are to identify the motives behind FDI and the obstacles to it.

Some of the studies are prepared in the resident countries and are focused directly on the attitudes of investors, being characterised by direct contacts with corporate headquarters, while others investigate FDI determinants from the viewpoint of investors in one particular resident (home) country. Still other studies clearly focus on the other end of the investment chain, i.e. the host environment of one particular country, surveying investors through the medium of their local subsidiaries.

Most studies based on surveys set out from the objective of scanning both FDI motives and obstacles. Some concentrate exclusively on investigating mo-

tives or impediments. Investment attitudes has been surveyed by international organisations or consultant agencies, an early review of the literature being found in Lankes and Venablès (1996, pp. 332-333).

The survey of Zemplinerová diverges from the conventional set up of studies that search for the *motives of investors*, as she inquires into the standpoints of development or investment agencies; civil servants in governmental institutions, local researchers and experts in eight CEE countries, with the aim of comparing the FDI incentives and impediments induced by governmental policies in the countries concerned. The resulting classification based on nine incentives verifies the existence of a diverse FDI policy. General tendencies proved to be the shifts of FDI policy (1) from active to passive, (2) from automatic incentives to occasional incentives, and (3) from national FDI policy to a preference for regional FDI policy (Zemplinerová 1997, p. 101).

The work of Lankes and Venables (1996) stands out from the mass of publications due to its innovative classification, which has made it one of the most frequently cited surveys in the FDI literature. The authors distinguish two ultimate FDI determinants, market and cost factors, and divide investing companies into three groups: (1) distributors, (2) local suppliers, and (3) export suppliers. They conclude that the investments of distributors and local suppliers are driven by market factors, while the decisions of export suppliers are mainly motivated by the low level of production costs.

Borsos-Torstila (1999) further refined the classification of FDI determinants by differentiating three groups: (1) market factors, (2) production factors, and (3) institutional factors. All three included both motivating and impeding factors. Her research comprised the investments of Finnish multinational enterprises in eight Central and Eastern European countries. Investors ranked market factors as the most significant determinants, followed by institutional factors, with production factors in third place.

Beside motives, the other large group of FDI determinants comprises *barriers to foreign direct investment,* factors that have a negative influence on the geographical distribution of investments with respect to the host country. Some of the impediments are connected with the general socio-economic situation, while others are a consequence of active governmental policy (Zemplinerová 1997, pp. 95-98).

Amongst the analyses especially investigating impediments to foreign direct investment, the study published jointly by the OECD and the World Bank discusses a peculiar but relevant issue (Klavens et al. 1994). The survey concludes that environmental considerations in the host economies, such as environmental protection, regulations, popular movements and the state of the environment, do count for foreign investors. Thus 38 percent of the companies surveyed belonged to the pollution-intensive industries, and 41 percent of these regarded environmental considerations as impeding investments. At the same time, 24 percent of

the respondents in the non-pollution industries pursued the same lines of thinking.

The work of Hazley and Hirvensalo (1998) is unique in its efforts to specialise exclusively in FDI obstacles. Geographically, it covers the Baltic Rim, including Poland, the Baltic countries and the St. Petersburg area of Russia. The surveyed investors were similarly located mainly in Northern Europe. Two main groups of obstacles were found to hamper FDI in all five countries: unclear or rapidly changing legislation and the shortage of qualified labour with management, marketing, financial and language skills. Two-thirds of the managers surveyed considered illegal economic activities and crime important impediments in all the countries concerned.

3.2.2.4. Empirical Studies

Empirical studies followed the traditions of the logical analysis of two-way capital flows among the developed countries. In the early phases of the transition period, research was concentrated on identifying FDI determinants. Calculations were encumbered by the lack of adequate time series, which forced authors to resort to panel databases. Lansbury et al. (1996) identified the following FDI determinants in Central and Eastern Europe: power of the private economy, taxation incentives and legal background, macroeconomic stability, trade relations, structural characteristics and strategic motives. They tested these assumed determinants by means of a panel database, which included 126 observations.[21] Regression analysis confirmed the positive impact of historical bilateral trade relations, innovation, infrastructure and privatisation on the inflows of foreign direct investment.

The problems of restricted databases are illustrated by the work of Wang and Swain (1995), who searched for the determinants of foreign direct investment flows into China and Hungary using time series data for the period between 1978 and 1992. The authors incorporated 12 variables into their model. Their results were nevertheless sharply criticised by Mátyás and Kőrösi (1996) on the grounds of methodological shortcomings. The availability and access to data became a less serious problem in the later years of the transition period.

Controversial results appeared in the FDI literature concerning the question of whether capital flows replace, complement or even reinforce traditional trade relations. Brenton et al. (1998), who tested the relation between bilateral FDI flows and bilateral trade on the basis of the gravity model, obtained empirical results that confirmed that capital flows do not significantly reduce the investing

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[21] Investments from 14 OECD countries in Hungary, Czechoslovakia and Poland between 1991 and 1993 were examined, and combined data for the Czech Republic and Slovakia were used until their separation in 1993.

country's export sales to the target country. Hence the relation between FDI and trade is rather of a complementary nature.

Brock (1998) analysed the regional distribution of FDI inflows into Russia with a peculiar and innovatively structured regression model. Their assumed determinants of foreign direct investment flowing into the 78 oblasts of Russia included regional production output, which recalls the logic of the gravity model. The other set of variables incorporated other characteristics of oblasts: the proportion of skilled labour, the proportion of the private economy, taxation and risk factors, level of development in transportation and communication, access to land for foreigners and the weight attached to crime. The results showed that two out of the three significant determinants, namely regional production output and crime were relevant variables explaining the regional distribution of FDI, while the third variable, the proportion of skilled labour was significant only under certain conditions.

The work of Holland and Pain (1998) is one of the best-founded empirical analyses of foreign direct investment inflows into Central and Eastern Europe, estimating both determinants and impacts. In order to test the FDI determinants, the authors used a panel database that included data on 11 CEE countries covering five years. The scope of the assumed FDI determinants embraced the size of the private economy, trade relations, the price of labour and geographical factors. A special element compared with earlier empirical studies is the effort made to quantify the type of privatisation in an explanatory variable, which proved to be significant in all versions of the model. This confirms the fact that beside the conventional FDI determinants mentioned in the literature, the type of privatisation (commercial-based, compensation-based or mixed) has a significant impact on foreign direct investment inflows.

3.2.3. Hungarian Aspects of the FDI Literature

3.2.3.1. Hungarian Literature Concerning FDI Theories

The theoretical discussions of international capital flows in the Hungarian literature also include without exception references to current foreign direct investment tendencies. Szentes (1999) reviews the theories of capital flows stretching back to the early phases in the history of economics including the preceding Marxist and neo-classical concepts. Out of the motives of capital export, he emphasises the endeavour to gain a higher return on capital investment in the case of portfolio investments and the growth of the aggregate profit or equity of the parent company, the desire to conquer the market and the geographical spreading of risks in the case of direct investments (pp. 450-451).

Pitti (1997) discusses an interesting theoretical issue, namely the legitimacy of the frequently quoted term "second capital accumulation". He points out that

privatisation did not result in capital accumulation, since it only reallocated the existing capital. Decentralised privatisation may be seen as an effort to oppose the general tendency for capital concentration in the world economy. Capital accumulation may be detected only in the case of foreign investments, and the slowly developing concentration of capital in Hungary.

Two analyses of international and CEE-specific regional tendencies in capital flows were published in the mid-1990s (Árva 1994a and Hamar 1995). Both authors felt it important to mention the inability of classical and neo-classical economics to explain FDI flows. Hamar argued that classical and neo-classical economics usually regard all production factors, including capital, as being mobile in the national economy but immobile in the international economy (p. 49). Árva considers the foreign direct investment flows into the CEE region primarily as investments generating foreign trade, in other words he assumes that the majority of foreign investors pursue the exploitation of cheap labour (p. 241).

Szanyi (1997) also comments on recent Central and Eastern European events alongside his detailed overview of foreign direct investment theories. He points out that foreign direct investment flows, which coincide with trade liberalisation, cannot have substitutive characteristics, but rather are complementary in nature. Szanyi considers it important that principal attention has been devoted to industries supplying domestic markets both in Hungary and in the entire region. This fact signifies the market-seeking nature of such investments.

3.2.3.2. Literature of FDI in Hungary

Early writings recorded the comparative advantages of the country, the size and sectoral distribution of capital inflows, and the FDI-attracting impact of privatisation (e.g. Losoncz 1991, Árva 1994b).

Hungary became the most popular investment target in the region in the first few years of the transition period.[22] Csáki et al. (1996) highlighted the rapid reforms, the pressing needs of state budget deficit and commercial privatisation among the comparative advantages of the country. The state budget deficit made the involvement of foreign direct investment inevitable in order to alleviate the balance of payments and the deficit.[23] Another element of capital attractiveness

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[22] An excellent review of the literature on FDI in Hungary is given by Szanyi (1998), who classifies the existing work according to the following main aspects: motives for foreign investments, performance of foreign-owned companies, transfer prices and profit repatriation, restructuring and monopolies.

[23] Zemplinerová (1997, p. 94) emphasises the fact that the Czech Republic did not have such an acute need for foreign investments in the early years due to its macroeconomic stability. The difference was reflected in differences in the set of FDI incentives between the two countries.

was the "investment engenders investment" principle, which Török (1995, p. 54) called the "synergy of positive externalities".

Vissi (1995) attributed great importance to the evolving market structure among the factors motivating foreign direct investments, maintaining that the Hungarian subsidiaries of foreign firms were definitely assisted by the government's privatisation and competition policy. Kaderják (1996) tested the hypothesis of environmental pollution based capital inflows and found empirical evidence for its existence in Hungary.

In connection with their recent classification of motivational factors, Antalóczy and Sass (1998) pointed out that the future system of incentives should target investors in export and R&D-intensive industries. They explained that foreign direct investments in Hungary had reached a new phase, in which the proportion of privatisation-driven investments had decreased while the intensity of capital inflows had not changed significantly. The internal structure of investments had also been modified, in that the proportion of *in kind* contributions was now minimal, at the same time the proportion of internal debt was increasing. Pitti (1997) pointed to a modest profit withdrawal in the middle of the decade, whereas the magnitude of repatriation had reached USD 1 billion annually by the end of the decade.

The impact of multinational enterprises that had settled in Hungary was analysed by Hamar (1995), who accented the "blue-chip characteristics of investments", referring to the fact that large multinational companies bring along additional investments concluded by their supplier and service groups. Hamar (1998, pp. 51-52) investigated four industries and – with the exception of export and salary growth – found no positive impacts of foreign companies on economic performance. In fact, she was concerned about the growing indolence of multinational enterprises without an appropriate economic policy. Éltető (1998), on the other hand, reported a definite positive impact of foreign direct investments. Analysing the performance of all foreign-owned companies in 23 manufacturing industries, she noted that the initial difference in performance indicators in 1994 and 1995 showed a significant superiority on the part of foreign-owned companies by 1996. Although their impacts on research and development could not be fully verified, their contribution to rising exports was unquestionable.

The balance of inward FDI in Hungary can be declared positive in the light of the literature reviewed here. Beneficial impacts are identified primarily on the macroeconomic level, in that investments have so far assisted the international integration of the Hungarian economy.

3.2.4. Literature on FDI in the Food Industry in the CEE Region and in Hungary[24]

Researchers extended the frequently used classification of FDI aspects (page 67) to the food industry. Traill (1996, p. 397) distinguished the following motivational aspects for food processors:

◆ *resource-seeking* (access to natural resources, agricultural raw materials, e.g. special products favoured by climatic conditions)
◆ *market-seeking* (new markets for the company's products)
◆ *efficiency-seeking* (exploiting economies of scale)
◆ *strategic asset-seeking* (access to intellectual property that has accumulated in the host country, or access to specially skilled labour, R&D results, and transfer of these advantages to the entire operation of parent company).

The resource-seeking aspect can rarely be encountered in the CEE region, and is not typical of the food processing sectors in Central Europe. Strategic asset seeking is a motivational factor that usually characterises investments among countries with similar levels of development. Thus, out of Traill's categories, it is the market-seeking and efficiency-seeking aspects that may ultimately have motivated the flows of foreign direct investment into the food industry.

The statistical data in Chapter 2 reflected the importance of food industry in the FDI inward stock of CEE countries. The food industries of the individual countries attracted very different amounts of foreign direct investments (Figure 3, page 44), a fact which Traill (1999, p. 260) attributes to the type and pace of food industry privatisation. This statement complies with general and empirical results of other studies (Holland and Pain 1998). The influence of privatisation in attracting foreign direct investment will be addressed in Chapter 8.

The food industry's proportion of total FDI stock exceeds the proportion of food processing output in the total GDP in almost all the CEE countries. The most popular food processing industries on the regional level in 1997 were sugar, confectionery, tobacco and soft drinks (Eiteljörge and Hartmann 1999, p. 204). Empirical analyses of FDI in the food industry are rather scarce, and country-specific studies usually tackle the size of the foreign direct investment stock, its geographical origin and its sectoral distribution.

Hungary has been one of the principal beneficiaries of inward food industry FDI in the region. The main determinant of this rapid, abundant foreign partici-

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[24] Since the theoretical introductions to the subsequent chapters include detailed summaries of FDI literature and respective studies of food industry FDI inflows, only a few selected studies are mentioned in this brief review.

pation was definitely the commercially based privatisation approach. In the early phases of transition, nearly half of the privatisation revenues originated from the food industry (Kiss 1995, p. 24). By the mid-1990s, however, it was difficult to identify any positive impact of privatisation on corporate performance, and experts in food economics were urging the refinement of privatisation policy and the limiting of foreign investors' opportunities to acquire ownership in food processing (Alvincz 1994).

Lakner (1994) evaluated the early phase of privatisation and foreign direct investment inflows in the context of concurrent tendencies in other countries, pointing out that the level of concentration in the Hungarian food processing industries was at the international average and that an increase could be anticipated in the future. He provided empirical evidence in support of the statement that the foreign investors had been motivated by market power and profit opportunities. The major conclusion that he spells out is that the stable domestic market prospects were the primary attractive factor for FDI in the Hungarian food industry.

Boeckenhoff and Moeller (1993) classified the motives of FDI inflows into the Hungarian food industry, and revealed the fact that foreign capital was primarily geared to acquiring concentrated industries. This was subsequently restated by Vissi (1995).

Since a large number of the investors in the food industry were multinational enterprises, it was no wonder that the behaviour of such companies and their impact on corporate and industrial performance received special emphasis in the second half of the decade. Hamar (1995) attributed the dynamic development of the food industry to these multinational companies, but noted that their presence had contributed towards the freezing of some of the dominant market positions.

Lehota and Szűcs (1998) examined the vertical relations and R&D activities of a sample of 69 multinational food processors and showed that foreign companies had played an active role in the promotion of raw material production, while had carried out minimal or no research and development work.

In the most recent investigation into the impact of multinational companies, Szabó (2000) affirms that foreign-owned food processors are superior to their domestically-owned competitors in terms of nearly all performance indicators, and thus they contribute significantly to the improving results achieved by the industry.

4. Motives for FDI in the Hungarian Food Processing Industry

Thesis I:
The primary determinants, which have motivated foreign capital inflows into the Hungarian food processing sector, are favourable natural endowments, food processing traditions and FDI-enhancing government policy.

The statistical data in Chapter 2 illustrated the Hungarian food industry's power of attraction for FDI in relation to the corresponding sectors in other Central and Eastern European countries. The factors screened in this chapter are those that have motivated and attracted foreign food processors to invest in Hungary.

4.1. Theoretical Framework for Determining Motives

One tool available for identifying the motives of foreign investors is the *Porter diamond.* In his seminal work *The Competitive Advantage of Nations*, Porter (1990) pointed to the need for a new paradigm and condensed the core of his
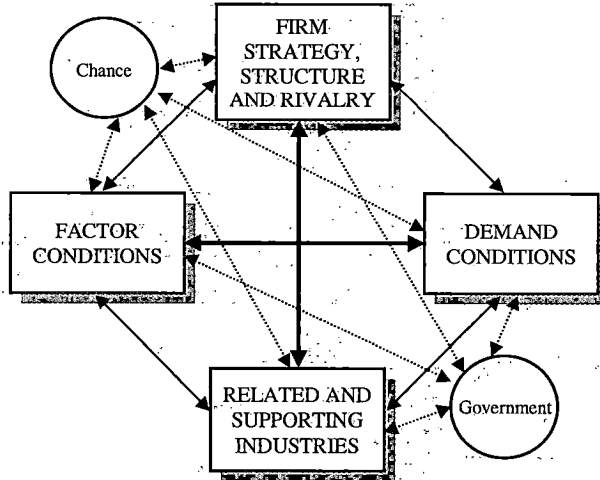
Figure 10: The Porter diamond[25] in its initial form (Porter 1990, p. 127).

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[25] The diamond has been often employed as a theoretical and classificatory basis for country-specific studies or as a starting point for theoretical or empirical analyses (Fanfani and Lagnevik 1995; Lagnevik and Kola 1998).

theory into one single diamond-shaped chart (Figure 10). The analytical framework was designed to ascertain the competitive advantage factors associated with national economies, and its scope of application initially covered research into corporate competitive advantages in a given industry or country, although Porter himself raised the question of its applicability to the new economic environment created by the international investments of transnational companies. The formal extension in this direction and the inclusion of the FDI segment, however, was only accomplished later by Dunning (1997).

The diamond was refined and supplemented in the course of time in terms of details applying to certain segments. The public policy component was elaborated by investigations into individual policy segments by Scandinavian researchers (Kola 1997; Hyvönen and Kola 1998).

An appropriate classification of FDI-attracting features in the Hungarian food processing industry necessitates a further extension of the diamond by means of
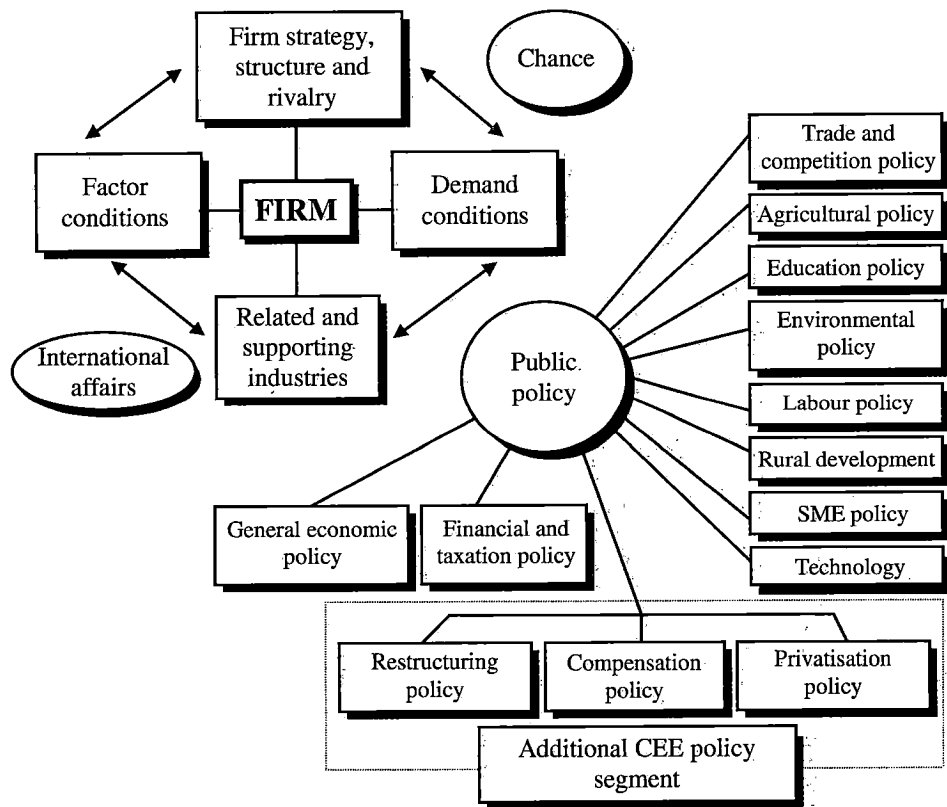
Figure 11. The Porter diamond extended in the policy direction.

a CEE policy segment. The final version of the diamond as employed here is shown in Figure 11. The extended diamond is suitable for reviewing the major components of the new economic environment facing foreign investing companies. An emphasis on the consideration of detailed public policies is relevant for two reasons:

- ◆ First, public policy directions usually play an important role in attracting foreign investments.
- ◆ Secondly, public policy has typically undergone substantial reforms in all transitional economies over the past few years. Political mechanisms, legislation as a whole, and many basic laws have been fundamentally altered and new public policy directions have been formulated and adapted. Certain policy elements – by their special nature – characterise only transitional countries.

4.2. FDI-Attracting Factors in the Hungarian Food Processing Industry

The Hungarian food industry may be screened for FDI-attracting features by taking the major components of the extended Porter diamond one by one.

4.2.1. Related and Supporting Industries

The segments of the agrifood chain, which were interrelated and linked to each other throughout the central planning era, all suffered from a severe lack of working capital after 1989, so that the old linkages disintegrated and ownership structures changed dramatically. Agriculture undoubtedly suffered the most in the early years of the transition, primarily due to protracted political debates and inconsistent policies regarding ownership and land restitution.

Foreign investors have not shown equal interest in all components of the agrifood chain (Figure 12), presumably because profitability is usually considered to be higher in processing, wholesaling and retailing than in basic agricultural production.

Political regulations, such as the prohibition of foreign land ownership, also explain the low interest in agricultural production. In the prevailing economic environment, foreign companies had an opportunity to establish vertical relations and gain a controlling position in the agrifood chain starting from the food processing and trading segments. Experience proves that they did indeed take this opportunity in many cases (Gow and Swinnen 1999).

Agricultural Inputs	Agricultural Production	Food Processing	Food Wholesale and Retail

level of foreign ownership[26]

low - medium	none - low	medium-high	medium-high
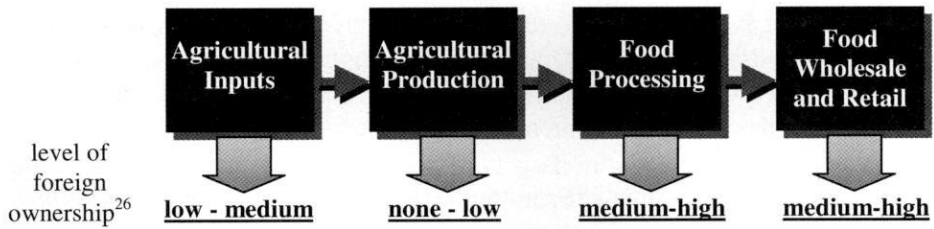
Figure 12. Foreign ownership in the Hungarian agrifood chain.[27]

4.2.2. Factor Conditions

Three production factors, agricultural raw materials, the labour force and the existing production capacity contributed greatly to attracting foreign capital into the Hungarian food sector.

Agricultural raw materials are plentifully available in Hungary, as agricultural production is based on favourable climatic conditions and the country's most notable natural resource, the abundance of fertile arable land.

In terms of *human resources,* the relatively inexpensive skilled labour available in the processing industries makes an attractive factor.

Also, the scope of existing *food processing capacities* was very important among the advantageous production factors. The technical state of fixed assets throughout the food processing industries and among individual companies was rather heterogeneous, but the processing capacity, which was geared largely towards western exports, represented reasonable value for investors in technical terms. Some food processing companies constituted a favourable starting point for foreign parent companies entering a new market.

4.2.3. Firm Strategy, Structure and Rivalry

Hungarian companies had been gaining increasing independence from the mid-1980s onward, when the food processing companies had entered first into a "gentle" state of competition that had later intensified rapidly. A new market situation then emerged in the 1990s, in that corporate restructuring, privatisation, a growing number of bankruptcies, and also a large number of newly established small and medium-sized enterprises constantly kept the markets and the range of competitors chancy and volatile. The rivalry question was therefore

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[26] The categories refer to the following ranges of equity: low - 0-20%; medium - 21-50%; high - over 51%.

[27] The rate of foreign ownership varies by segments of agri-food chain within the given range and may exceed the boundary values in the case of individual companies.

hard to predict for investors. On the other hand, the investing companies themselves modified and considerably affected the state of competition. Their most serious competitors often appeared to be the same rivals as on their home markets or in the international arena.

The type of market structure largely influences corporate strategy, and is thus a major determinant in the SCP paradigm (Figure 5, page 54). Four major types of market are distinguished in the international economic literature: pure monopoly, market dominance, oligopoly and competition. The Hungarian food markets have now assumed a new structure and clear rivalry positions have emerged. The Hungarian food industries can be classified into the latter three of these four categories (Figure 19, page 115). The corporate strategy of a particular foreign firm is subject to the specific market position it has achieved.

4.2.4. Demand Conditions

The proximity of consumer markets is of crucial importance to foreigners investing in the Central and Eastern European countries. Although investors in most of the manufacturing industries look on the region as one large, homogenenous market, the motives of food industry investors differ slightly from that approach: their first priority is the market of the target country, while export sales are of secondary importance. The Hungarian market – albeit smaller than that of Poland – still represents considerable sales prospects within the atomising national markets of the region. In terms of purchase power in the 1990s, its relative attractiveness surpassed that of large food markets such as Russia, the Ukraine and Romania.

4.2.5. Key Public Policy Elements

Governments can give additional impetus to FDI by means of numerous public policy measures, which are examined in two major groups below: policy directions characteristic of the post-socialist economies, and general investment incentives. This classification of public policy elements is illustrated in Figure 11.

4.2.5.1. Specific Transitional Policy Directions

The post-socialist – or transitional – economies had to introduce substantial changes in order to build up free market economies. Of the political, economic and legislative reforms, three policy directions can be directly related to corporate reforms: restructuring, compensation and privatisation policy. Corporate restructuring determined the investment environment and opportunities in the CEE countries. The attitude towards restructuring, compensation and privatisation policy varied considerably among the individual CEE countries and resulted in

distinct discrepancies in their attractiveness to FDI. *Privatisation policy* was undoubtedly the most important policy element in attracting FDI to the transitional economies. The more liberally and commercially privatisation was carried through, the more foreign capital flowed into that particular country (Holland and Pain 1998).

Hungary was a forerunner in corporate restructuring (Csáki and Nash 1998), as the reform of its legal framework had already started in the late 1980s. At the same time, trusts and monopolies were decentralised. Hungary was among the first countries to enact a law on bankruptcy, which was one of the toughest in the region. A separate investment act covered foreign investments, ensuring the same rights for foreigners to establish companies and pursue business activities that domestic firms enjoyed (Alvincz and Tanka 1997).

Hungary favoured the commercial type of privatisation – the direct sale of companies – as opposed to compensation-based privatisation. Food processing companies were among the very first ones offered for sale. More than 50 percent of the food industry had been privatised by 1994, and privatisation was practically complete by 1997 (Table 8, page 48). Hungary was the most consistent of all the CEE countries in applying this policy in its food industry.

4.2.5.2. General Policy Incentives

One important step in making Hungarian *competition policy* compatible with international standards was the establishment of the Economic Competition Office (ECO) in 1990. The Competition Act (1990), however, allowed supervision only over those companies that were registered in Hungary. This legal nuance removed the "redundant obstacles" of competition control from the acquisition thrusts of foreign investors. By the time privatisation of the food industries was complete, foreign firms were allowed to buy Hungarian food companies freely and gain monopolistic or dominant market positions in the course of this privatisation.[28] The Competition Act in its 1990 form was an important contributor to the FDI incentives. On the other hand, once the foreign companies were registered in Hungary, they immediately became subject to strict competition control, and the ECO did in fact intervene in a number of cartel cases even in the early 1990s. The Competition Act served two purposes at a time, it indirectly fostered FDI and facilitated supervision.

Trade policy stimulated FDI in the food industry by means of duties and tariffs. Although trade in general was liberalised in the early phase of the reforms, agriculture and the food industries remained highly protected sectors. The high

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[28] The Competition Act was modified in 1996, when the jurisdiction of the ECO was extended to all private and legal entities that carried out business activities on the Hungarian market.

import duties on food products were even increased further by means of an extra import duty in 1995, a situation which lasted for an 18-month period. At the same time, imports of *technology,* including equipment and processing lines, was enhanced through a general liberalisation of imports. This fact also contributed to the FDI influx and to the modernisation of the Hungarian food industry.

Since the country was badly hit by unemployment in the 1990s, *employment policy* benefits and subsidies were granted to firms that either created or retained job opportunities. Nearly all the foreign companies took advantage of these employment incentives.

Taxation policy was designed to encourage the influx of foreign capital investments. Companies established with at least 30 percent foreign ownership enjoyed significant tax concessions – 40 to 100 percent of taxes – for a period of up to five years. Consequently, hundreds of foreign-owned companies were registered in the food industry. This benefit was removed for companies established after January 1, 1995. Simultaneously, the corporation tax rate was reduced from 36 percent to 18 percent, which is a very favourable rate even by international standards. The early tax benefits offered to foreigners contributed to the fact that over 90 percent of the present foreign-owned food processing companies were registered before 1995.

Some tax benefits are currently used for the purposes of *regional development policy*. Total tax exemptions for up to five years are offered to new investments that target less developed regions or regions that have over 15 percent unemployment. These tax benefits also aim to even out the geographical distribution of foreign investments. Budapest and north-west Hungary have received two-thirds of all FDI, and this regional inequality also applies to food processing, although foreign-owned food manufacturers are scattered throughout the country.

5. Industry-Specific Motives for Foreign Direct Investments

Thesis II:

The industrial preferences and choices of foreign investors within food processing have followed the tendencies observed in Central and Eastern Europe in general: the uneven penetration level of FDI in the various industries has been driven by the attainable market power and profit expectations.

5.1. Industrial Distribution of FDI in CEE Food Processing

The food economy of Central and Eastern Europe has increasingly been integrated into the globalising food industries by virtue of FDI inflows over the past decade. Although the popularity of food processing in the region is obvious, individual food processing industries are not at all homogeneous in their power of attraction. This fact applies to the food sectors of all Central and Eastern European countries. The different FDI penetration levels are usually captured by the proportion of foreign ownership in the aggregate registered company capital. Pursuant to international experience, foreign investors tend to prefer the following industries:

- traditionally popular food processing industries on international markets (confectionery, tobacco, soft drinks, beer),
- industries affected by strict production control in Europe (primarily sugar and to a less extent dairy processing),
- "luxury" high value added, highly processed expensive food articles (coffee, tobacco, confectionery, soft drinks, spirits and certain dairy products),
- industries with good domestic market prospects (usually vegetable oil, tobacco and sugar),
- industries with good export opportunities (export-oriented food processing industries vary from one country to another in the CEE region).

Low foreign interest and involvement in individual food processing industries can similarly be explained in the following terms:

- moderate market opportunities (on both domestic and export markets),
- raw material supplies that are subject to stringent political intervention or are problematic and function badly,
- slow restructuring and privatisation,
- low value added, inexpensive basic foodstuffs,
- administrative obstacles in certain food industries,
- marginal significance within the food sector of the host country.

Although the basic factors attracting or discouraging FDI and the directions of public policy are usually similar in a particular host country in general and its entire food sector, there are certain industry-specific discrepancies even in the case of determinants. The question thus arises as to *what ultimately drives the decisions of foreign investors to choose certain food processing industries as opposed to others.*

5.2. Distribution of FDI in the Hungarian Food Industry

The priorities of foreign investors related to certain food processing industries have been prominently expressed in the uneven penetration of FDI (Figure 13), which apparently followed the general trends that prevail in the CEE countries,
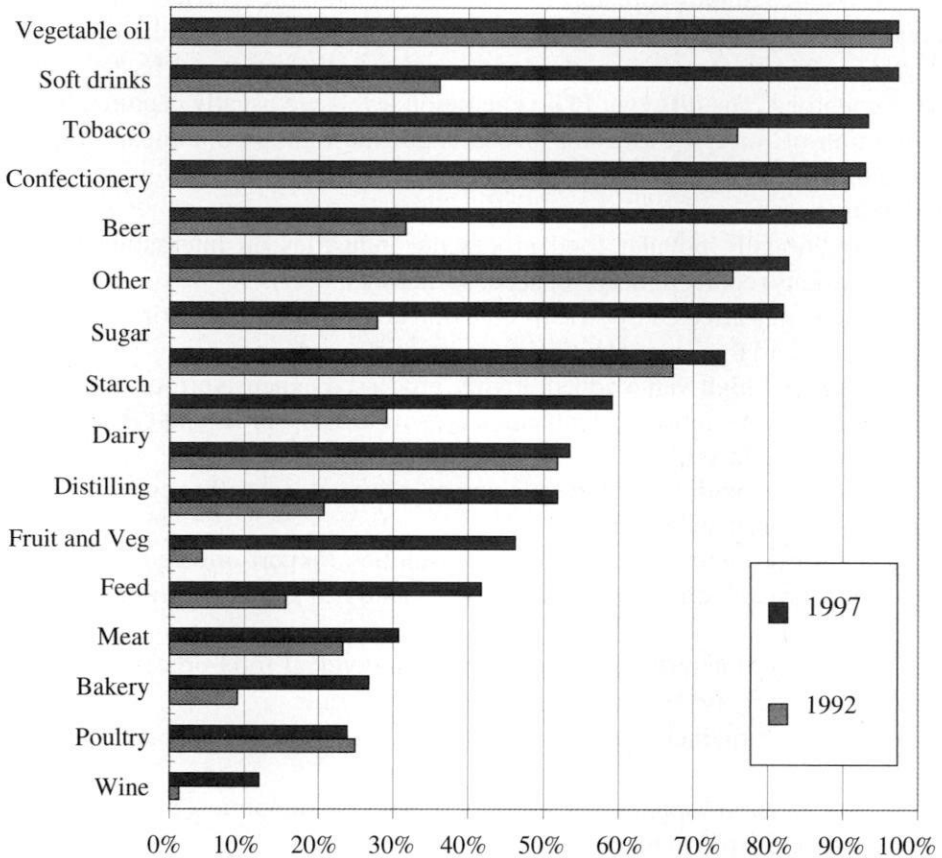
Figure 13. Proportions of foreign ownership of registered company capital in the Hungarian food processing industries (AKII 1997; 1998a).

as set out above. There are two phenomena that especially characterise the Hungarian food processing industry:

1. The speed of foreign acquisitions. Owing to the rapid start to privatisation, the distilling, starch, confectionery and vegetable oil industries were acquired by foreign capital as early as 1992 (Figure 13). Consequently, foreign investors owned one-third of the aggregate registered company capital in the food industry by the end of that year.

2. The relatively high foreign ownership in internationally "less popular" fields such as meat, fruit and vegetable processing and the animal feed industry.

5.3. Regression Model for the Industrial FDI Determinants

The uneven penetration of foreign investments repeats the earlier question for Hungary: *upon what grounds did the foreign firms prefer some industries to others in the food processing sector?*

In order to resolve this problem, it is necessary first to identify a possible set of FDI determinants. The international literature suggests that market structure, market size, sales opportunities and profit rates can be presumed to be responsible for uneven FDI penetration levels. These assumptions can be tested by constructing a regression model based on the following relation:

$$FDI = f \text{ (profit rate, market structure, market size)}$$

The patterns of two-way capital flows in the developed countries suggest that foreign investments are primarily attracted by future profit rates and the markets attainable in the individual industries. In order to make sure that this rule also applies to the food industries of the CEE countries, in which they were operating under unique conditions in many respects in the 1990s, a formal verification is required.

5.3.1. Market Concentration Indicators

Since concentration plays a major role throughout this dissertation, it is worth going into the details of how the related indicators are calculated.[29] There are

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[29] Theoretical models generally incorporate imported products into the calculations of concentration indicators (CR_k or HHI) as one player on the market. Empirical studies of food processing (e.g. Naumann, Böbel and Haid 1985; Stalhammar 1991; Field and Pagoulatos 1996) regularly ignore this requirement, however, partly due to the poor availability of data and partly because domestic production is predominant anyway. The current analysis is also restricted to domestically operating food processors.

three alternatives for calculating the degree of concentration of an industry. CR_k, *the concentration ratio*, is the combined market share of the first k firms in the industry. Its formal specification is the following:

$$CR_k = \frac{\sum_{i=1}^{k} X_i}{\sum_{i=1}^{n} X_i}$$

where

X_i is the sales revenues of the ith company (sales figures of individual companies: $X_1, X_2, \ldots X_n$ are ranked in descending order),

k is the coverage of the concentration ratio, and

n is the total number of companies in the industry.

CR_k ratios are the indicators most frequently employed in the literature to measure the concentration of an industry, the main figures used being CR_3, CR_4, CR_6 and CR_{10} (Shepherd 1990, pp. 109-111). Of the above concentration ratios, CR_4 was finally incorporated into this model, in view of the following two facts:

♦ four-firm concentration ratios are used most often in research into the food industry,[30]

♦ CR_4 proved to possess a robust explanatory power in the estimates given by the model.

Another indicator that measures the concentration of an industry is the *Herfindahl-Hirschman index (HHI)*, which is the sum of the squares of the market shares of all the companies in a particular industry:

$$HHI = \sum_{i=1}^{n} MS_i^2$$

where MS_i is the market share of the ith company. The value of HHI is between $1/n$ and 1,[31] with higher values signifying a higher degree of concentration in the industry in question.[32] Since this indicator is very sensitive in reacting to

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[30] This fact can be observed in the literature concerning both foreign and Hungarian food processing. See, among others, Oustapassadis and Vlachvei 1994; Banterle et al. 1995; Hyvönen and Kola 1998; Girgždiene et al. 1998; Orbánné-Nagy and Szabó 1996.

[31] Practical applications are based on the market shares expressed as percentages, which result in a theoretical maximum value: $HHI(\text{max}) = 10,000$.

[32] HHI is commonly considered and applied by national competition offices. The Statistical Office of the United States has published official HHI figures since 1982 (Field and Pagoulatos 1996). According to widely approved standards, competition is ensured if its value is under 800 points. If it rises above 1,000 points, there is a danger of over-concentration, and a value over 1,800 points is usually regarded as a clear sign of over-concentration (Kopányi 1993).

86

changes in the number of firms, it is suitable for predicting the potential changes in market structure after planned mergers or acquisitions. Because the market shares of all the companies are included in the calculations of *HHI*, it presents a finer picture of concentration in an industry than do CR_k concentration ratios. Its disadvantage is the requirement for a total database, which in concrete cases is rarely available for an industry.

The third indicator used for demonstrating market concentration is the *entropy coefficient (EC)*, which also takes the market shares of all enterprises into account (Bevan et al. 1999, p. 12). The formula is based on the natural logarithm of the reciprocal of the market shares:

$$EC = \sum_{i=1}^{n} MS_i \, log\left(\frac{1}{MS_i}\right)$$

The higher the values of EC, the less concentrated the industry is shown to be. As can be seen from the formula, the entropy coefficient is a function of the number of enterprises in the given industry. In order to obtain a common basis for the comparison of various industries, EC is "standardised" i.e. divided by the potential maximum value postulated from the number of enterprises. This relative value will lie between 0 and 1, where unity represents a monopoly.

Of the three concentration indicators, the data available here was sufficient only to support the computation of CR_k ratios when required to cover the entire decade and all the food processing industries. Another advantage of the CR_4 ratio is its wide international availability. The latter fact was crucial for the subsequent geographical comparative analysis, since its utilisation ensures consistency when contrasting national market concentration characteristics throughout the CEE region.

5.3.2. Results Obtained with the Model

The relation introduced earlier in the beginning of section 5.3 may now be estimated with a linear regression function:

$$(FDI_i) = a_0 + a_1 \cdot (P_i) + a_2 \cdot (CONC_i) + a_3 \cdot (EXP_i) + a_4 \cdot (MS_i) + \varepsilon_i$$

where $a_0...a_4$ are the coefficients of the equation, and e is the error term. The database includes figures applying to 17 food processing industries. The dependent variable *(FDI)* is foreign-owned registered capital as a proportion of total industrial registered capital. The number of explanatory variables was limited by the content of the data set, and more importantly, by the small number of food processing industries. The following explanatory variables were eventually incorporated into the model:

P_i the profit rate of the ith food processing industry,

$CONC_i$ the concentration ratio CR_4 of the ith food processing industry,

EXP_i exports as a proportion of the total sales of the ith food processing industry,

MS_i contribution of the ith food processing industry to the output of the Hungarian food processing sector as a whole.

The industrial concentration ratio *CONC* was designed to quantify market power, or market structure. The size of the market is captured by the variables *EXP*, exports as a proportion of the total sales of the given industry, and *MS*, the contribution of the given industry to the total output of the Hungarian food processing sector. The model is constructed by a step-wise method that involves the gradual removal of non-significant variables.[33]

The other basic assumption in the calculations was the time-consuming nature of making foreign direct investments. This is supported by the following reasoning: the period between the decision and completion of the investment is extended on account of the geographical distance between the resident and host countries and the problems entailed in the physical implementation of the investments (construction, development, installation of technology and equipment). In the case of the CEE region, however, the most serious delays were brought about by the characteristic features of corporate restructuring, privatisation and the accompanying phenomena (bureaucracy, bidding processes). The time lag for realising the investments is estimated to be from three to five years in the case of the food industries in Central and Eastern Europe. As demonstrated in Figure 13 and assumed in Thesis IV, privatisation of the food industry was launched earlier and proceeded faster in Hungary than in many other countries in the region. The foreign investors made their decisions between 1990 and 1995, and as Figure 13 shows, penetration of FDI into the industry can reliably be perceived from as early as 1992 onwards, although the FDI figures for the time after 1994 are more appropriate for this purpose. The latest available data are from 1998. The formal specification of time lags in the regression is the following:

$$\left(FDI_{i,t}\right)= a_0 + a_1 \cdot \left(P_{i,t-k}\right)+ a_2 \cdot \left(CONC_{i,t-k}\right)+ a_3 \cdot \left(EXP_{i,t-k}\right)+ a_4 \cdot \left(MS_{i,t-k}\right)+ \varepsilon_{i,t-k}$$

where t is the year of observation and k is the length of the time lag. The model was run with the 1994, 1996 and 1998 figures for foreign capital penetration *(FDI)* and three and five-year time lags. Applying k for under three years appeared to be illogical in economic terms, since it would leave too a short time for investment decisions to mature.

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[33] The software used for estimating the regression functions consisted of E-Views 3.0 and SPSS 7.5.

Table 9. Estimates obtained with the regression model using the 1994 and 1996 figures for the proportions of foreign ownership in the industries (FDI$_i$).

	t=1994				t=1996	
	k=3		k=5		k=3	
	M(4)	M(2)	M(4)	M(2)	M(4)	M(2)
c constant	0.2916	0.2200	0.2473	**0.3184**	-0.1142	0.1018
standard err.	0.2065	0.1306	0.1957	0.1218	0.2300	0.1162
t-value	*1.4124*	*1.6847*	*1.2635*	*2.6143*	*-0.4963*	*0.8766*
prob.	0.1832	0.1142	0.2304	0.0204	0.6287	0.3955
P	**2.6650**	**2.0827**	**3.2784**	**0.4605**	-0.1798	-0.0020
standard err.	1.2639	1.0633	1.1978	0.1963	0.7692	0.7312
t-value	*2.1086*	*1.9588*	*2.7369*	*2.3455*	*-0.2338*	*-0.0028*
prob.	0.0567	0.0704	0.0180	0.0343	0.8191	0.9978
CONC	0.3687	**0.5789**	0.3464	**2.2948**	**0.9335**	**0.7761**
standard err.	0.2387	0.2105	0.2262	0.9917	0.2383	0.1740
t-value	*1.5447*	*2.7499*	*1.5312*	*2.3139*	*3.9177*	*4.4612*
prob.	0.1484	0.0156	0.1517	0.0364	0.0020	0.0005
EXP	0.7360		0.9290		0.1465	
standard err.	0.6136		0.5816		0.4021	
t-value	*1.1995*		*1.5973*		*0.3644*	
prob.	0.2535		0.1362		0.7219	
MS	-1.3327		-0.3508		1.6970	
standard err.	1.1174		1.0590		1.6578	
t-value	*-1.1927*		*-0.3313*		*1.0236*	
prob.	0.2560		0.7461		0.3262	
R^2	0.5639	0.4414	0.5397	0.4289	0.6261	0.5876
R^2 (corrected)	0.4185	0.3616	0.3862	0.3473	0.5014	0.5287
Standard error of the regression	0.2346	0.2458	0.2223	0.2292	0.2004	0.1948
F-value	**3.8788**	**5.5306**	**3.5171**	**5.2573**	**5.0230**	**9.9750**
Prob.	0.0302	0.0170	0.0403	0.0198	0.0130	0.0020

Note: coefficients and test results that are significant (on the 1, 5 or 10 percent level) are highlighted with bold letters.

The results of regression equations estimating the 1994 and 1996 penetration levels of foreign capital are shown in Table 9. Retrospective data of three years on the explanatory variables were available for 1994, and the 1996 foreign capital penetration could be estimated with both $k=3$ and $k=5$.

The results indicate a distinct trend. The variables P (profit rate) and $CONC$ (concentration ratio) are already significant or almost significant in the four-variable versions, and after removing the much less significant share of export sales EXP and the relative size of the industry within food processing MS, both P and $CONC$ become significant explanatory variables for the proportion of foreign ownership in the narrowed two-variable models.

The results in Table 9 are in full compliance with economic anticipations and earlier statements of FDI theories. The corporate strategy of foreign investors is logical, in that they evidently take profit rates and attainable market power into consideration when they make investment decisions and form preferences among the industries.

The insignificance of the other two variables leads to interesting conclusions. The elimination of the variable MS proves that the market-seeking attitude of foreign investors involves primarily a search for market dominance, while the magnitude of industries or the absolute sizes of markets appear to be of secondary importance.

The elimination of the variable EXP verifies a fairly common view in the FDI literature: that foreign investments in the food industry are primarily geared to acquiring domestic markets rather than export opportunities.

The estimates obtained with the most recent data yield even more interesting results, as they feature temporal variations in the set of significant variables for FDI determinants (Table 10). These changes in the explanatory power of the variables over time reflect the consequences of the economic reforms and the recession in the Hungarian food processing industry that took place in the transition period.

The inclusion of the $k=7$ time lag serves mainly demonstrative and comparative purpose, although it may also offer a meaningful interpretation: the model captures how the assumed FDI determinants in 1991 affected the penetration of FDI in the food industries in 1998. The explanatory power of both the profit rate and the concentration ratio is high, so that their t-values are significant at the one percent level in the reduced M(2) version of the model.

The estimates obtained using the time lags $k=5$ and $k=3$ result in dramatic changes. The explanatory power of the profit rate declines almost to zero in the case of the $k=5$ estimate, leaving MS exceptionally, in the two-variable reduced version, although it was not significant even then. On the other hand, the explanatory power of $CONC$ grew to a more significant level than ever before.

Table 10. Estimates obtained with the regression model using the 1998 figures for the proportion of foreign ownership in the industries (FDI$_t$).

| | $t=1998$ | | | | | |
| | $k=7$ | | $k=5$ | | $k=3$ | |
	M(4)	M(2)	M(4)	M(2)	M(4)	M(2)
c constant	0.1844	**0.3385**	-0.0503	**-0.0717**	0.2529	**0.2834**
standard err.	0.1838	0.1103	0.2426	0.2200	0.2512	0.1204
t-value	*1.0031*	*3.0687*	*-0.2071*	*-0.3261*	*1.0065*	*2.3542*
prob.	0.3356	0.0083	0.8394	0.7492	0.3340	0.0337
P	**3.4281**	**2.5171**	0.1593		**-2.3259**	**-2.3610**
standard err.	1.1252	0.8984	0.8112		1.2032	1.0836
t-value	*3.0468*	*2.8019*	*0.1964*		*-1.9331*	*-2.1788*
prob.	0.0101	0.0141	0.8476		0.0772	0.0469
$CONC$	**0.4808**	**0.4759**	**0.9070**	**0.9044**	**0.5663**	**0.5382**
standard err.	0.2125	0.1779	0.2513	0.2324	0.2448	0.1764
t-value	*2.2626*	*2.6757*	*3.6092*	*3.8909*	*2.3136*	*3.0510*
prob.	0.0430	0.0181	0.0036	0.0016	0.0392	0.0086
EXP	0.7160		-0.1554		-0.0288	
standard err.	0.5463		0.4241		0.4571	
t-value	*1.3106*		*-0.3665*		*-0.0631*	
prob.	0.2145		0.7204		0.9507	
MS	0.5478		2.1012	2.1238	0.3104	
standard err.	0.9947		1.7484	1.5923	1.7101	
t-value	*0.5507*		*1.2018*	*1.3338*	*0.1815*	
prob.	0.5919		0.2526	0.2036	0.8590	
R^2	0.5748	0.5094	0.5646	0.5586	0.5551	0.5537
R^2 (corrected)	0.4331	0.4394	0.4195	0.4955	0.4068	0.4899
Standard error of the regression	0.2088	0.2077	0.2113	0.1970	0.2136	0.1981
F-value	**4.0557**	**7.2694**	**3.8903**	**8.8573**	**3.7426**	**8.6829**
Prob.	0.0263	0.0068	0.0299	0.0033	0.0336	0.0035

Note: coefficients and test results that are significant (on the 1, 5 or 10 percent level) are highlighted with bold letters.

The results obtained with $k=3$ are even more astonishing, since P became significant again, but with a negative sign. A similar phenomenon can be observed for the $t=1996$ model when employing a three-year time lag (Table 9). The fact that the coefficient became negative is definitely attributable to the turbulent economic environment in the early 1990s. Even at the beginning of the transition, between 1989 and 1991, the relations of the food processing firms to the state budget were already loosening, but production continued in a "windless economic environment" characterised by the old traditional banking and business relations and close ties within the agrifood chain itself. The restructuring and privatisation of the food processing companies, the rapidly changing external economic environment and the uncertainty about the future upset the conventional profit performance figures, so that even the most successful companies of previous times did not necessarily achieve high profits at the beginning of the decade. More than half of the food processing industries produced negative profit rates in 1993. In view of these circumstances, the non-significance of profit rate is not that surprising.

Researchers investigating FDI motivation have reservations with regard to the use of economic or financial indicators in the case of "non-equilibrium" or transitional economies that are suffering from recession. It is evident that foreign investors make their decisions primarily on the basis of internationally prevailing standard profit rates in the individual food processing industries. Such profit rates were not available for the current research, but domestic profitability in 1991, exceptionally, proved to serve as a relevant *"proxy"* variable.

The negative result obtained for the profit rate points to an interesting paradox and prompts us to draw a partly speculative conclusion. Foreign investors may have preferred industries with low or negative profit rates, since they were able to make their best deals in precisely those cases where poorly performing companies were offered for sale cheaply through the privatisation process.

The fact that the variable *CONC* retained its significance throughout the decade while the explanatory power of the profit rate fluctuated widely proves the permanent appeal of attainable market positions for foreign investors. Some theoretical experts question the actual ability of profit rate to measure corporate performance even in the environment of a private economy, and often see performance as being embodied in other indicators such as market positions (Martin and Parker 1997, p. 53). Following the same train of thought: the prioritising of market positions may have been a means for achieving the ultimate goal. In other words, foreign companies investing in the leaders on the Hungarian food market anticipated long-run returns on their investments even though profit rates appeared to continue to be negative.[34]

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[34] It is interesting to note that no fast or spectacular improvement in profit rates could be detected – even recently – in the FDI-intensive industries. This raises the issue of profit repatriation and transfer prices, which will be addressed in detail in section 9.1.2.

5.4. Summary

The purpose of the empirical analysis was to identify the industry-specific determinants of foreign direct investments in the Hungarian food processing sector. Foreign influence was represented by the proportion of foreign ownership in the registered company capital of the industries. The explanatory variables incorporated into the model were industry profit rate, proportion of exports among total sales in the industry, and contribution to the total food processing output. The regression equations were estimated with a time lag in order to capture the time span over which foreign investments are implemented, due to the characteristics of the CEE food industry and for technological reasons.

The results presented in Tables 9 and 10 indicate the suitability of the model. The value of R^2 exceeded 50 percent in most of the specifications, a value that is considered very good for cross-sectional analyses. The F-tests of R^2 in the case of the t=1998 M(2) narrowed models are significant at the 1 percent level, and this level of significance is also approached in the t=1996 and t=1994 estimates. The results unequivocally verify the explanatory power of the models.

The model leads to the conclusion that *the uneven distribution of FDI in the food processing industry was determined primarily by market concentration and profit rates.* Of the two variables, *the explanatory power of the profit rate proved to vary with time*, since the changing economic structure and environment, the recession and the effects of privatisation detracted from corporate profitability in the early 1990s. *The explanatory power of market concentration remained stable, and even became robust in the late 1990s, which suggests that foreign investors expected the market positions to ensure a long-term return on their investments.*

The variables of *MS* (contributions of the industries to the food output) and *EXP* (export sales) did not become significant in any of the model specifications. These findings suggest two conclusions: *(1) Market power is more attractive to foreigners than the magnitude of the industries. (2) Foreign investments in Hungarian food processing were primarily motivated by the domestic market as opposed to export opportunities.*

6. Relation of Market Structure to Foreign Capital in the Hungarian Food Processing Industries

Thesis III:

The Hungarian food processing industries are highly divergent in terms of their concentration rates and proportions of foreign capital, and they also form distinct groups on other market and performance criteria. They follow four typical routes in terms of concentration and their penetration by foreign capital.

6.1. Literature on the Relation of Market Structure to Foreign Capital

6.1.1. Concentration and FDI in the International Literature

The market structure component is of utmost importance within the causal relations defined in the SCP paradigm. The identification of factors determining market structure is held up as the central research objective in numerous studies. Dunning (1958) recognised at an early stage the relation between foreign investments and industry structure, when he discovered in an analysis of manufacturing industries in the United Kingdom that two-thirds of the foreign-owned subsidiaries were operating in highly concentrated industries. Since then, broad agreement has been reached on the fact that this relation prevails, but economists have been divided in their opinions on its causal direction. Some researchers accentuate the impact of foreign capital on concentration, while others assert that it is the structure of industry that attracts foreign direct investment.

Caves (1996, pp. 83-85) postulated a relation between FDI and market structure on the grounds of the existence of entry barriers. In his view, concentrating markets and high entry barriers induce the emergence of multinational enterprises. They have to possess significant advantages over local competitors in order to overcome the entry barriers. Consequently, "the height of entry barriers and the extent of foreign-investment activity should be highly correlated. And because entry barriers mostly determine an industry's level of seller concentration, we expect foreign investment and seller concentration to be closely associated".

More recently, Ratnayake (1999) tested empirically the correlation between entry barriers and concentration in New Zealand, and found that foreign ownership in a particular industry – among other factors such as size of the industry, import competition and economies of scale – is a determinant of concentration. In his survey of the literature, Ratnayake mentions two hypothetical types of impact that foreign direct investment can have on concentration:

1. Foreign influence may imply company acquisitions and the deterioration of domestic processors, causing increased concentration.

2. Foreign companies may be able to break the influence of local oli-
   gopolies, and – provided they appear on the market in large num-
   bers – they can intensify competition and reduce concentration.

   Caves (1996, pp. 89-90) states that foreign investments influence the devel-
opment of an industry's concentration, but the direction of the impact cannot be
generalised upon with certainty. The impact of market structure on foreign direct
investment seems to be more unequivocal in the literature. The topic was argued
theoretically in Knickerbocker's oligopolistic reactions hypothesis, and a study
at Harvard University analysing US investments in Canada found that concentra-
tion in the resident country's industries had a closer correlation with FDI than
did that in the host country (Caves et al. 1980). The impact of industry structure
on foreign direct investment has been confirmed by a series of empirical studies.
Considering manufacturing sector in the United Kingdom, Steuer (1973) found a
significant correlation between the concentration of particular industries and
sales of foreign-owned companies. Later Fishwick (1981) reported a high corre-
lation between industry concentration and foreign investments in the United
Kingdom, Germany and France, a trend that was confirmed in a number of coun-
tries at various levels of development, such as New Zealand (Deane 1970), Aus-
tralia (Parry 1978), the United States (Pugel 1978) and Mexico (Blomström
1989).[35] The range of countries and the results of the above-mentioned studies
suggest that the correlation between the degree of concentration of an industry
and foreign direct investment prevails regardless of the country's level of devel-
opment, provided the government does not impose any administrative barriers.

   As far as the food processing industries are concerned, Traill (1998) exam-
ined these in several Western European countries and found that there was a
great involvement of multinational companies in the concentrated industries and
less involvement in the medium-concentrated ones, while no involvement was
mentioned in the case of industries with low levels of concentration.

6.1.2. Relations Between Concentration and FDI in the Hungarian Literature

A dynamic concentration of capital has fuelled the acceleration of globalisation
in the 1990s. Multinational enterprises consider each sub-market equally impor-
tant, since they have to succeed in the competition in all markets at the same
time. The entry of globally growing multinational enterprises has redrawn the

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[35] The examples are listed and assessed by Caves (1996, p. 85), who also mentions an empirical
study that came to a different conclusion, that of Baba (1975) on the Japanese economy, where
the author did not find any correlation between concentration and foreign direct investment.
The main reason for this was identified in the special policy of the Japanese government,
which is aimed at protecting domestic enterprises.

market structure and increased concentration in the industries of the European transitional economies (Szanyi 1997).

The fundamental changes that have taken place in Hungarian manufacturing provide an ideal basis for testing the theory and the internationally observed tendencies. Kaderják (1996), looking for the motives of foreign investors, with special emphasis on polluting investments, noted that concentration had to be among the assumed determinants but found no relation between this and industry-specific FDI. His results were surprising, even in the light of the fact that his research covered the whole range of manufacturing industries in Hungary.

Empirical efforts have remained scarce in the literature on Hungarian food processing. One of the very rare exceptions is the work of Lakner (1994), who made an interesting analysis of the distribution of FDI between industries in the early phase of privatisation. His calculations showed that concentration was a key determinant of profit, which was also found to be a function of domestic sales in the industry concerned. His results are in close conformity with those obtained in the previous chapter of this work.

Boeckenhoff and Moeller (1993) noted that foreign direct investments tend to flow into the more concentrated industries of the Hungarian food processing sector, and this was confirmed by Vissi (1995) in his analysis of the competitive environment in the Hungarian food processing industries. Even so, recognition remained an intuitive assumption without any empirical support. An effort was made in the regression analysis presented in the previous chapter to fill this gap. This line of research will be continued here in Chapters 6 and 7, where the main objective will be to analyse the relation of FDI to the degree of concentration in the Hungarian food processing industries.

6.2. Cluster Analysis of the Food Processing Industries

The econometric model provided empirical evidence for the assumption that market power was the most significant determinant of FDI in the food industries in Hungary. The evidence indicates that FDI penetration and concentration within an industry are interrelated factors. In order to find additional motives for the behaviour of foreign capital, the next step involved a cluster analysis based on two correlating attributes of the food industries,[36] the measures for which continue to be foreign participation in the registered company capital of the industries and the concentration ratios CR_4.

The dendrogram in Figure 14 demonstrates the agglomerative clustering procedure in which all the observation points start out as independent items, and

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[36] The cluster analysis was conducted using SPSS 7.5 statistical software. Due to the small number of observations (17), the hierarchical clustering algorithm presuming Euclidean distances and average linkages was applied.
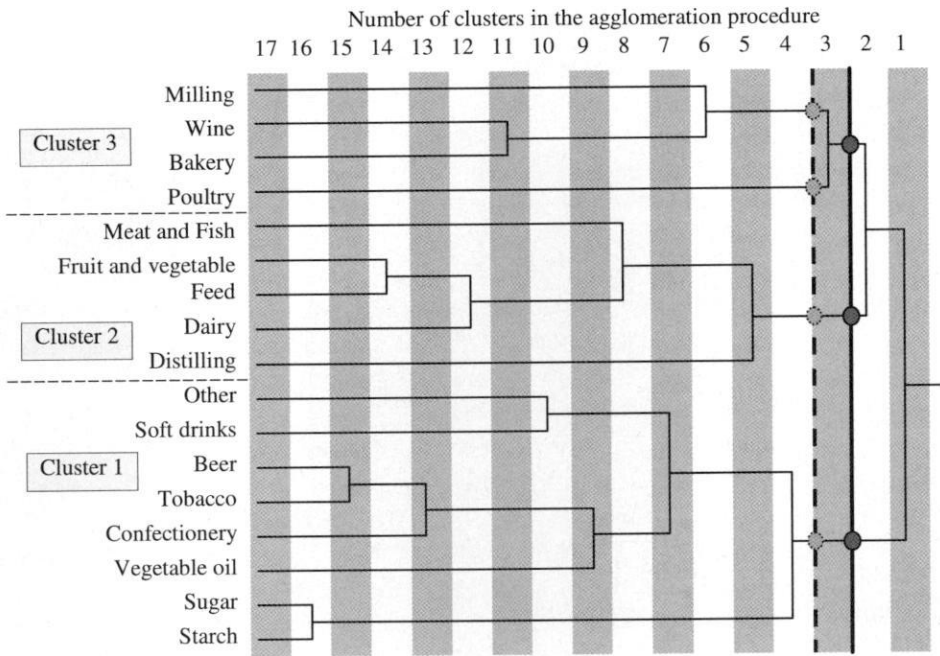
Figure 14. Dendrogram for a cluster analysis of the Hungarian food processing industries in 1997.

successive manoeuvres of combining the two closest groups into one aggregate cluster are performed.

The beer, tobacco and confectionery industries formed a tight group in the early phase of the clustering process and drew the vegetable oil industry along with it a few steps later. The group then incorporated the pairs consisting of sugar and starch and of other processing and soft drinks. A second cluster consisted of the meat and fish, fruit and vegetables, animal feeds, distilling and dairy industries. Wine making and the bakery industry became connected in the middle of the process, and the milling industry joined them later. Thus a third cluster was formed, to which poultry was connected only at the three-cluster level. Poultry processing diverges from the rest of the industries in terms of the attributes considered here, being left as an outlier that made up a totally separate cluster for a long time, up to the four-cluster level.

6.2.1. Graphical Approach

Since the clusters were defined on the grounds of the proximity of observations to one another (Hair et al. 1995), the positions of cluster members and the relations between them can also be illustrated graphically. Each observation point

97
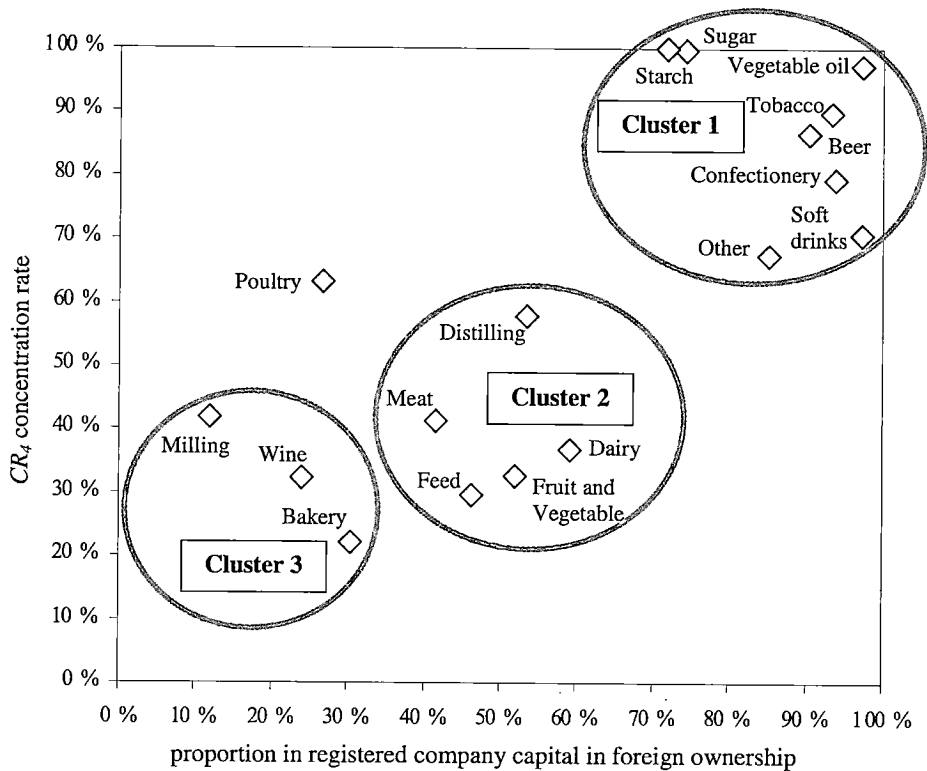
Figure 15. Scatter plot of a cluster analysis of the Hungarian food processing industries in 1997.

formed by the two variables was plotted on a chart in order to verify the clusters derived from the formal application of the analytical procedure (Figure 15). The scatter plot confirms the relevance of the three or four-cluster grouping of the Hungarian food processing industries. Poultry processing is situated far away from both adjacent clusters, and constitutes an "independent cluster" up until the four-cluster level.

6.2.2. Description of Clusters

The following verbal interpretation of the clusters demonstrates that the three and four-cluster levels provide the most appropriate classification for the Hungarian food processing industries.

6.2.2.1. Cluster 1 – High Foreign Ownership and High Concentration

Cluster 1 includes highly concentrated industries in which over 70 percent of the capital is in foreign ownership. All of these industries had small shares in the total output of food processing in 1997 (one to five percent). Although their individual weights seem insignificant, their summed proportion was well over one quarter of the food industry output (Figure 16). They have either a dominant firm (starch, vegetable oil) or an oligopolistic market structure (coffee, tobacco, sugar), or else they are characterised by the co-existence of a few large companies and dozens of small-scale enterprises (beer, confectionery, soft drinks, paprika). The majority of the Cluster 1 industries produce "luxury", highly processed and relatively expensive food items.

These advantages, good sales prospects coupled with excellent intra-industry market positions, resulted in the fact that these industries were among the first to be privatised and were rapidly acquired by foreign investors, almost as "a matter of urgency", before 1993.
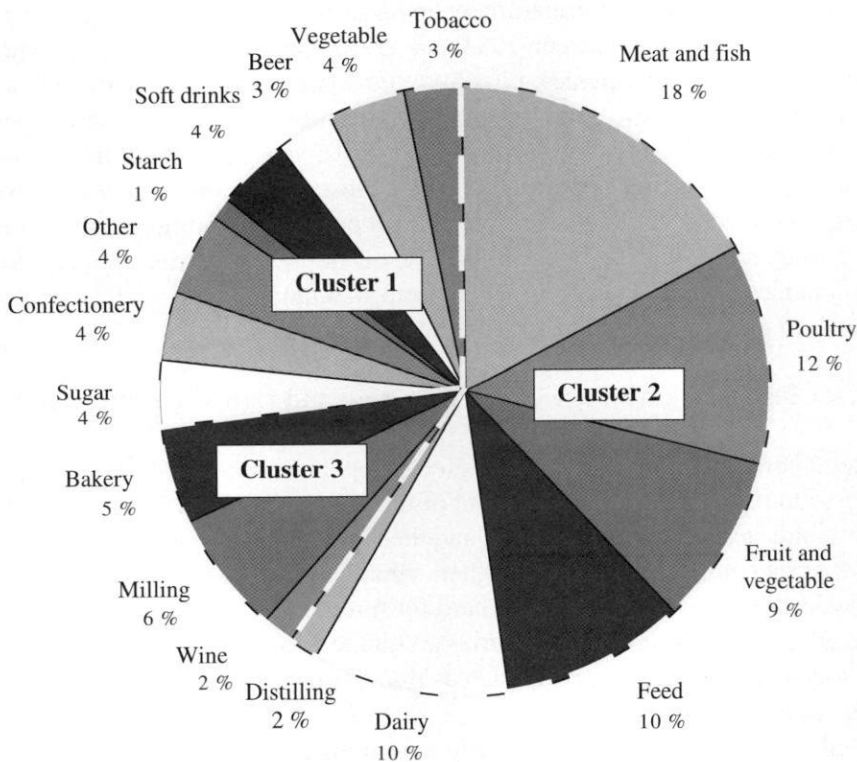
Figure 16. Contributions of industries to the total output of the Hungarian food processing sector in 1998 (Source of data: ÉFOSZ 1999).

6.2.2.2. Cluster 2 – Average Foreign Participation and Average Concentration

Cluster 2 includes the largest industries, which together account for half of Hungary's total food production. With the exception of distilling, each contributed 8 to 17 percent of the total output of the food sector in 1997. Although these industries consist of several huge processing companies, their market structure is more even than that of the industries in Cluster 1. Their output is a range of basic foodstuffs.

Since these branches are involved in first-stage processing and rely heavily on agricultural raw materials, they were badly hit by the market crisis in agricultural products in the early 1990s, which resulted in a shortage of raw materials. The processing companies were left struggling with over-capacity and outdated equipment, which slowed down their restructuring and privatisation. Exports had always been an important strength of these industries, but these sales needed to be redirected to new markets after losing their foothold in the traditional eastern outlets.

Foreign companies penetrated these industries cautiously, making their appearance relatively late, between 1993 and 1996. Their objective was to acquire the most prosperous companies, possibly with some extra advantages such as a high level of technology, good geographical location or excellent market position. The main FDI motivating factors in Cluster 2 were the large domestic markets and good exporting opportunities. This cluster consists of industries with good growth prospects, and therefore the proportion of foreign capital is expected to increase, which should in turn result in greater concentration among the companies in these industries. This means that the industries in Cluster 2 are expected to move towards Cluster 1 in the medium term.

6.2.2.3. Cluster 3 – Low Foreign Participation and Low Concentration

Cluster 3 also includes fairly small processing industries, which contributed from two to seven percent of the output of the food sector in 1997. The structure of these industries is rather scattered, and there are numerous processing units of similar sizes competing with each other. Since the baking and wine producing companies are not very large, it was hard for foreign investors to acquire significant market positions in these industries. With the exception of a few large companies operating on huge markets such as Budapest, bakeries in Hungary usually supply a tiny local market.

Winemaking is closely tied to basic agricultural activity. The fact that foreigners were not allowed to buy or own agricultural land in Hungary has hindered their involvement in winemaking. The milling industry – like winemaking – is also closely connected with the production of agricultural raw materials.

Besides the sugar and dairy industries, it was one of the areas that was designed to be transferred to the ownership of agricultural producers through privatisation, and although foreign investors soon purchased the sugar and dairy industries despite these political intentions, the milling industry did not arouse their interest on account of its poor market prospects and weak profitability. The low participation of FDI in Cluster 3 can therefore be explained by the scattered structure of these industries and discouraging administrative circumstances.

6.2.3. Common Characteristics of the Clusters

As previously indicated in the cluster profiles, the member industries show a resemblance in many more aspects than the proportion of foreign capital and degree of market concentration. The characteristics of the food processing industries at the three-cluster level are summarised in Table 11. The poultry processing industry mainly shares the characteristic features of Cluster 2, although in terms of foreign capital penetration it is closer to Cluster 3. The distilling industry, in Cluster 2, converges towards Cluster 1 in terms of market size and types of products. A combined indicator of domestic market size and export capability, showing the contributions of cluster members to the total output of the Hungarian food sector is provided in Figure 16.

Table 11. Summary of characteristic profiles of clusters.

Attribute of food industries	Cluster [1]	Cluster [2]	Cluster [3]
Number of processing industries	8	6	3
Share of registered company capital owned by foreign investors (%)	over 80	40-60	10-30
Concentration ratio CR_4 (%)	over 60	25-60	under 35
Domestic market size (in USD million)	40-260	350-1,000	80-420
Export sales (in USD million)	10-150	50-400	25-75
Productivity (in thousand USD/employee)	60-300	40-100	20-70
Number of firms	7-187	84-282	122-594
(cluster average in brackets)	(73)	(116)	(303)
Type of products	"luxury" items, beverages, high value added	basic food items and intermediary products	basic food items and intermediary products

Source: own calculations based on AKII 1998. Note: data are from 1997.

Analysis of the content of the cluster summary table reveals additional interesting phenomena regarding the behaviour, motives and performance of foreign investors.

Foreign investors feel most comfortable in relatively small food processing industries with a high level of market concentration and a low number of participants. The product groups in Cluster 1 offered the best prospects for growth in demand once income levels start to grow significantly in Hungary and the other CEE countries. Also, productivity is by far the highest in these industries, which is a distinct result of rapid modernisation and capital infusion.

Foreign investors have also become increasingly active in the industries making up Cluster 2, taking advantage primarily of the sizes of the domestic and export markets. Modernisation of these industries has been a slower process, partly because privatisation started later and partly because financially strong foreign-owned companies only account for approximately 50 percent of production in the cluster.

The example of the industries in Cluster 3 indicates that foreign investors are not particularly interested in capturing companies with modest shares in small markets. Productivity figures in these industries are among the lowest in the entire food sector.
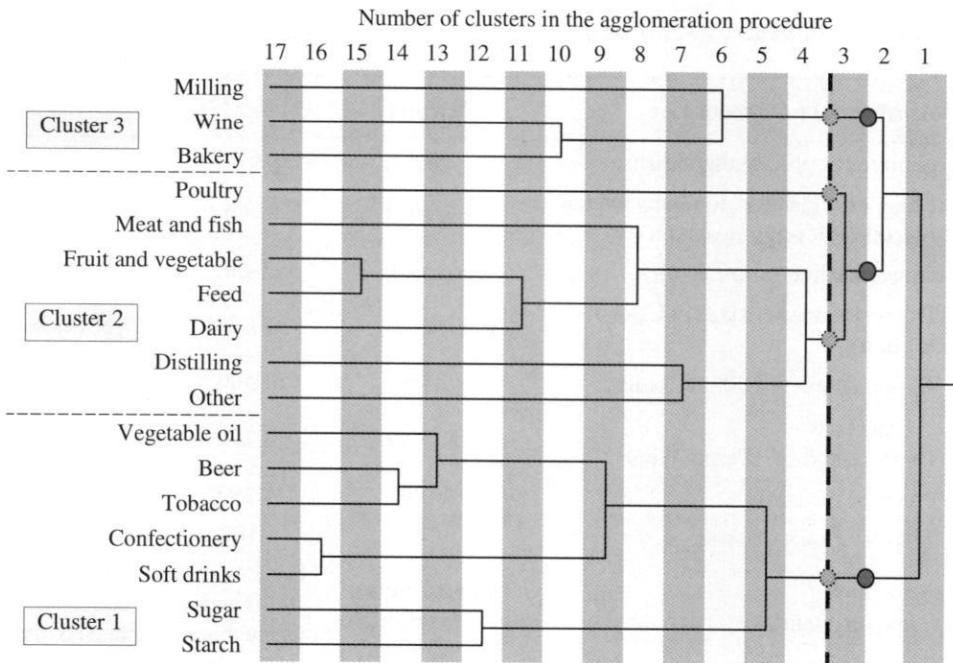
Figure 17. Dendrogram of Hungarian food processing industries in 1998.

6.2.4. Clustering Results for Subsequent Years

The clustering was run again with the 1998 data in order to check the changes relative to 1997. The resulting dendrogram, shown in Figure 17, has the industries connected in a slightly different order, and there are also minor changes in the composition of the clusters.

Dendrograms illustrate primarily the cluster combine order, the accurate data of the clustering algorithms for 1997 and 1998 are presented in Table 12, where the connecting industries on the various level of cluster combination procedure can be identified by the attached numeric codes for the industries. The columns of coefficients include the distance between the two combined industries.

The most significant difference between the two years is that the manufacturing of other foodstuffs was connected with Cluster 2 in 1998. Poultry processing again remained an independent industry for a long time and was joined to Cluster 2 only at the four-cluster level, and as it continued to be an outlier, its position scarcely affected the composition of the other clusters. The industry denoted as "other foodstuffs" includes a heterogeneous set of enterprises and product

Table 12. Summary table of the clustering procedure of the Hungarian food processing industries.

Code	Industry	Number of steps	Agglomeration order 1997 Combined clusters Cl. 1	Cl. 2	Coeffi-cients	Agglomeration order 1998 Combined clusters Cl. 1	Cl. 2	Coeffi-cients
1	Meat and fish							
2	Poultry	1	7	10	5.56E-04	11	16	7.67E-04
3	Fruit and vegetable	2	15	17	1.89E-03	3	8	1.75E-03
4	Vegetable oil	3	3	8	3.98E-03	15	17	5.83E-03
5	Dairy	4	11	15	8.54E-03	4	15	6.83E-03
6	Milling	5	3	5	1.45E-02	7	10	1.08E-02
7	Starch	6	9	14	1.46E-02	3	5	1.44E-02
8	Feed	7	12	16	1.59E-02	9	14	1.94E-02
9	Bakery	8	4	11	1.87E-02	4	11	2.24E-02
10	Sugar	9	1	3	2.26E-02	1	3	3.72E-02
11	Confectionery	10	4	12	4.63E-02	12	13	4.32E-02
12	Other food processing	11	6	9	4.86E-02	6	9	5.40E-02
13	Distilling	12	1	13	5.88E-02	4	7	5.97E-02
14	Wine	13	4	7	8.43E-02	1	12	0.124
15	Beer	14	2	6	0.111	1	2	0.206
16	Soft drinks	15	1	2	0.115	1	6	0.212
17	Tobacco	16	1	4	0.523	1	4	0.500

groups, and its shift from Cluster 3 to Cluster 2 did not cause any great surprise. All the other industries preserved their previous positions in the clusters, and in this sense the 1998 cluster analysis confirms the permanence of the three clusters given by that for 1997. The minor changes between the two dendrograms explained in Figure 18.

As noted earlier, the only significant change in the composition of the clusters between the two years is the shift of "other manufacturing industry" from Cluster 1 to Cluster 2. The reasons for this become apparent from Figure 18: Cluster 1 forms a tighter group with the concentrating soft drink industry in 1998, whereas foreign participation in the manufacturing of other foodstuffs had decreased. The move implies certain distinct events in the background, notably a greater concentration and an increase in FDI within some large industries in Cluster 2 (mostly distilling, animal feeds and dairy processing), which dragged the "other foodstuffs", a collective category of heterogeneous companies, including a large number of newly established enterprises mostly in domestic ownership into Cluster 2.
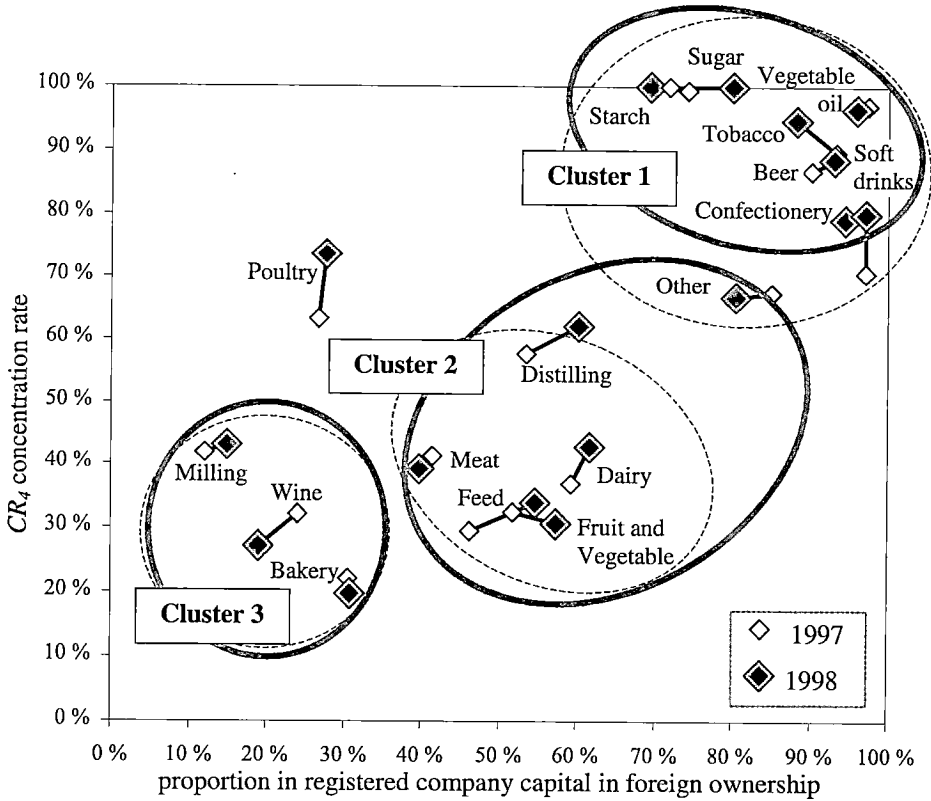
Figure 18. Clusters of Hungarian food processing industries in 1997 and 1998.

104

6.3. Testing the Causality Directions Between Concentration and FDI

The main causal relations and their directions to be tested in the dissertation are summarised in Figure 7 (page 57), which also illustrates how the FDI segment is linked to the causal mechanism of the SCP paradigm. The tests of causal directions C and E are performed in the following section (Figure 7).

The problem to be tested could be translated into the terminology of food economics as follows: does concentration determine penetration by foreign direct investment or is the level of concentration attributable to foreign direct investment in the industries?

The close relation between the two dimensions is indisputable in the light of the cluster analysis, but the question is a relevant one: *what is the direction of the causal relation between the proportion of foreign ownership and concentration in the industries of the Hungarian food processing sector?*

The method used for testing the direction of causality was that developed by Granger (1969), who constructed restricted and non-restricted regression equations in order to decide whether Y is really dependent on X. The restricted equation estimates the independent variables with its own lagged values. The formula is the following:

[1]
$$Y = \sum_{i=1}^{k} \alpha_i Y_{t-i} + \varepsilon_i$$

where Y is the independent variable, t is the time of observation and k is the extent of the time lag. The non-restricted regression also incorporates the lagged values of the explanatory variable to be tested:

[2]
$$Y = \sum_{i=1}^{k} \alpha_i Y_{t-i} + \sum_{i=1}^{k} \beta_i X_{t-i} + \varepsilon_i$$

where X is the explanatory variable. The extended equation [2] is compared with the restricted equation [1] by means of an F-test, which immediately indicates whether adding the variable X increases the explanatory power of the estimate significantly or not.

Symmetric use of the non-restricted regression relation is usually employed as a means of testing the presumed impact of two variables on each other (Pindyck and Rubinfeld 1991). The Granger causality test is primarily used for time series, and since the causal relation to be tested here includes cross-sectional data available for a short period, the test is applicable only in slightly

modified forms. Due to the special nature of the database, the analysis consists of three approaches.[37]

The first test is the closest in concept to the initial form of the Granger test. Both the proportion of foreign ownership and concentration were explained by independent series of regressions with the lagged values of both variables. In the *first approach*, the causality test was performed on the basis of the following formula:

$$[3] \qquad FDI_t = \sum_{i=1}^{k} \alpha_i FDI_{t-i} + \sum_{i=1}^{k} \beta_i CR_{t-i} + \varepsilon_i$$

and similarly for the direction of FDI $\Rightarrow$ CR:

$$[4] \qquad CR_t = \sum_{i=1}^{k} \alpha_i CR_{t-i} + \sum_{i=1}^{k} \beta_i FDI_{t-i} + \varepsilon_i$$

The value of k, which signifies the length of the time lag, was 1, 2, and 3 in the case of each t, in other words causality was tested with three time lags in each year of observation.

The results of the first approach are summarised in Table 13. The classical approach of the Granger method raises a number of problems in our case. Owing to the special characteristics of food processing, 2-3 years of time lag would be relevant, since, as previously noted, years pass between investors' decisions and actual implementation of the investments in Hungary. This means that a relatively long time is also required for the potential impacts of foreign capital on the development of the structure of industry to be felt. However, any further stretching of the time lag is hampered by two factors:
1. The industry-specific data on food processing can be compared in retrospect only between 1991 and 1998.
2. The incorporation of one additional year of time lag would reduce the initially rather low degree of freedom by two, which would render the test results methodologically questionable.

The results of the calculation in Table 13 do not point to any dramatic difference in the impacts of the two variables on each other. The null hypothesis can be rejected in all instances. The calculations of the first approach suggest that the foreign ownership that has evolved in the individual industries, albeit to a very minor extent, has influenced their concentration, rather than that the concentrated market structure has attracted inflows of the foreign direct investment into the particular industries.

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[37] The regressions were solved by linear ordinary least square methods in all three approaches to the causal tests, employing SPSS 7.5 software.

Table 13. Causality test results of the first approach.

Null hypothesis	k=1, N=17			k=2, N=17			k=3, N=17		
	R^2	$F_{(2,14)}$	p	R^2	$F_{(4,12)}$	p	R^2	$F_{(6,10)}$	p
t = 1998									
H_0: CR $\neq\!\!>$ FDI	0.97221	244.9	0.00E+00	0.97687	126.7	1.05E-09	0.98120	87.0	4.78E-08
H_0: FDI $\neq\!\!>$ CR	0.97407	263.0	0.00E+00	0.97508	117.4	1.64E-09	0.97660	69.6	1.42E-07
t = 1997									
H_0: CR $\neq\!\!>$ FDI	0.86885	46.4	6.67E-07	0.87751	21.5	2.12E-05	0.87820	12.0	4.55E-04
H_0: FDI $\neq\!\!>$ CR	0.93422	99.4	5.33E-09	0.95306	60.9	7.18E-08	0.96472	45.6	1.08E-06
t = 1996									
H_0: CR $\neq\!\!>$ FDI	0.87776	50.3	4.08E-07	0.89310	25.1	9.49E-06	0.90162	15.3	1.63E-04
H_0: FDI $\neq\!\!>$ CR	0.98267	396.9	0.00E+00	0.98833	254.2	1.49E-11	0.98909	151.1	3.19E-09
t = 1995									
H_0: CR $\neq\!\!>$ FDI	0.96640	201.3	0.00E+00	0.97146	102.1	3.69E-09	0.97381	62.0	2.48E-07
H_0: FDI $\neq\!\!>$ CR	0.98252	393.6	0.00E+00	0.98344	178.1	1.22E-10	0.98548	113.1	1.32E-08
t = 1994									
H_0: CR $\neq\!\!>$ FDI	0.90479	66.5	7.09E-08	0.91403	31.9	2.62E-06	0.93781	25.1	1.76E-05
H_0: FDI $\neq\!\!>$ CR	0.97400	262.2	0.00E+00	0.97972	144.9	4.09E-10	0.97980	80.9	6.82E-08
t = 1993									
H_0: CR $\neq\!\!>$ FDI	0.81433	30.7	7.61E-06	0.82697	14.3	1.60E-04			
H_0: FDI $\neq\!\!>$ CR	0.90061	63.4	9.58E-08	0.90724	29.3	4.10E-06			
t = 1992									
H_0: CR $\neq\!\!>$ FDI	0.72366	18.3	1.23E-04						
H_0: FDI $\neq\!\!>$ CR	0.92787	90.0	1.02E-08						

In the *second approach*, the independent variable was tested exclusively as a function of the lagged values of the explanatory variable. In this way the degree of freedom in the regression equations was increased and the measured impact could be fully attributed to the explanatory variable. The force of attraction exerted by the degree of concentration in an industry, determining the influx of foreign capital, is measured in the following way:

[5]
$$FDI_t = \sum_{i=1}^{k} \alpha_i CR_{t-i} + \varepsilon_i$$

The reverse causality direction can be tested analogously. As in the first approach, the time lag was set at $k = 1, 2, 3$. The results in Table 14 already enable some tentative conclusions to be drawn.

The null hypothesis has to be approved for the direction of FDI $\Rightarrow$ CR in the case of $k = 1$ and for $k = 2$ in 1992, since the foreign direct investment does not explain much of the concentration that took place in the industries. The F-values also confirm the weak explanatory power in the above two cases. The causal direction CR $\Rightarrow$ FDI was nevertheless significant in the same period, in that concentration evidently determined the inflows of foreign direct investment. The data series with a three-year time lag indicates an interesting regularity: as with the results of the first approach, both causal directions are significant in all the years of observation, although the results for 1993-1995 indicate a stronger influence of industry concentration, while those for 1996-1998 suggest the opposite, a stronger determining force on the part of foreign direct investment.

The results suggests that industry concentration rates were powerful determinants of the initial foreign direct investment flows, whereas no distinct direction of causality can be detected for the second half of the decade.

The lengths of the time lags were sustained in the *third approach*, but only one year's figures were incorporated into the equation at a time. The formula used for testing the relation CR $\Rightarrow$ FDI is modified in the following way relative to equation [5]:

[6]
$$FDI_{t,i} = \alpha_i CR_{t-i} + \varepsilon_i$$

where $i = 1, 2, 3$. The FDI $\Rightarrow$ CR direction is tested pursuant to the symmetric version of equation [6]. The results of the third approach are in compliance with the main tendencies unveiled in the second approach. In the two-year time lag columns in Table 15 only the direction CR $\Rightarrow$ FDI is shown to have been significant in 1992 and 1993, and the same outcome is obtained for 1993 and 1994 in the case of $i = 3$. No clear causality was unveiled for the rest of the decade.

The objective of the causality test was to determine the causal direction of the close correlation between industry concentration and foreign capital involve-

Table 14. Causality test results of the second approach.

Null hypothesis	k=1, N=17			k=2, N=17			k=3, N=17		
	R^2	$F_{(1,15)}$	p	R^2	$F_{(2,14)}$	p	R^2	$F_{(3,13)}$	p
$t = 1998$ H_0: CR $\neq\!\!\!>$ FDI	0.42249	10.9	0.00473	0.43233	5.3	0.01900	0.44497	3.5	0.04760
H_0: FDI $\neq\!\!\!>$ CR	0.48024	13.8	0.00204	0.48443	6.6	0.00968	0.48447	4.1	0.03043
$t = 1997$ H_0: CR $\neq\!\!\!>$ FDI	0.44662	12.1	0.00336	0.45549	5.9	0.01419	0.45557	3.6	0.04237
H_0: FDI $\neq\!\!\!>$ CR	0.33952	7.7	0.0141	0.34669	3.7	0.05080	0.57153	5.8	0.00975
$t = 1996$ H_0: CR $\neq\!\!\!>$ FDI	0.37711	9.0	0.00873	0.38146	4.3	0.03464	0.60976	6.8	0.00545
H_0: FDI $\neq\!\!\!>$ CR	0.41334	10.5	0.00537	0.63295	12.1	0.00090	0.72415	11.4	0.00061
$t = 1995$ H_0: CR $\neq\!\!\!>$ FDI	0.39309	9.7	0.00707	0.60279	10.6	0.00156	0.60296	6.6	0.00607
H_0: FDI $\neq\!\!\!>$ CR	0.48649	14.2	0.00185	0.56787	9.2	0.00281	0.57639	5.9	0.00909
$t = 1994$ H_0: CR $\neq\!\!\!>$ FDI	0.58442	21.0	0.00035	0.59822	10.4	0.00169	0.64394	7.8	0.00307
H_0: FDI $\neq\!\!\!>$ CR	0.57128	19.9	0.00045	0.59524	10.3	0.00178	0.59548	6.4	0.00682
$t = 1993$ H_0: CR $\neq\!\!\!>$ FDI	0.57115	19.9	0.00045	0.61985	11.4	0.00115	0.70966	10.6	0.00085
H_0: FDI $\neq\!\!\!>$ CR	0.65244	28.1	8.8E-05	0.65308	13.2	0.00060	0.67314	8.9	0.00179
$t = 1992$ H_0: CR $\neq\!\!\!>$ FDI	0.69093	33.5	3.6E-05	0.71407	17.5	0.00016			
H_0: FDI $\neq\!\!\!>$ CR	0.17769	3.2	0.09194	0.23543	2.2	0.15272			
$t = 1991$ H_0: CR $\neq\!\!\!>$ FDI	0.17713	3.2	0.09252						
H_0: FDI $\neq\!\!\!>$ CR	0.02832	0.4	0.51851						

Table 15. Causality test results of the third approach.

	Null hypothesis	i=2, N=17			i=3, N=17		
		R^2	F (1,15)	p	R^2	F (1,15)	p
t = 1998	H_0: CR $\not\Rightarrow$ FDI	0.4273	11.2	0.00443	0.4408	11.8	0.00365
	H_0: FDI $\not\Rightarrow$ CR	0.3767	9.1	0.00878	0.3650	8.6	0.01022
t = 1997	H_0: CR $\not\Rightarrow$ FDI	0.4555	12.5	0.00296	0.4458	12.1	0.00340
	H_0: FDI $\not\Rightarrow$ CR	0.3309	7.4	0.01570	0.4366	11.6	0.00388
t = 1996	H_0: CR $\not\Rightarrow$ FDI	0.3600	8.4	0.01089	0.4517	12.4	0.00312
	H_0: FDI $\not\Rightarrow$ CR	0.5239	16.5	0.00102	0.5848	21.1	0.00035
t = 1995	H_0: CR $\not\Rightarrow$ FDI	0.4903	14.4	0.00175	0.3939	9.7	0.00699
	H_0: FDI $\not\Rightarrow$ CR	0.5648	19.5	0.00050	0.5233	16.5	0.00103
t = 1994	H_0: CR $\not\Rightarrow$ FDI	0.4726	13.4	0.00229	0.5101	15.6	0.00127
	H_0: FDI $\not\Rightarrow$ CR	0.5605	19.1	0.00054	0.1113	1.9	0.19064
t = 1993	H_0: CR $\not\Rightarrow$ FDI	0.6198	24.5	0.00018	0.7095	36.6	2.21E-05
	H_0: FDI $\not\Rightarrow$ CR	0.1224	2.1	0.16869	0.1572	2.8	0.11505
t = 1992	H_0: CR $\not\Rightarrow$ FDI	0.6910	33.5	0.00004			
	H_0: FDI $\not\Rightarrow$ CR	0.1062	1.8	0.20173			

ment, using data for the period from 1990 to 1998. The major outcomes of the investigation can be summarised as follows:

1. During the early phases of restructuring in the food industry, concentration was a significant determinant of foreign direct investment inflows.

2. *Neither variable was superior over the other in terms of explanatory power during the subsequent period,* although both causal directions remained statistically significant.

The results implying such a "mutual causality" raise an important question of interpretation. In the case of time series, mutual causality would automatically suggest that both variables examined were determined by an external independent third factor, which would mean that the original causality test was invalid. This is not entirely the case here, however. First, the current causality analysis includes cross-sectional data, and secondly, one of the two variables (FDI) had only zero observation values before 1990. This train of thought may eventually lead to two very different final conclusions.

One interpretation emphasises mutual causality. This standpoint ignores the determining power of a third force, arguing that it cannot concurrently result in

one variable being consistently zero while the other obtains values between 0 and 1. This reasoning appears to hold good especially in the early years of the observation period.

The other standpoint would highlight the immediate overall influence of an exogenous third factor as soon as artificial barriers to FDI inflows are lifted. Such an independent factor may be entry barriers, for instance, as suggested by Caves (see section 6.1.1. on p. 94), or it may just as well be privatisation. Since the launching of the economic reform coincided with privatisation, this may be a relevant conclusion. The lack of quantifiable measures, however, does not allow testing the impact of these potential independent factors in the context of the Hungarian food processing industries.

In summary, the results of the causality analysis suggest the following economic reasoning: the large, *concentrated food processing markets in Hungary initially had a strong appeal for foreign investors, but* once the investments matured and the investors were able to consolidate their market positions, *the proportion of foreign ownership has also had repercussions for future concentration in the industry.*[38] Exogenous factors or attributes of the industries, such as *the pace of globalisation, entry barriers and privatisation are suspected to affect both concentration and FDI penetration levels.*

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[38] This is not necessarily equivalent to a constant increase in concentration. Concentration in fact decreased in a number of industries over five years from 1993 onwards. The starting point for the causality analysis was the divergent concentration levels among individual industries.

7. Industry Life-Curves in the Hungarian Food Processing Sector

7.1. Extending the Directions of FDI-Concentration Maps

The scatter plots summarising the results of the cluster-analysis based on the two indicators of the structure of the food processing industries demonstrate the status of the entire food processing sector (Figures 15 and 18). The two industry attributes facilitate further interesting investigations. In order to simplify the explanation, the scatter plots with coordinates representing the proportion of foreign ownership and concentration will hereafter be referred to as FDI-concentration maps. By definition, *an FDI-concentration map is a snapshot of the status of the food processing sector, including the positions of individual industries in a given year, by market concentration and FDI penetration.*

The use of FDI-concentration maps can now be extended in two directions according to the dynamic and comparative approaches adopted:

1. The *dynamic approach* examines the route taken by a given food processing industry until it reaches its position in the final observation year. These routes, or *FDI-concentration industry life-curves,* reveal several interesting turning points in the history of the industries over the past decade. They also provide information on the internal structural changes taking place in individual industries, since they take two distributions into account:
   ◆ the distribution between foreign and domestic owners, and
   ◆ the distribution between the largest processors and the rest of the processors, or more accurately, the distribution of their contributions to the industry's output.

2. The *comparative approach* extends the FDI-concentration maps in a geographical direction. The method includes construction and comparison of national FDI-concentration maps for the food processing sectors of other Central and Eastern European countries, by which important conclusions can be drawn regarding the effects of differences in privatisation and restructuring policies in the region. The comparative approach is elaborated in Thesis IV (Chapter 8).

7.2. Tendencies in the Composition of Market Types in the Hungarian Food Industry

Before proceeding to the dynamic extension of FDI-concentration maps, it is necessary to describe long-term changes within the composition of market types

in the Hungarian food industry by monitoring retrospectively the changes that have taken place over the past two decades. These categories are widely employed in IO theory, and the concrete definitions below are based on the specifications of Shepherd (Table 16).[39] Using the categories set out in the table, the division of the output of the Hungarian food industry by market types is shown in Figure 19. The proportions of the market types are calculated by summing the weights of the individual industries in the given category. Application of the traditional market type categories of market economies to the period of a command economy may seem paradoxical at first sight. Yet, inspection of the market type composition during the 1980s can also be relevant and demonstrative, since the categories provide information on the degree of state control and changes in this with time.

The concise history of the past twenty years in Hungarian food processing provided in Figure 19 will help us trace all the fundamental changes which have left their mark on the composition of market types.

The typical market structure for a Hungarian food processing industry in the early 1980s was a state monopoly, or "trust form". In some industries, geographically scattered processing facilities were fused administratively under the umbrella of one institution, often called a trust. These trusts ensured transparency and easy control for the state. Some of the industries which included trusts be-

Table 16. Definitions and boundaries of the market types.

Market-type	Definition
Pure monopoly	One company controls 100 percent of the market.
Dominant company	The leading company has a 50-100 percent market share, with no close competitors.
Tight oligopoly	CR_4 amounts to 60-100 percent, and collusion between the market leaders cannot be excluded.
Loose oligopoly	CR_4 is in the range of 40-60 percent, and collusion between the market leaders is practically impossible.
Competition	CR_4 is under 40 percent and typically no one company has a market share over 15 percent. The number of companies exceeds 30.

Source: Shepherd (1990, p. 14).

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[39] Shepherd's definitions were originally drawn up for the economy of the United States, and some slight changes have been required to make them applicable to the Hungarian food processing industries.

longed to the pure monopoly market type, since one company accounted for 100 percent of production. Other significant industries such as meat, poultry and dairy processing also contained state-owned trusts that enjoyed dominant positions, contributing 85-100 percent to total output of the respective industry, with the rest of the production originating from cooperatives or other small-scale processors. The only industry in which competition could be said to have existed on the basis of its concentration figure was bakery. Yet, this was not characterised by real competition, either, since state-owned or municipally-owned companies and cooperative bakeries supplied products to strictly demarcated market areas, so that they were in geographical terms the sole actors in their particular sub-markets.

Some changes can be identified in terms of market types by the late 1980s, as the trusts or state monopolies were removed as organisational forms from a number of industries such as sugar, poultry, distilling, soft drinks and canning (Raskó 2000), and independent processing companies concurrently appeared in the statistical registers.[40] Thus the concentration ratios in the food processing industries typically decreased in the late 1980s. The trusts had been entirely dispersed by the end of the decade, the Meat Trust being terminated at the end of 1986, the Grain Trust at the end of 1989 and finally the Dairy Trust at the end of 1990 (Böjti and Vörös 1991). The end of the decade also brought other essential changes, including the consolidation of the cooperative-based and private processors.

The vertical dashed lines in Figure 19 signal the milestones in the history of Hungarian food processing, such as the beginning of restructuring and the privatisation of food manufacturers in 1990. The effects of competition in a free market were immediately perceived in the food industry.

1. The category of pure monopoly disappeared entirely. The last state-owned monopoly, which enjoyed a 100 percent market share in the vegetable oil industry, received its first newly established private competitors in the early 1990s.
2. The proportion of "dominant company" industries diminished, as the abolition of all the food industry trusts between 1982 and 1990 left just three dominant companies, in the vegetable oil, starch and pasta industries. These leading companies have sustained their dominant positions up to the present time.

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[40] The change in the market structure was only ostensible at that time, since the continuously dominating state-run companies did not gain in real independence. The state as an owner did not relinquish the control that it exercised over such companies, as it was only the structure of the industries that was modified.

3. The market shares of the large processing companies, which used to supply one market area, usually one county, decreased to 2-10 percent along with the dispersal of the trusts. Consequently the majority of industries, including those with the largest output, were classified in the categories of a loose oligopoly or a state of free competition.

The events of the 1990s can also be traced accurately in Figure 19. As a consequence of the decentralising efforts through the privatisation in the largest food industries, the output of those industries classified into the competition category reached its peak in 1992-1993 and continued to predominate until 1996. Newly established privately owned enterprises sprang up like mushrooms in nearly all industries over the period of 1990-1996, and the only industries that
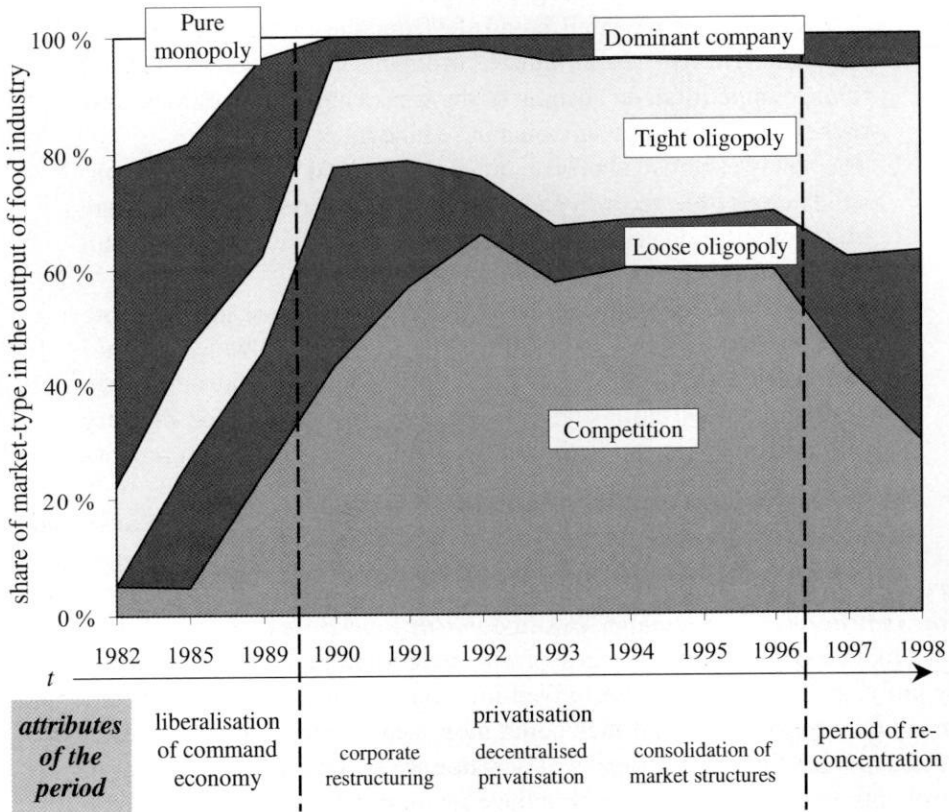
Figure 19. Distribution of market types in the Hungarian food processing industries over the period from 1982 to 1998, based on the industries' shares of total food industry output.

were exceptions to this rule were those which have traditionally had high entry barriers, such as sugar and tobacco. The high number of newcomers did not modify the power of the leading companies in the confectionery, beer, vegetable oil, pasta or soft drink industries, and consequently these continued to be classified in the oligopolistic market types, whereas several hundreds of new enterprises entering the wine and bakery industries drove these permanently into the competition category. The distribution of market types that had evolved by 1992 remained fairly stable until 1996, by which time the privatisation of the food industry was virtually completed and an entirely new production and market structure had emerged.

The second half of the decade brought a new turning point. A unique reverse tendency has been observed in the structure of the Hungarian food processing sector in recent years, with a substantial decline in the competition category in favour of the oligopoly categories. This tendency, referred to as re-concentration in Figure 19, has had the following driving forces behind it:

1. A large number of small spin-offs from the former state-owned companies have been eliminated from the market in the face of fierce competition, on account of the weak capital base of their new owners and their large amounts of redundant capacity.

2. The newly established private processors have not been able to consolidate over the recent years, leaving a bipolar structure in many oligopolistic industries that apparently could not be altered by small enterprises.

3. The food processing industries in almost all countries are becoming concentrated, which is a manifestation of the worldwide phenomenon of globalisation. After the completion of privatisation, the effects of globalisation could be felt in the Hungarian food industry primarily through the aggressive market policy of foreign companies.

In summary, *the headway made by the competition market type in the mid-1990s can be regarded as a transient phase, and the present tendency for re-concentration of food processing in Hungary will continue in the future, so that the industry will be dominated by oligopolistic market types.* The composition of the industries will shift primarily from the competition category to loose oligopoly, and there is a smaller probability that the oligopolies may be strengthened to such an extent that they could move into the tight oligopoly category.[41] The likelihood of the emergence of new dominant companies, which would control entire industries, is minimal in the case of an efficient competition policy.

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[41] Although such a move can be assumed in the dairy industry and later in the meat processing industry.

116

7.3. Dynamic Extension of FDI-Concentration Maps: Industry Life-Curves

The definition of industry life-curves as a dynamic approach to FDI-concentration maps has already been introduced in section 7.1. The next section is devoted to reviewing the driving forces that move industries from one period to another.[42]

7.3.1. Driving Forces Affecting the Industry Life-Curves

Before reviewing the forces affecting industry life-curves, it is expedient to determine the probability domains in which food processing industries may be located. The results so far predict that a high level of concentration will involve increased foreign participation. The most probable zone of location of the food processing industries is marked in Figure 20 by a light grey area bordered with a dashed line.

Let us now examine the hypothetical extremes of the industries locations in the system of coordinates of FDI and concentration in a given year t in Figure 20:

(1) Points Y_t and Z_t embody the extremes that lie in the probability zone of the main trend, and therefore have a high likelihood of occurrence.

(2) Point X_t and its surrounding area imply a high concentration and low level of foreign ownership. This position has a low chance of occurrence in the case of commercially conducted privatisation and free movement of capital. As will be explained in the chapter containing the international comparison, the position X_t is not impossible in the case of administrative barriers that impede acquisitions by foreign investors.

(3) Finally, let us examine the probability of V_t. The emergence of point V_t infers an atomised market structure and high foreign penetration.[43] It would imply dominant foreign ownership in several dozens or hundreds of processors having equally small market shares within a given industry. This can hardly ever occur for many reasons. The large multinational enterprises, which account for the

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[42] Both section 7.3.1 and section 8.2 review the forces effective in FDI-concentration maps, the essential difference between them being in the aspect from which they examine these, as section 7.3.1 analyses the forces that move *one particular industry between consecutive observation periods*, while section 8.2 introduces factors that determine *the array of food processing industries in a given country during a given year*.

[43] The areas surrounding points V_t and Z_t in Figure 20 presume a market concentration of over 10 percent. In the light of European and worldwide figures for the food processing industries, the actual level of concentration ratios as measured by CR_4 do not descend below that value.

majority of foreign direct investment in the food industry, do not acquire companies with small market shares in the Central and Eastern European food sectors. If they are forced to purchase small processors, they immediately consolidate their production and strengthen their market power, so that the industry soon leaves the zone of point V_i. Foreign influence originating from scattered investments in small and medium-scale enterprises in nearby developed countries is conceivable in principle, but their mass presence in one particular industry is somewhat unrealistic.

In order to reveal the driving forces behind the industry life-curves, let us assume that Q_t is the initial location of the ith food processing industry in year t. The major directions that the industry may follow to reach its new position in year $t+1$ are marked with vectors. The following section elucidates the content of each hypothetical vector and cites concrete examples from the Hungarian food processing sector. The vectors for $t=1997$ in the case of all Hungarian food processing industries are shown in Figure 18. The examples given in section 7.3.4 will provide further illustrative cases.[44]

The most probable shift in the position of food processing industries is denoted by $y_{t,t+1}$, that is increasing concentration with a concurrent increase in foreign ownership. The *spiral effect*, which propels this move, is a chain of causal relations. Let us start with vector $\overrightarrow{Q_t Q_{t+1}}$ in Figure 20, which represents the most common direction for industry life-curves: foreign investors raise their share in an industry through company acquisitions. Investments mature in the next period(s), the technological, management, marketing and financial superiority of the companies concerned is quickly manifested in increasing market shares, and hence the presence of large foreign companies reinforces concentration, and the industry reaches the position Q_{t+2}. In the third period, the industry moves along vector $\overrightarrow{Q_{t+2} Q_{t+3}}$, which implies growing foreign ownership through increases in capital or new acquisitions by foreign investors. The spiral effect also works in the reverse order of components in the causal chain, which is marked with dotted arrows in Figure 20. In this case, the industry moves from point Q_t to point Q_{t+3} by dint of increased concentration in the first period. This is followed by acquisitions of companies by foreign investors or increase in capital in the existing affiliates, which again induces concentration growth.

Although the spiral effect can be decomposed into three purely theoretical constituents, its elements appear concurrently in reality, resulting in vector $y_{t,t+1}$. As shown in Figure 18, the food processing industries of Cluster 2, such as dairy, animal feeds and distilling, followed that direction from 1997 to 1998.

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[44] The concrete examples demonstrate that the vectors in the current explanation are purely theoretical cases derived from practical instances which do not necessarily occur with the exact slopes presented in Figure 20.
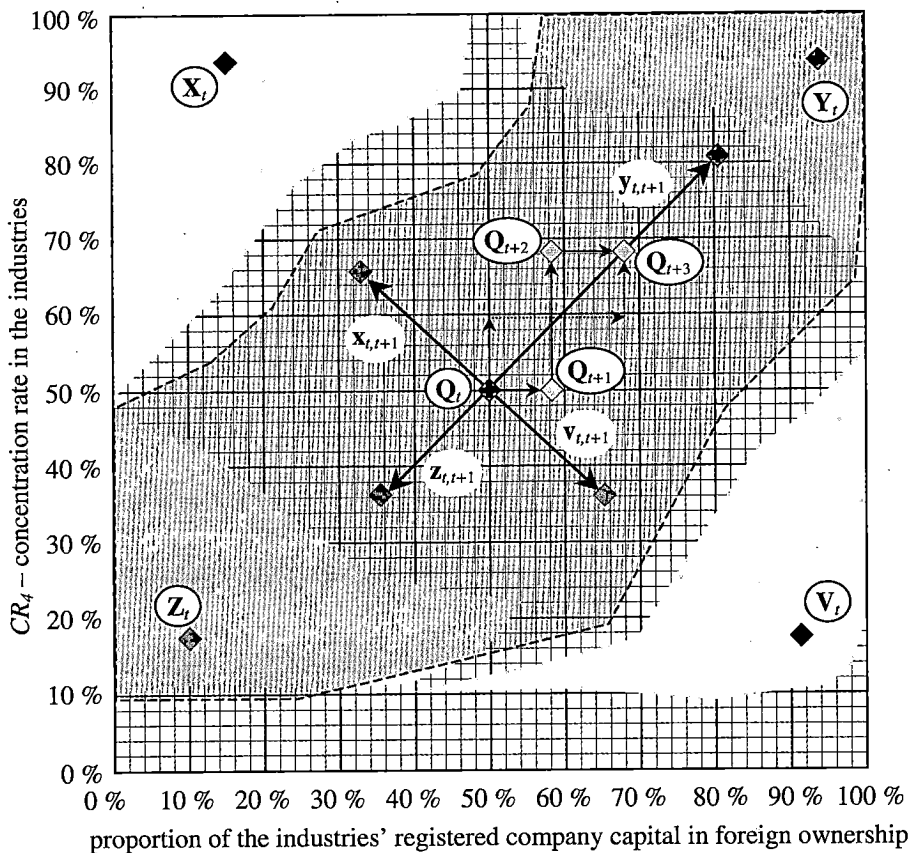
Figure 20. Probabilities of location and major directions of movement of the food processing industries on the FDI-concentration map.

The opposite direction from vector **y** is labelled $\mathbf{z}_{t,t+1}$. This vector shows the direction of market fragmentation with declining foreign influence. As the initial position for a given industry, Z_t may be considered a common case, but as a vector – denoting declining power on the part of foreign investors – it has very limited chances of occurrence. Despite the fact that it occurs rarely, its possibility cannot be entirely excluded. Such a situation may be caused by the rapid emergence of a large number of domestic processors, whose joint entry and activities can reduce the proportion of foreign ownership in an industry, even though the registered capital owned by foreign investors may not change in absolute terms. Two examples of vector $\mathbf{z}_{t,t+1}$ among the Hungarian food processing industries in different clusters are contained in Figure 18: wine production in Cluster 3 and "other food processing" in Cluster 1. In both cases the entry of a large number of recently established domestic food processors prompted the shift.

119

Vector $\mathbf{x}_{t,t+1}$ represents a special and exceptional direction: a growth in market concentration accompanied by a decline in the influence of foreign capital. Vector $\mathbf{x}_{t,t+1}$ constitutes a hypothetical case in which it is envisaged that domestically owned companies might gain in strength on account of the presence of foreign-owned companies, increasing their market influence and promoting concentration within the industry. Only one industry progressed in this direction in 1998, the heavily concentrated and oligopolistic case of tobacco manufacturing. This exceptional move can be explained by a change in ownership structure in one of the biggest tobacco manufacturers, with a notable quantity of shares being acquired by domestic owners. Nevertheless, the occurrence of vector $\mathbf{x}$ remains a rare phenomenon in Hungary and in the whole Central and Eastern European region.

Vector $\mathbf{v}_{t,t+1}$ represents decreasing concentration and growing foreign influence, which can emerge in two basic ways. Given an initially low concentration level, the entry of new foreign investors can shift the position of an industry in this direction. The newcomers can increase the number of enterprises and concurrently reduce concentration in the industry, parallel with the growth in foreign ownership. Such a phenomenon occurred in the Hungarian fruit and vegetable processing industry from 1997 to 1998 (Figures 18 and 29), where greenfield investments by foreign companies reduced the level of concentration. Nevertheless, shifts in the position of food processing companies in Central and Eastern Europe in the direction $\mathbf{v}_{t,t+1}$ can usually only prevail in the short run, and it is very unlikely that such industries will ever reach the area around point V_f, due to foreigners' market acquisition efforts and the discrepancies in performance between foreign-owned and domestically owned processors.

Highly concentrated industries with strong foreign influence can also move temporarily in the direction $\mathbf{v}_{t,t+1}$ when the positions of large market leaders become equalised (the number of such companies should exceed k in order to reduce CR_k), or newly established enterprises capture a certain market share from the leading companies. This latter tendency is called market polarisation (see point A on the opposite page). The distilling, confectionery and soft drink industries in Hungary followed this path temporarily in the mid-1990s.

7.3.2. The Observed Time Interval for Industry Life-Curves

The regularities described above can be tested through concrete examples by means of a dynamic examination of the Hungarian food processing industries. The availability of data and the sequence of economic events determine what time interval is most appropriate for monitoring the routes taken by industries.

Industry-specific statistical data, which comply with NACE standards, are available for about 17 separately distinguishable Hungarian food processing industries from 1991 onwards. The classification previously consisted of 14 indus-

tries. Although the scope of the data is different in the two periods, it is feasible in principle to trace the analysis between the two eras.

Prior to 1988, FDI stocks in the Central and Eastern European region were negligible. Joint ventures existed, having begun in the 1980s in Hungary, but the foreign presence was limited to licensing agreements, know-how or production contracts and technology transfers. Foreign ownership was also unessential in the Hungarian food processing sector. Foreign direct investments began to make headway in 1990, with the first company acquisitions, and it is therefore logical to construct industry life-curves from that date onwards, or from 1989, in order to record the market structure of the command economy. Since trusts and state monopolies were terminated in several industries well before 1989, however, the descriptions of industry life-curves will refer to the previously state-owned monopolies or dominant companies wherever these used to exist, but the 1989 data will not show this any longer.

The above arguments explain why the construction of life-curves for the food industries in Hungary is not limited to the 1990s by the unavailability of statistical data, but rather by economic rationale, namely the zero level of one of the attributes, foreign direct investment. For that reason, the concrete industry life-curves for the Hungarian food industries cover a relatively short time-span.[45]

7.3.3. Typical Life-Curves in the Hungarian Food Processing Industries

A comparison of the life-curves of Hungary's seventeen food processing industries leads to the conclusion that they followed four main routes (Figure 21):

A) Route *A* represents the typical path for industries characterised by a dominant company or tight oligopoly structure. A common feature of these industries is rapid penetration by foreign capital through acquisitions of the largest companies in the initial phase of privatisation. The vegetable oil, starch, confectionery, beer and tobacco industries followed this route. Another common characteristic of such industries is *market polarisation*, the emergence of a bipolar market structure.[46] In most industries in zone *A*, small-scale pro-

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[45] Due to the fundamental economic turning point, essential changes can be observed in the short-term life-curves of the food industries of the transition economies. On the other hand, the construction of long-term industry life-curves may be relevant for the food processing industries in the developed countries. Owing to the stable economic environment and long history of the presence of foreign capital, life-curves of several decades can be observed and may provide rational interpretations. Industry life-curves in the developed countries are determined primarily by globalisation and other national economic factors (for a detailed description, see section 8.2).

[46] Of the industries following route *A*, only sugar and tobacco manufacturing form exceptions to the general rule of market polarisation.
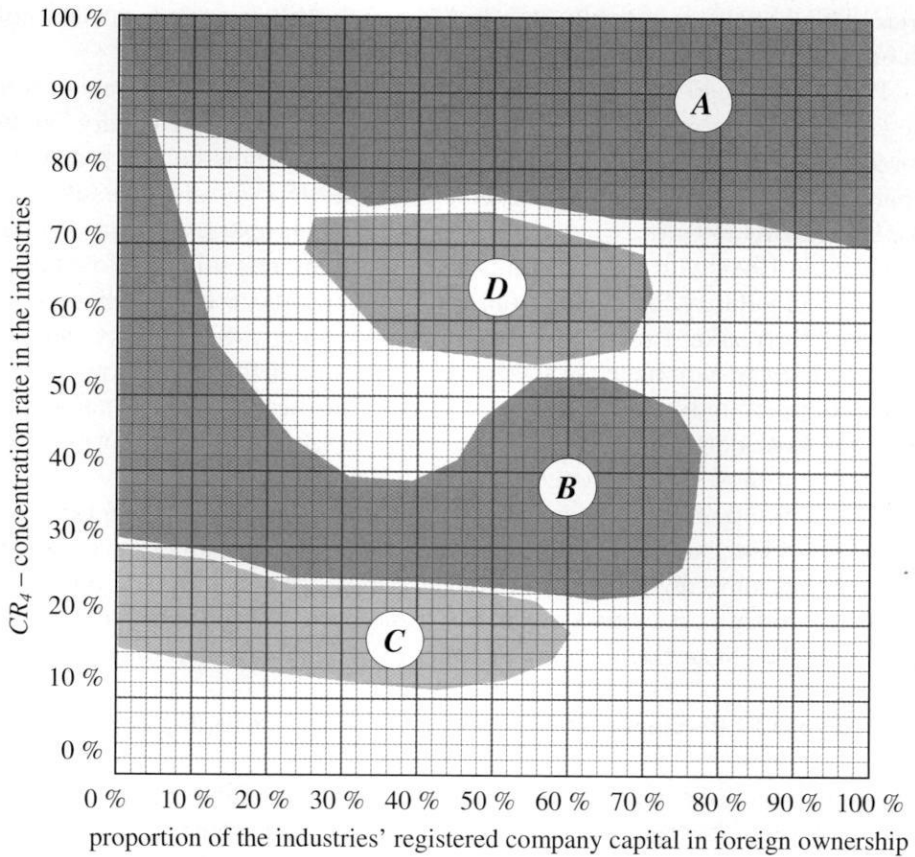
Figure 21. Typical life-curves in the Hungarian food processing industries.

cessors appeared in the shadow of the large companies, the number of newcomers varying between 50 and 100 in each industry. These small enterprises together already represent a considerable share of the market, a fact that widens zone *A* while proceeding to the right on Figure 21.

B) Route *B*, which comprises a U-shaped, arched path, applies to industries that first underwent decentralised privatisation and were then penetrated by foreign capital, which gradually raised their concentration level. It was mostly large industries such as milling, animal feeds, meat and dairy processing that moved along route *B*.

C) Route *C* is a special course of competitive markets. The baking industry represents a pure example, although wine making and fruit and vegetable processing can also be classified into this group on certain conditions.

D) The life-curves of poultry processing and distilling are quite peculiar, since they took up a position in zone *D* in the early 1990s, which they never left afterwards.

Some industries followed mixed routes. The soft drinks industry and sugar manufacturing started out on route *B*, for example, especially regarding their history in the 1980s, but arrived in zone *A* in the early 1990s (Annexes 8 and 10). The initial phases in the life-curves for wine making and the canning industry similarly followed route *B*, but by the mid-1990s they had departed from this course and arrived in zone *C*.

7.3.4. Examples of Various Industries

The next section will display detailed life-curves for selected food processing industries in Hungary, the objective being to reveal the relation of foreign influence and concentration and to demonstrate the driving forces effective in the system of coordinates. The life-curves will acquaint us with the internal changes that took place in these industries, the market structure and the state of competition, and help us document the most important market-specific events that have occurred in the recent decade. The section presents the concrete history of two industries in each of zones *A* and *C,* three in *B* and one example from zone *D*.

7.3.4.1. The Vegetable Oil Industry

The most disputed case in the entire history of privatisation of food industries in Hungary is that of the vegetable oil industry. The state-owned monopoly was sold in one piece to a foreign investor, the Feruzzi group, and the ensuing debates were fuelled chiefly by the agricultural raw material producers, whose privatisation tender was rejected. The survival of the dominant company market-type aroused anxiety on the part of both the raw material suppliers and the consumers. The subsequent years have proved that the dominant company, Cereol, has been able to pay back all the debts of its predecessor and fulfil the technology development and raw material procurement commitments that it entered into in the privatisation agreement.

The life-curve of vegetable oil industry, depicted in Figure 22, is an illustrative example of a sub-category of route *A*. The conversion of a state monopoly into a private monopoly occurred in two cases altogether: in the vegetable oil and starch industries. In both cases the market position of the former monopoly became modified to that of a dominant company over the years as newly established small-scale companies appeared. The vegetable oil and starch industries are extreme cases of polarisation of the market structure, since the new companies entering the markets succeeded in capturing only a one to four percent share between 1992 and 1998.
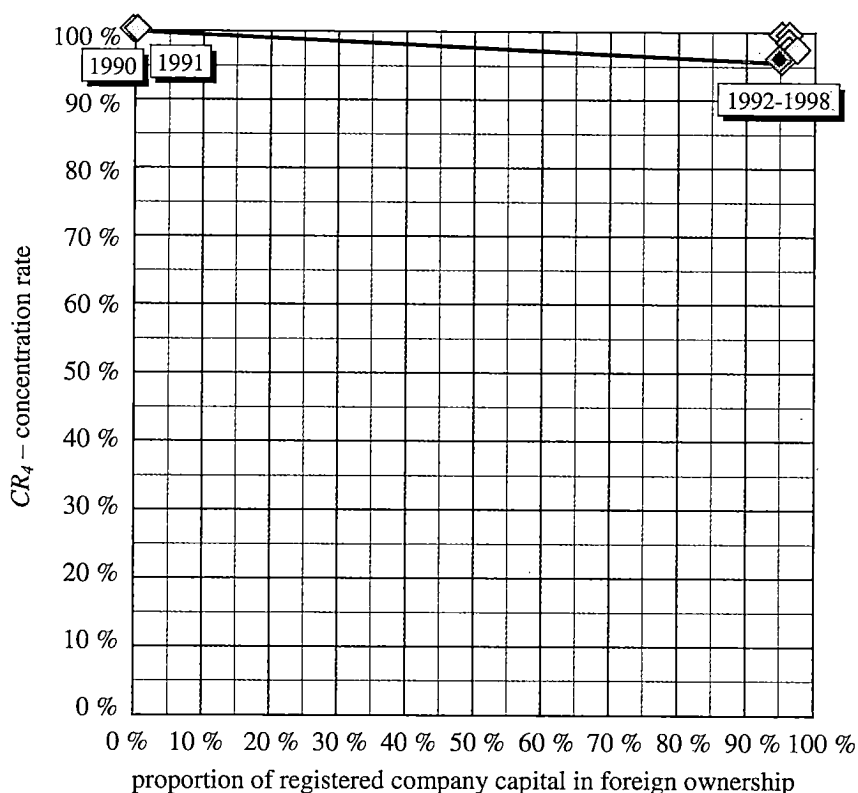
Figure 22. Life-curve for the Hungarian vegetable oil industry between 1990 and 1998.

7.3.4.2. The Beer Industry

The beer industry is an excellent illustration of the life-curve of an oligopolistic market type moving along route *A*. Brewing had already been a fairly concentrated field prior to the corporate restructuring reforms, as there were seven large companies, five owned by the state and two functioning as cooperatives. The changes in market shares that took place in the 1990s are presented in Table 17. The table also demonstrates the emergence of a polarised market structure, i.e. the appearance of a large number of new companies on the market.

Privatisation in the Hungarian beer industry took place between 1991 and 1994, and attracted great interest from foreign investors. The penetration of foreign capital in terms of individual companies can be traced in the life-curve for the beer industry (Figure 23), where as much as 90 percent of the registered capital is shown to have been controlled by foreign companies by 1997. This illustrates the invasion of an entire industry by foreign capital through a series of acquisitions of large companies in a concentrated oligopolistic market.

124

	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
Borsod Brewery	25.4	29.6	23.6	28.0	25.3	28.8	23.3	24.1	25.3	26.8
Kőbánya Brewery	36.9	37.5	30.8	17.3	23.7	24.9	25.9	26.1	35.7	31.4
Kanizsa Brewery	14.2	4.2	13.3	16.5	8.8	7.3	7.9	7.7		
Pannonia Brewery (Pécs)	10.1	11.4	11.9	7.7	11.1	7.8	5.8	4.8	5.1	4.3
Sopron Brewery	6.4	7.7	8.2	10.7	9.4	8.8	14.0	13.3	17.6	23.2
Martfű Brewery	3.8	4.6	5.2	6.2	7.3	11.8	11.6	8.4		
Komáromi Brewery	3.2	4.0	3.3	5.5	6.2	7.6	5.5	6.1	6.2	5.0
Albadomu	-	-	-	-	-	-	3.5	7.3	8.0	7.2
Large breweries	*99.9*	*99.2*	*96.3*	*91.9*	*91.9*	*96.9*	*97.4*	*97.7*	*97.9*	*97.9*
Other enterprises	*0.1*	*0.8*	*3.7*	*8.1*	*8.1*	*3.1*	*2.6*	*2.3*	*2.1*	*2.1*
Total number of breweries	10	10	27	89	142	190	183	171	161	152

Source: own calculations based on data from AKII, 1990-1999.

Foreign capital had already been present in the beer industry before 1991, due to the ownership structure of the two cooperative breweries. Heineken was a minority shareholder in Komárom Brewery, while the First Hungarian Cooperative Brewery Co. in Martfű operated as a joint venture from 1990. The privatisation of the state-owned breweries started with Nagykanizsa Brewery, which was sold in the framework of a management buy-out programme in 1990, but the new owners were unable to revive the company appropriately, as they lacked capital. A considerable move towards the right can be observed in the life-curve for the first time in 1991, when Brau-Beteiligungs AG purchased a majority share in the Martfű factory and the Belgian Interbrew acquired control of Borsodi Brewery. The ownership of several companies changed between 1991 and 1994 and foreign participation increased constantly until 1994, a pattern that is clearly reflected in the industry life-curve. Privatisation of the largest brewing company, Kőbányai Sörgyár, was completed in 1993, when South-African Breweries (SAB) became the majority owner, while the Dutch company Heineken bought the rest of the shares in the Komárom Brewery in 1994, increasing its ownership to 100 percent. At the same time the Austrian firm Wenckheim-Ottakringer attained a share in Pannonia Brewery.

In the subsequent two years, 1995 and 1996, a strange detour can be perceived in the life-curve, which is the result of slight changes in the ownership structure of some large companies such as Pannonia Brewery (Pécs) and Sopron Brewery. The latter company was floated on the stock exchange, as a result of which the proportion of its shares owned by Brau Union AG fell to 53 percent, while small shareholders, mostly Hungarian, acquired 47 percent (Raskó 2000).
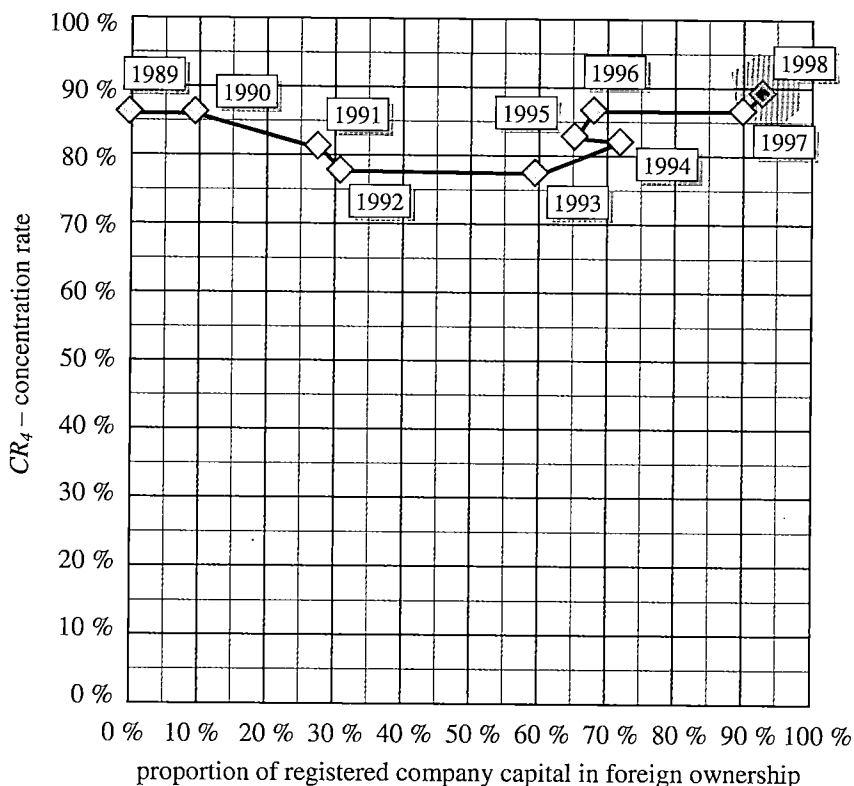
Figure 23. Life-curve for the Hungarian beer industry between 1989 and 1998.

In the most recent phase of the life-curve, the advance of foreign capital has been unbroken since 1996. The shares of Kanizsa Brewery were purchased by South-African Breweries in 1996, and the same investor also raised its equity in its other subsidiary, Kőbánya Brewery. Interbrew and Brau Union AG also increased their shares in their Hungarian subsidiaries. The malt producing company Albadomu, which is also an almost 100 percent foreign-owned enterprise, has entered the brewing industry in recent years. Its share in the output of the industry had risen above 7 percent by 1998 (Table 17), overtaking Komárom and Pannonia breweries in the rankings.

The concentration ratio CR_4 decreased by ten percentage points in the middle of the decade, when small breweries took advantage of the lengthy process of restructuring and privatisation of the larger companies and temporarily raised their combined share above 8 percent in 1992 and 1993. When the large companies completed the reorganisation of their ownership relations, however, they soon regained their earlier market positions due to their technological and logistic developments and intensive marketing activities, so that the concentration

ratio returned to its initial level of 85-90 percent by 1996. The new increase in the ratio can be explained by the emergence of company groups – Brau Union AG and SAB unifying two large breweries each – and the concurrent market losses incurred by medium-scale breweries such as Pécs and Komárom.

No spectacular changes are foreseeable in the position of beer industry on the FDI-concentration map in the immediate future. No decline in foreign ownership is probable, and a further slight increase might even be conceivable. A decrease in CR_4 cannot be excluded if the medium-scale breweries gain new impetus and prove able to return to their earlier positions. However, since the sales revenue difference between the smallest large brewery and the largest small-scale one was sixteen-fold in 1998, the ability of the smaller operators to modify the market structure will remain minimal in the future. The present market structure in the beer industry could only be altered by the appearance of an additional strong foreign investor. Since there are no quick returns to tempt such an investor into the already crowded Hungarian beer industry, there is in fact little possibility of any new company emerging.

7.3.4.3. The Dairy Industry

The dairy industry is a typical case of route B in Figure 21. It was dominated in the 1980s by one large processor, the Dairy Trust Company, which processed 85 percent of the country's raw milk and accounted for about 90 percent of the industry's output, while the rest of the market was shared by approximately 20 processors that were in cooperative or other (municipal and/or state) ownership.

The dominant company, the Dairy Trust, was wound up in 1991, when the state monopoly was decentralised into 15 units. The decline in the concentration rate CR_4 was slightly reinforced by decentralised privatisation from 1992 to 1995, which split the 15 county-based companies into further constituents, creating a total of 64 dairy processing facilities.[47]

When the SPA decided to involve domestic milk producers and other domestic investors in the privatisation, it offered them compensation coupons and favourable credit to buy dairy processing companies. The foreigners were more successful in the bidding process, however, and managed to grasp the largest and most prosperous processing units. The dairy companies in Hungary have traditionally focused on the domestic market, and their processing facilities are geographically scattered over the entire area of the country.

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[47] Decentralisation, which started in 1992, affected the production structure of the industry considerably, but is not so prominent on the FDI-concentration map, due to the moderate changes in the market shares of the four largest companies.
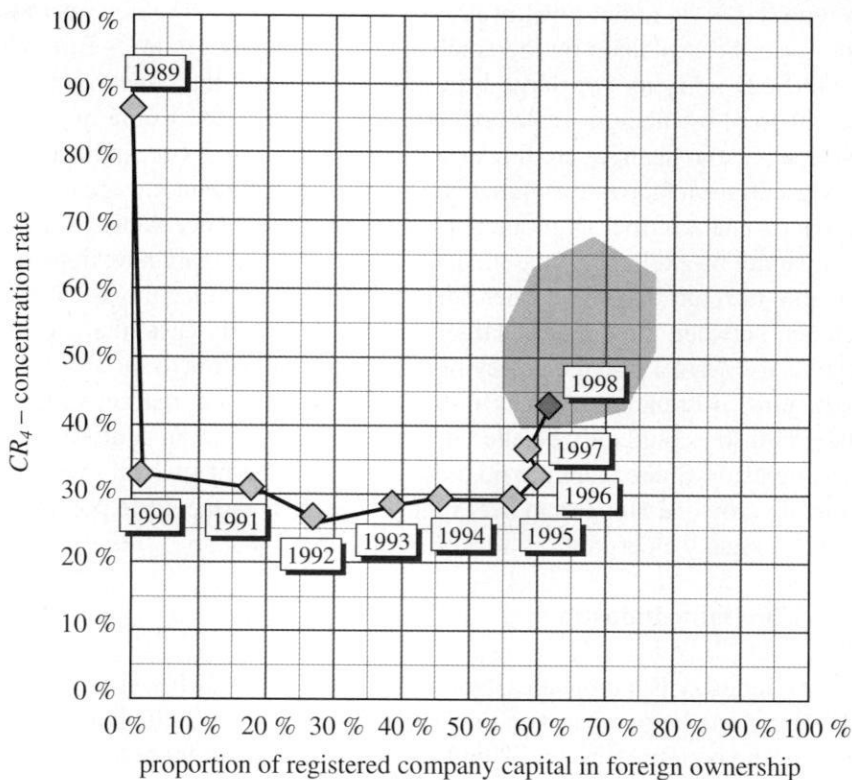
Figure 24. Life-curve for the Hungarian dairy processing industry between 1989 and 1998.

Foreign firms have invested huge amounts in quality improvements, packaging, marketing, distribution and logistics. At present, there are five major foreign firms in the Hungarian dairy industry: Parmalat, Danone, Bongrain, Nutricia and Gala Italia. The only large processor in domestic ownership, Baranyatej, has failed in its struggle against intense foreign competition in 1999. Besides these large firms, the dairy industry consists of over 60 companies of various sizes. Given the severe competition for market shares, the companies have no other choice than growth. Dozens of domestically owned, financially weak companies are operating with outdated equipment, poorly organised raw material supplies and an old-fashioned product mix. These are easy prey for the strong, expanding foreign-owned processors, which usually buy them up in order to secure their shares of the market. The intensity of the competition is characterised by the fact that after a few years of operation, the foreign owners of Avonmore decided to give up their aggressive market expansion policy and withdraw from the industry.

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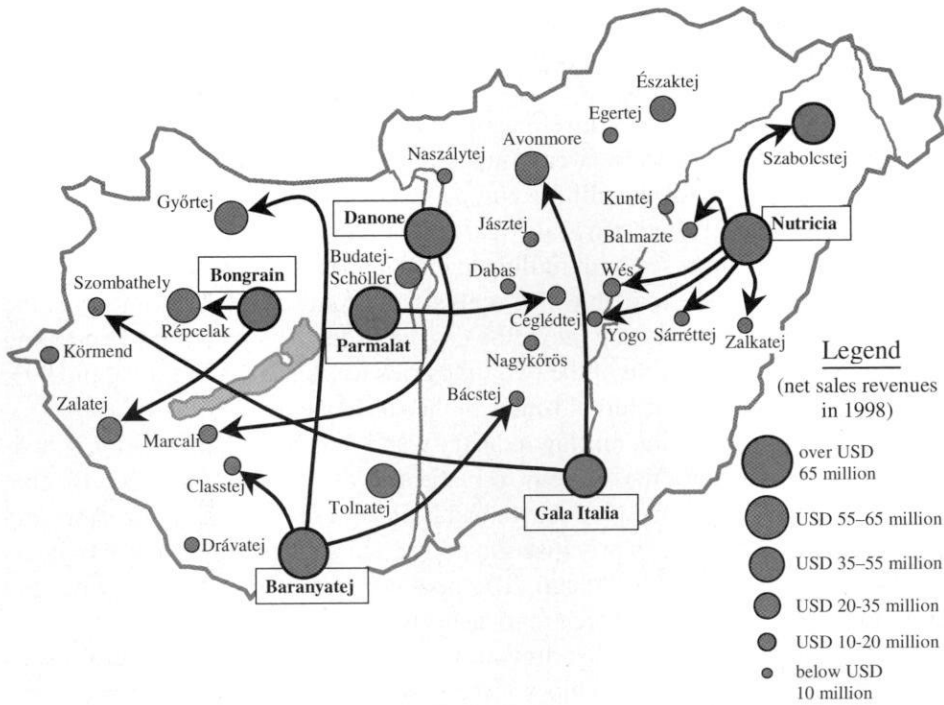
Figure 25. Company acquisitions in the Hungarian dairy industry between 1995 and 1999.

Concentration in the dairy industry started in 1995 and speeded up after 1998. The value of CR_4 has primarily grown through acquisitions, but some of the large companies also expanded by extension of their corporate premises. The process of concentration is illustrated in Figure 25, in which the six largest companies are highlighted on the map. The sizes of the companies refer to total sales revenues in 1996 and 1997. Having been as low as 29 percent in 1995, CR_4 jumped to 43 percent by 1998 and is expected to reach 65 percent by 2002 (Szabó 1998). The shaded area in Figure 24 marks expected position of the dairy industry in the next decade.

7.3.4.4. The Milling and Animal Feed Industries

The life-curves for both of these industries concerned with grain processing are covered by area *B* on Figure 21. Hungarian agricultural policy has always considered the milling industry strategically important for security reasons related to basic food supplies, and grain production and grain exports were always conducted within a carefully supervised framework. State control and coordination

129

was in the hands of the Grain Trust until its abolition on December 31, 1989. This was partly attributable to the strategic importance of the industry, which meant that the restructuring and privatisation of milling enterprises could proceed only slowly in the crossfire of political debates. The other reason for the delay in privatisation was the weak financial status of the would-be agricultural producer-owners and of the milling companies themselves.

Until 1992, the Hungarian statistical office recorded only one independent industry that encompassed both milling and feed mixing. Separate figures for the two fields have been available for analysis only since 1993. Monitoring the patterns of grain processing nevertheless provides a number of interesting lessons. The initial position of the two industries was naturally identical in 1993, but they followed very different routes in the subsequent years.

The privatisation of the milling industry was a matter of timing, being scheduled to occur after the first wave of privatisation, i.e. after 1991-1993. By that time, entire food processing industries had been sold off to foreign investors and the predominant attitude in privatisation policy had changed in response to internal pressure in the agrifood chain. The new concept of privatisation diverged from the previous policy in three main aspects:

(1) A policy of "positive discrimination" was pursued in order to promote domestic ownership in the case of the remaining large processing industries. This had the best chance of success in the milling industry, since limited foreign interest had been expressed in the milling enterprises anyway.

(2) Privatisation was to take into account the entire agrifood supply chain. The preferred group of domestic owners included agricultural raw material producers, the employees and managers of objects of privatisation and bakery companies.

(3) The third important aspect of the new privatisation policy after 1993 was decentralisation. In the grain sector, this was manifested in a substantial disaggregation of the 19 large, county-based grain trading and milling companies. Out of the 480 facilities, 127 mills, 87 feed plants, 225 storage houses and 7 feed compounding (premixing) facilities were designated to be privatised separately (Raskó 2000).

For the above reasons, privatisation resulted in a predominance of domestic ownership. Foreign companies were squeezed out of the privatisation procedures, which primarily involved compensation or special credit access for domestic buyers. On the other hand, agricultural producers did not have the economic power and real capital to manage their new property, many of the privatised processing units had no real market prospects. Therefore, the ownership structure had changed substantially by 1997, through the sale of companies. Shares, which originated from compensation-based purchases and employee

| Domestic corporate 63.1 % | Domestic private persons 17.1 % | MBO 5.6 % | Other 2.3 % | Foreign 12 % |

| 0% | 10% | 20% | 30% | 40% | 50% | 60% | 70% | 80% | 90% | 100% |
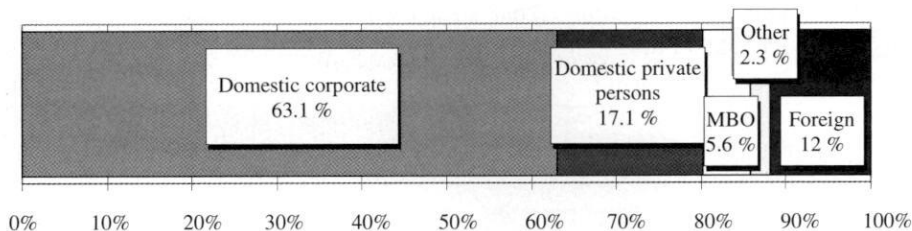
Figure 26. Ownership structure of the milling industry after the completion of privatisation in 1997.

buy-outs, gradually lost importance, and domestic corporations became the dominant owners (Figure 26).

The milling industry struggled with crisis in the 1990s. Redundant capacity grew tremendously because of export market problems, and the companies were carrying serious debt burdens. With very rare exceptions, there were no investments aimed at improving efficiency. The situation was further exacerbated by the sudden development of market fragmentation, in that there were over 150 firms operating in the industry in 1995, either as spin-offs from the 19 county-based companies or as newly established enterprises. The tense economic environment led to tough competition. Overproduction pushed the price of flour down, and although the smaller mills withstood the competition for a while owing to their flexible attitude, they have recently started to be eliminated from the market. A mass bankruptcy of small mills can be predicted in the coming years, and the only feasible solution for the remainder will be a concentration of capital and the involvement of external sources and improvement of efficiency.

Concentration in the milling industry, primarily by the same owners acquiring groups of large mills, began immediately after decentralisation was completed. Thus the owners are typically grain trading companies or other enterprises that have interests in the sector. The three strongest groups are Agrograin (owned by the US Cargill company), the Agrimpex-Agrimill group (backed by a British financial investor) and Gabona Co., which is also involved in grain trading. The mills themselves have also promoted concentration by means of cross-acquisitions. The process accelerated in 1999 and 2000, and is expected to continue in the coming years.

One interesting phenomenon is a wave of company acquisitions by various processing industries in the grain chain. Beside the grain trading companies, the largest mills, pasta manufacturers and bakeries are also involved in company acquisitions in order to strengthen their vertical positions.

The presence of 10-15 large and medium-scale processors has maintained the concentration ratio in the animal feed industry at a very low level for years. Foreign capital has been constantly strengthening its position primarily by establish-

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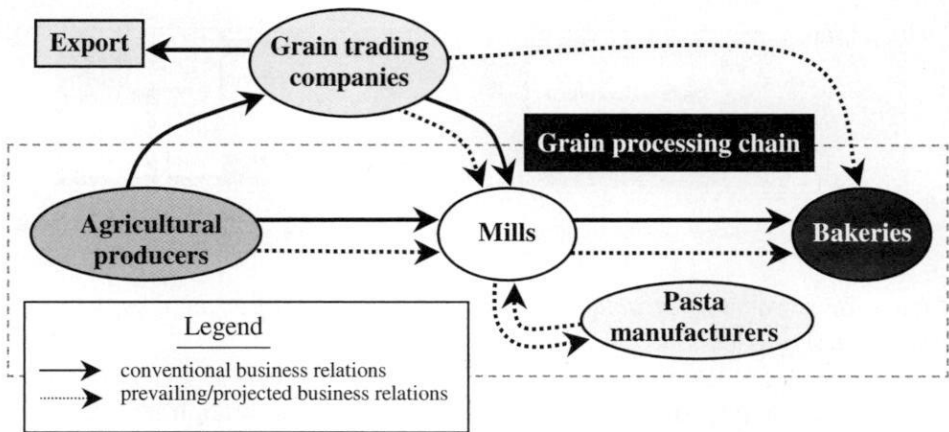
Figure 27. Organisational chart of business and ownership relations in the grain chain.

ing new ventures. The bulk of the basic, inexpensive mass feeds are typically produced by domestically owned companies, while the foreign-owned processors are more active in the manufacture of products with high value added such as premixes, additives and pet foods. The life-curve for the animal feed industry indicates a permanently atomised market structure in which concentration is expected to proceed slowly, primarily through corporate growth on the part of the largest processors as opposed to acquisitions. This industry is usually among the less concentrated ones elsewhere in Europe, as well.

Analysing the FDI-concentration map, the disparate routes followed by the two industries may seem surprising at first sight, since they had a common predecessor in the former milling industry, and many of the companies concerned still have interests in both activities.[48] The proportion of foreign capital has rarely stayed so low in the Hungarian food processing sector as it has in the case of milling industry. The life-curve for milling has not moved significantly to the right on the diagram even in recent times (Figure 28), whereas the animal feed industry has attracted considerable foreign capital. The motivations of foreign investors become obvious when we compare the profit rates of the two industries (Table 18) and see that the gap has widened notably since 1996 and had risen above 8 percentage points by 1998. The problems of marketing flour and the enormous amounts of redundant capacity explain the negative profitability recorded in the milling industry.

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[48] In accordance with the standards of industry classifications, companies are categorised into the milling or animal feed industries on the basis of their majority activities in terms of sales revenue.
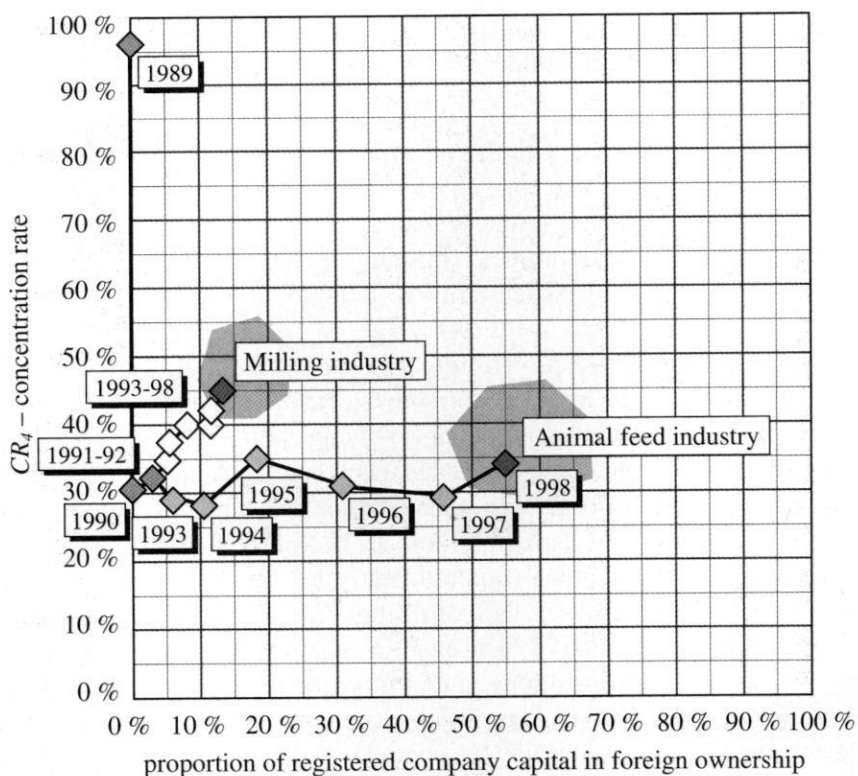
Figure 28. Life-curves for the Hungarian milling and animal feed industries between 1989 and 1998.

Thus the differing industry life-curves for the milling and animal feed industries can be attributed to their significantly different rates of profit. Beyond the specific domestic reasons, the differences in foreign influence between the two industries also reflect international patterns.

Table 18. Profit rates in the milling and animal feed industries between 1991 and 1998 (in percent of sales revenues).

	1991	1992	1993	1994	1995	1996	1997	1998
Milling			-1.68	0.39	3.70	1.67	-1.58	-1.78
Animal feed	-0.11	-0.72	-0.32	2.02	2.69	3.38	4.68	6.24

Source: own calculations based on data from AKII, 1990-1999.

7.3.4.5. The Fruit and Vegetable Processing Industry

Fruit and vegetable processing followed route *B* in the early 1990s, but temporarily moved to zone *C* in the middle of the decade. The Canning Industry Trust had been discontinued in the 1980s, and 14 large companies were left operating as independent units but under state control. The market losses in the early 1990s hit the canning industry more seriously than any other part of the Hungarian food processing sector. The eastern markets used to absorb a half of canning output, but the system, built on the existence of a favourable sales mechanism, collapsed in 1991.

The special nature of the privatisation that took place in this industry can be imputed to these market losses. Enormous stocks of goods accumulated, and companies were unable to pay back their revolving credits. Many companies oriented towards the eastern markets became insolvent and went bankrupt, and the banks were forced to take over the liquidated canning companies in settlement of their loans after a wave of bankruptcies in 1991 and 1992. The National Commercial and Credit Bank alone acquired nearly half of the Hungarian canning capacity by 1994 (Raskó 2000). The banks attempted to sell off the large canning facilities directly, as a matter of their own financial interests rather than in compliance with the official intentions of decentralised privatisation. Nevertheless, the State Property Agency managed to sell only three companies, Nagykörös, Kecskemét and Nagyatád, through the conventional bidding process.

As a consequence of these bankruptcies, the large-scale companies incurred a loss in their market power, and a more scattered market structure emerged. Over 200 new firms were founded in the industry between 1992 and 1998. The concentration ratio CR_4 reached its lowest point in 1995, a situation which could be ascribed to the high number of large companies and their balanced positions with regard to market shares. The jump in the life-curve for the industry in 1996 is associated with the establishment of the Limpex group, consisting of several processing units. Quite interestingly, the proportion of foreign capital declined in the same year, largely on account of an alteration in the statistical classification of two refrigerating companies and several processing and trading enterprises between 1995 and 1996.[49]

After 1996, the level of the concentration ratio CR_4 on the life-curve for the industry became established at between 30 and 33 percent. The decline in 1998 is the result of a further equalisation of market power among the large companies. The life-curve obviously does not capture the inter-industrial concentration

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[49] The changes involved such firms that had high foreign ownership. Goldsun Co and Baja Refrigerating Co were excluded from fruit and vegetable processing, the latter one was consolidated into Unilever. At the same time, some processing-trading companies were classified into trading activities.
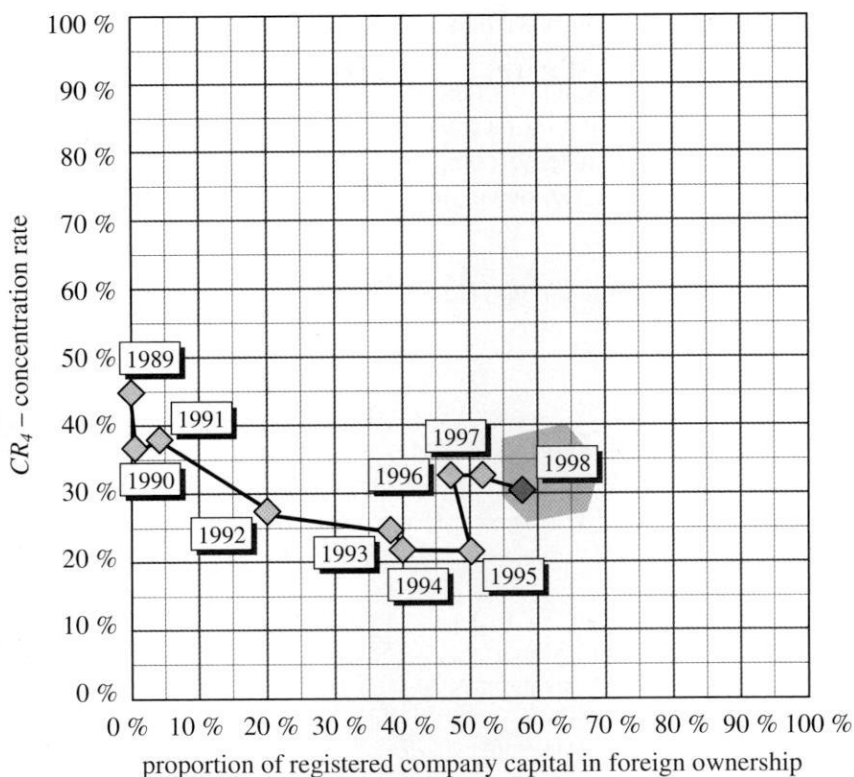
Figure 29. Life-curve for the Hungarian fruit and vegetable processing industry between 1989 and 1998.

of overall canning activities, such as the company acquisitions of Globus, which is classified as operating in the meat processing industry.

A deeper look at the structure of fruit and vegetable processing industry reveals further peculiar features. The production structure was analysed by segmenting the companies into three groups based on their sales revenues. The number of companies with sales revenues above HUF 1 billion (approximately USD 5 million[50]) was 27 in 1997, which demonstrates the market fragmentation even among the large participants. This group accounted for over 80 percent of the foreign capital, and a similar proportion of the total sales revenues. This is a unique phenomenon, since in other industries all the foreign capital is typically centralised in large companies, whereas here the small and medium-scale companies have a share of the foreign capital that corresponds to their market power. The situation is also somewhat fluid, as out of the medium-scale companies,

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[50] See notes of Table 19 for accurate equivalent figures in 1997 and 1998.

seven achieved revenues of over HUF 1 billion in 1998 and joined the group of large companies. The figures suggest green-field investments with full or partial participation of foreign capital, as these investments mature with time and the sales revenues of the companies increase.

The amount of the registered company capital in the group of small-scale companies that was in foreign ownership grew from USD 0.78 million to USD

Table 19. Structural data on the Hungarian fruit and vegetable processing industry in 1997 and 1998.

Company groups by sales revenues[a, b]	over USD 5 million	USD 5 million - 0.5 million	below USD 0.5 million	Industry total
	1997[a]			
Number of companies	27	61	144	232
Total sales revenues (million USD)	532.66	122.59	13.92	669.16
Division of sales revenues among groups (%)	79.6	18.3	2.1	100.0
Registered capital (million USD)	137.00	37.96	1.76	176.71
Registered capital in foreign ownership (million USD)	75.35	17.91	0.78	94.04
Proportion of foreign-owned capital (%)	55.0	47.2	44.2	· 53.2
Division of foreign-owned capital among groups (%)	80.1	19.0	0.8	100.0
	1998[b]			
Number of companies	34	69	160	263
Total sales revenues (million USD)	520.75	112.82	13.52	647.09
Division of sales revenues among groups (%)	80.5	17.4	2.1	100.0
Registered capital (million USD)	125.32	24.16	12.48	161.96
Registered capital in foreign ownership (million USD)	78.01	8.37	6.44	92.83
Proportion of foreign-owned capital (%)	62.2	34.7	51.6	57.3
Division of foreign-owned capital among groups (%)	84.0	9.0	6.9	100.0

Source: own calculations based on data from AKII, 1998-1999.
Note: [a] Calculations were made with values in Hungarian Forint (HUF), the sales revenue boundaries for company groups being over HUF 1 billion, between HUF 1 billion and HUF 100 million, and below HUF 100 million. Using the 1997 annual average exchange rate, the accurate boundaries in USD are 5.35 million and 0.535 million. [b] The accurate boundaries in USD are 4.66 million and 0.466 million in 1998.

6.44 billion between 1997 and 1998, so that almost 30 companies out of the 160 now have foreign owners, mostly with 100 percent stakes. The high registered capital and small sales revenues again suggest the existence of newly established companies or green-field investments.

The results of the above analysis prove that foreign capital penetrated evenly into all company size groups in the fruit and vegetable processing industry, and is therefore now present in the industry through both newly established firms and acquisitions of large companies. These facts explain the peculiar position of the industry on the FDI-concentration map and why the degree of concentration has remained relatively low despite the high foreign involvement. The data in Table 19 reflect the tendency for growth on the part of small and medium-sized firms founded with foreign capital participation. Their market growth influences the level of CR_4 only to the extent that the relative position of the market leaders is slightly weakened. This fact is responsible for the decline in the initially low concentration ratio despite the massive and rising inflow of foreign capital in 1998.

The future position of the industry can be predicted to lie somewhere in the light-shaded area in Figure 29. There is little probability of any immense growth in the concentration ratio CR_4; although the strengthening of the large companies may increase the ratio slightly. In the event of consolidation by the medium-scale companies, a slight decrease in the concentration ratio cannot be excluded, either. If the companies' industry classification does not change, then some increase is predictable in foreign participation in the fruit and vegetable industry.

7.3.4.6. The Bakery Industry

The bakery industry is the only typical processing segment examined here with a life-curve that belongs purely to zone C. In the 1980s the companies operated and supplied their goods on regional principles similar to those governing the purchase and market activities of companies in many other food processing industries in the command economy.

Municipal ownership played an important role in the bakery industry prior to corporate restructuring, and the large towns typically all ran their own bakery facilities. In addition, private ownership was well represented in the industry as compared with other food processing fields. Out of the 38 companies registered in 1988, 23 were in state or municipal ownership and 15 were owned privately or by cooperatives (Raskó 2000, p. 18).

Privatisation of the baking facilities run by the state and municipalities began in 1992, when the industry became subject to a similar decentralised privatisation concept to that affecting the milling, meat and dairy industries. Out of the 37 large companies, five had been restructured before 1992, so that decentralisation involved 32 companies, maintaining a total of 368 facilities. All facilities below

Table 20. Number of bakery companies in Hungary between 1985 and 1998.

Year	1985	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Number of bakeries	38	38	57	127	253	393	494	555	591	630	668	701	722

Source: AKII (1991-1999).

a certain capacity limit had to be detached, so that eventually there were 184 units to be privatised as separate entities; 75 facilities involved in the programme had been sold by 1993, and the remainder were sold within the framework of a simplified privatisation model in 1995.

Hundreds of new companies were established during the 1990s, and the redundant bakery capacity became an acute problem after decentralised privatisation had been completed. Over-supply has generated an atmosphere of aggressive price competition on saturated markets, and mass bankruptcies on the part of small bakeries are probable in the future.

The life-curve for the bakery industry differs substantially from those for most of the other food processing segments, the most evident difference being the low proportion of foreign capital. This is not surprising in the light of the market structure, since after decentralised privatisation even the leaders did not command more than 4-5 percent of the market. This extremely scattered market structure did not attract foreign investors.

The life-curve for the bakery industry has followed the route of a slow increase in foreign participation. Of the bakeries whose products followed conventional lines, only the retail shop networks, microbakery chains and companies supplying the capital city attracted notable investments. The position of the bakery industry also changes substantially if the two cookie and biscuit manufacturing companies, Győri Keksz and Wolf Hungaria are excluded, for without these the level of foreign participation is only 8 percent as opposed to 30 percent and the concentration ratio CR_4 is only 14.5 percent. The position of the industry without the two companies is marked by a separate point in Figure 30.

The low level of concentration in the bakery industry can be explained by several factors:

♦ The large companies are not strong enough to achieve spectacular corporate growth.

♦ Company acquisition is not practised.

♦ Some acquisitions stretch over the borders between the bakery, pasta manufacturing and milling industries (Figure 27).

The company acquisitions across the borders between industries in the grain chain are obviously not reflected in the FDI-concentration maps, although cross-ownership relations occur among milling and bakery companies, in order to ensure the flow of goods and supplies in the chain (Tarnóczi 1997).
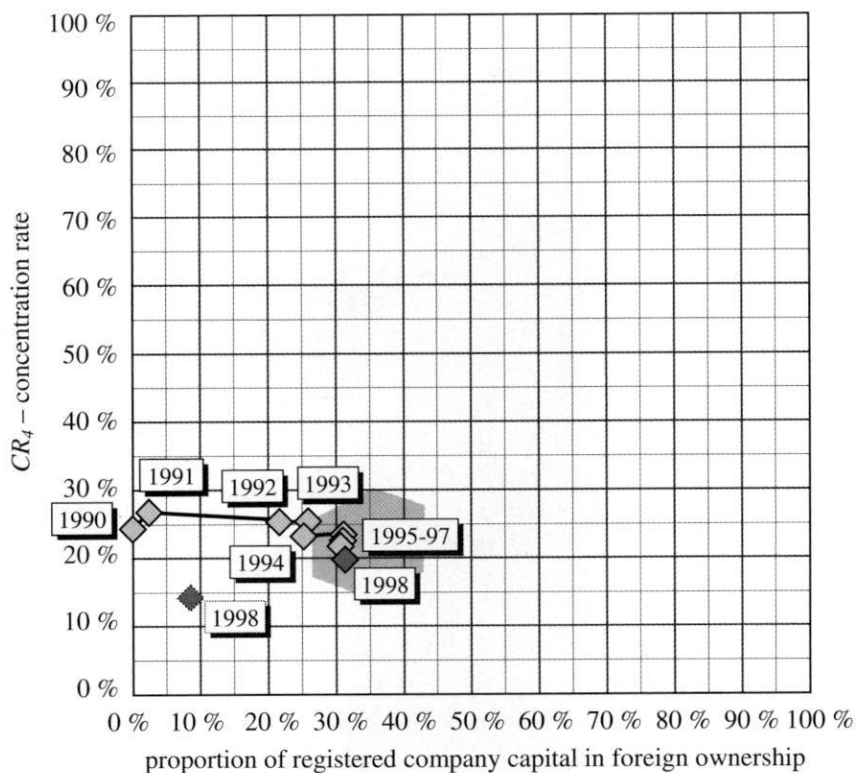
Figure 30. Life-curve for the Hungarian bakery industry between 1990 and 1998.

If the bakery industry ever alters its position, it will probably proceed very slowly towards a higher degree of foreign influence and higher concentration. Changes of less than 10 percentage points are probable on both dimensions in the next decade.

7.3.4.7. The Distilling Industry

Distilling is among the rare industries, which can be found permanently in area *D* in Figure 21. One important feature is that its position has not changed much since privatisation, although its course has been restricted to a clearly determined domain (Figure 31).

Investors expressed massive interest in these companies, which can be explained by the high profit anticipations and excise nature of the products. The largest companies were privatised as early as 1991 and 1992. Buszesz Co. was purchased by Mauthner and Markhof on the basis of a closed tender, while the Zwack family won the tender competition for Buliv Liquer Producing Ltd. This
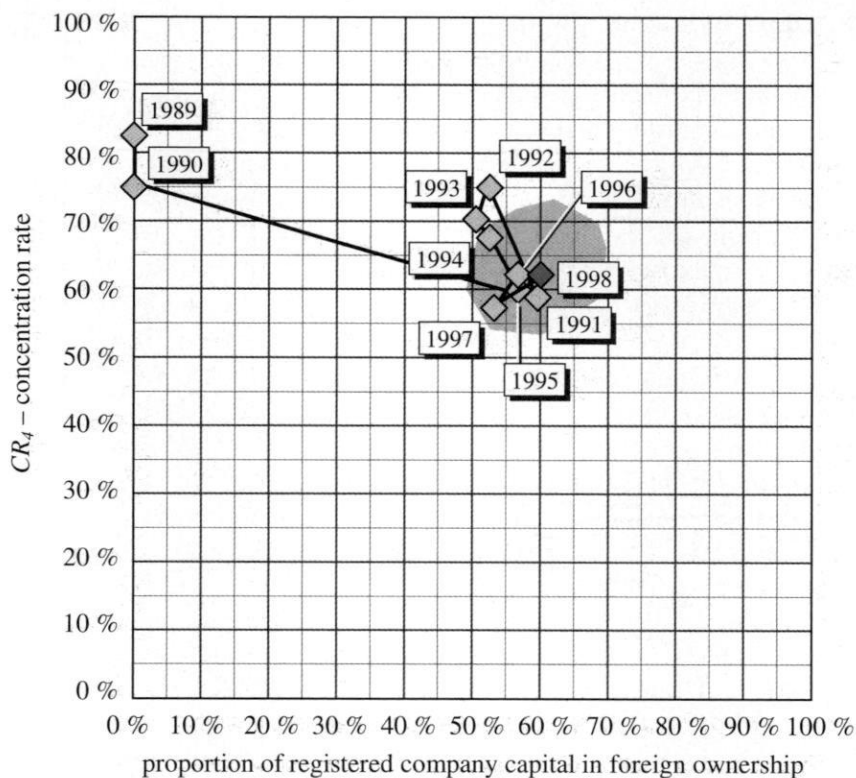
Figure 31. Life-curve for the Hungarian distilling industry between 1989 and 1998.

raised the proportion of foreign ownership to 60 percent at once, and the sharp growth in sales revenues achieved by the market leader, Buszesz Co., lifted the concentration ratio above 75 percent by 1992. After privatisation, however, several dozens of new companies entered the market, which together dragged the concentration ratio down to the 1991 level.

Both domestic and foreign-owned companies occur among the newly established small and medium-sized firms, so that like the concentration ratio, the proportion of foreign ownership also returned to the 1991 level by 1998. No significant change is anticipated in the industry in the next few years, it is predicted to remain in the domain in which it has been permanently located for eight years.

7.3.4.8. Other Industries

The classification of the Hungarian food processing industries is summarised in Figure 32, and the history and life-curves of eight sectors, the names of which are indicated in bold-italic letters, were discussed in section 7.3.4. As the rest of the industries also provide edifying lessons, some further life-curves are presented in the Annexes 5-10.

By definition, the industry life-curves are closely related to the classification derived from the cluster analysis. Nearly all the industries with a life-curve of type *A* belong to Cluster 1, except for "other foodstuffs" in 1998. The majority of the industries of life-curve type *B* had reached Cluster 2 by 1998, and sugar and soft drink manufacturing had moved up as far as Cluster 1. Life-curve type *C* typically contains the members of Cluster 3, while fruit and vegetable processing, winemaking and the milling industry represent intermediate cases and overlapping routes between the life-curve types *A*, *B* and *C*, and similarly their coverage spanned Cluster 2 and Cluster 3 in 1998. The special life-curve type *D* includes only the poultry industry, as an outlier, in addition to distilling.
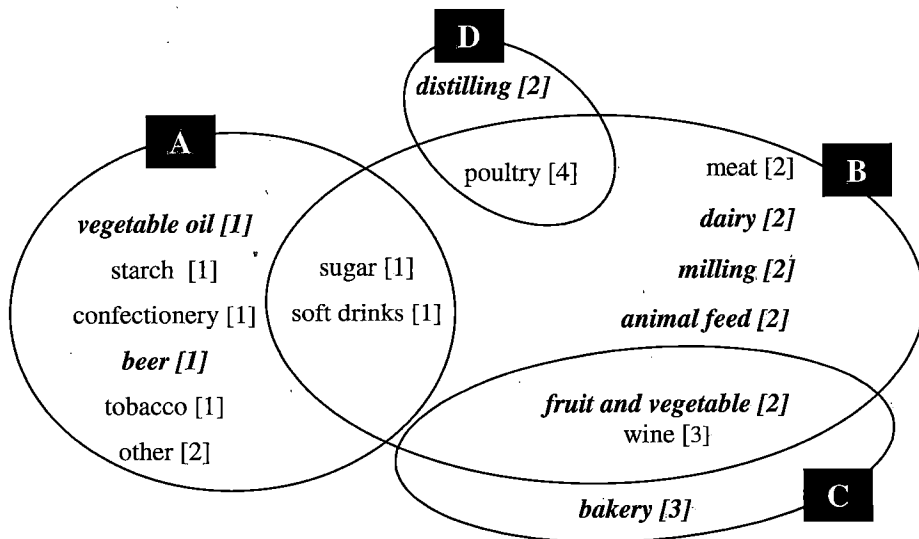
Figure 32. Classification of the Hungarian food processing industries into the four types of life-curve.

141

7.4. Prospects for Applying FDI-Concentration Maps

The selected examples of Hungarian food processing industries appropriately demonstrate the analytical potential of this dynamic extension of FDI-concentration maps. The industry life-curves give authentic information on structural changes in the food processing markets on a year-to-year basis, and comparison of these allows general tendencies to be identified for the entire food processing sector or parts of it.

Industry life-curves could be applied in three research directions in the future:

(1) It is easy to recognise background relations by constructing these life-curves. An unexpected position or move recorded for an industry, or an unusual detour, should provoke a search for the underlying reasons.

(2) Secondly, they demonstrate graphically the impacts of known historical events such as restructuring, privatisation and other economic and political measures.

(3) Thirdly, although knowledge of the industries' background is necessary for making projections, the graphical approach may still assist one in predicting possible future routes and scenarios for particular industries and their impact on the overall industry structure in terms of the two attributes examined.

The further directions for the application of FDI-concentration maps and new research areas may be the following:

♦ A third extension of FDI-concentration maps could be a concurrent extension into the dynamic and spatial directions, in other words, the application of industry life-curves to comparative analyses. Comparison of corresponding food processing industries among the various Central and Eastern European countries may lead to exciting results and interesting conclusions. It may well be possible to monitor the impacts of discrepant economic and privatisation policies by means of such comparative life-curves. This type of analysis is not included in the objectives of the dissertation due to its excessive data and time requirements.

♦ The theory of IO is directed towards the analysis of industries or markets, i.e. the meso-economic level, which also possesses other attributes besides concentration and FDI. The market for a product or group of products has interesting aspects from the Structure-Conduct-Performance perspective. New types of maps and industry life-curves with different content can be constructed by incorporating new research dimensions. Interesting pairs may be "market

structure – industry profit rates" or "FDI – industry profit rates". The use of two dimensions at a time results in easily comprehensible and demonstrative maps or life-curves, but in principle, the concurrent use of three dimensions cannot be entirely excluded either.

♦ Finally, the analyses can be carried out for other branches of the economy and other countries based on the current concept. The method may prove suitable for comparing industries in the manufacturing sector.

8. Central and Eastern European Comparison

Thesis IV:

The examples taken from selected Central and Eastern European food processing sectors verify the industry preferences of FDI. The choices of foreign investors in the food processing industries of the entire region are driven by a pursuit for market power.

The Central and Eastern European aspect of the dissertation does not attempt a thorough investigation of the situation in all the countries in the region, but rather the primary objective is a comparative analysis to test the generalisability of the tendencies revealed in the case of the Hungarian food industry and to identify the overall trends in food processing within Central and Eastern Europe. A secondary objective is to document the concrete procedures and events that have taken place in the national economies, which means that the detailed country-specific and industry-level information includes concrete illustrations that are of fundamental importance. In order to ensure the depth of analysis and to maintain the required breadth in the country reports, the scope of the research has had to be delimited to a selected group of countries.

The countries selected for comparison with Hungary are Poland, Estonia, Latvia and Lithuania. An important selection criterion was the requirement that they should represent the diversity of CEE economies in aspects that are especially important from a food industry FDI perspective.

- ◆ Size of the market. Poland represents the large markets in the region, Hungary the medium-sized ones and the Baltic states the small ones.
- ◆ Privatisation of the food industry. Privatisation policy proved to be an important determinant of foreign direct investment. The main privatisation techniques employed in the context of food processing have been commercially based, compensation-based or domestic ownership-based, together with mixed privatisation. All of these main types can be found in the countries selected.

The similarity with respect to some characteristics also prompted the comparison. Food industry is a significant segment in the national economies of all five countries, and it is a considerable contributor to export earnings. Corporate restructuring was launched immediately at the beginning of the reforms in the early 1990s, and shortly afterwards food industry set out on the path of recovery. Furthermore, all the countries selected here belong to the group of EU aspirants, and they are all characterised by advancing stabilisation in their political and economic conditions.

8.1. Introduction – Food Industry and FDI in Hungary, Poland, Estonia, Latvia and Lithuania

8.1.1. Operational Environment of the Food Industry

8.1.1.1. Hungary and Poland

Hungary and Poland inherited largely differing farm structures in terms of agricultural raw material production, but their food industries entered the period of transition on a relatively equal footing. The artificial giants, trusts and other co-ordinating associations of processors had been removed by the beginning of 1990 in both countries. Companies continued to operate under state control, but already become accustomed to making their decisions fairly independently. Relations with the state budget had changed substantially, so that price subsidies on foodstuffs had been eliminated and the only essential type of payment that remained was export subsidies.

Special transactions were placed on a conventional business basis with the termination of the favourable clearing mechanism of the socialist commercial and trading system. Some food processing industries that were traditionally oriented towards eastern markets, such as distilling, fruit and vegetables, meat processing – and wine making in Hungary – faced serious market problems. Exports had to be redirected to markets that represented a reasonable purchase power.

Domestic markets also shrank at the beginning of the new decade, and the financial status of the food processing companies worsened. High inflation reduced profits and increased the burden of interest payments on bank loans. Restructuring and privatisation caused insecurity for the food processing companies and thus exacerbated the period of recession. At the same time, hundreds of new food processing enterprises were established, taking advantage of the economic liberalisation. Competition intensified to an unusual extent on the domestic markets, and a wave of bankruptcies swept through some of the food processing industries in the mid-1990s.

8.1.1.2. Estonia, Latvia and Lithuania

Since Hungary and Poland enjoyed independent status, their food economies started out from very similar foundations in terms of the international environment, but this was not so in the case of the Baltic states, which were detached from the Soviet Union and declared themselves independent only in 1990-91. Their former internal or domestic relations were fragmented by the new borders, and consequently the three countries faced an entirely new situation. Since their historical backgrounds differed substantially from those of Hungary and Poland,

it is expedient to review the peculiarities of their economic environments separately.

After the Second World War, the structure of the food sector in these countries had been determined by the command economy prevailing in the Soviet Union. Central planning diverted Baltic food manufacturing towards the eastern internal markets within a short period, so that it was the densely populated oblasts of the nearby areas and the two large cities – primarily Leningrad and to a lesser extent Moscow – that constituted the main markets for Baltic foodstuffs.

The structure of food industry was developed according to the requirements of the market. Dairy and meat rose to be the leading processing industries in all three Baltic states. The vast Soviet market was supplied with inexpensive mass products on the strength of consumer price subsidies. The Baltic member republics were capable of producing three to five times the amounts of basic food items that their own consumption would have required. In the early phases of development the production facilities were combined to cope with the large size of the markets and to make it easier to supervise and control their activities. The leading industries, such as the dairy, meat and bakery industries, comprised 5 to 12 companies in each Baltic republic.

After regaining independence, Estonia, Latvia and Lithuania found themselves in a totally new operational and market environment. The new circumstances and the changes in the network of relations between the food processing companies reduced the output of the food industry, but the greatest blow of all concerned the changes in market conditions, as the formerly secure Soviet markets had been left on the other side of the border. Four factors have hindered sales to Russia and to other CIS countries from that time onwards:

(1) import duties at the new borders,
(2) tough competition on the markets of the former Soviet Union republics, as the Baltic food processors have had to compete with subsidised exports and food aid from the western countries,
(3) punitive measures imposed on Baltic exports because of political disputes,
(4) diminished purchasing power in the CIS countries in the 1990s.

Domestic economic conditions in the Baltic states changed fundamentally, as in all the other post-socialist economies, and this also implied significant changes for the food processing companies. The new types of business, legal environment and essentially reformed state budget relations shocked the food processors. The most important component of the economic changes was ownership reform, while the market economy also acquainted the processors with a previously unknown phenomenon: competition.

The internal conditions inside the agrifood chain, which are the direct determinants of the economic relations of food processors, have also changed substantially. This implied a more serious crisis for the Baltic food processors than

146

in other Central and Eastern European countries, since the former vertical relations once established in the Soviet Union were severely disrupted by the new borders. The Baltic food processors lost their access both to cheap agricultural inputs such as machinery and feeds and to secure markets.

8.1.2. The Significance of Food Industry

Food industry in the selected countries shows divergent characteristics in some important aspects, primarily stemming from the different sizes of the markets (Table 21). The absolute sizes of the national food sectors can be compared on the basis of net sales revenues expressed in USD.

The output of the Polish food processing sector is three times larger than that of Hungary, whereas the Baltic food processing sectors are only a fifth to an eighth of the latter in size. Export sales of processed food do not show such a pronounced difference, however, for Hungarian export sales in USD exceeded Polish food exports in 1998, and the exports of the Baltic states were one-fifth to one-seventh of the corresponding Polish figure (Table 21).

The proportional indicators demonstrate the significance of food processing sector better than do the absolute figures (Table 22). The food industry plays a considerable role in all the five economies, with shares in the GDP ranging between 4 and 8 percent.

Food industry is the leading manufacturing industry in all five countries. In Hungary, its proportion of total manufacturing fell from around 25 percent to

Table 21. Major indicators of the food processing sectors in Hungary, Poland, Estonia, Latvia and Lithuania in 1998.

	Number of food processors	Number of employees (thousand)	Sales revenues (million USD)	Export (million USD)	Export as a proportion of total sales in the food industry
Hungary	2,971	132.7	8,108.7	1,549.5	19.1%
Poland	12,107	548.0	25,801.4	1,413.7	5.5%
Estonia	528	24.2	964.0	251.1	26.0%
Latvia	806	36.9	980.1	192.1	19.6%
Lithuania	518	45.8	1,448.6	283.2	19.6%

Source: AKII (1998, 1999); GUS (1999d, pp. 436-438); SDL (1998c, p. 260), (2000b, p. 16); direct data: ESA, Industry and Energy Statistics Section; LCSP, Industry and Fishery Statistics Section.

Table 22. Significance of the food industry in Hungary, Poland, Estonia, Latvia and Lithuania in 1998 (figures in percent).

	GDP	Food industry's proportion of manufacturing	employment	export[b]
Hungary	4.16	18.95	3.59	17.50[c]
Poland	5.33	25.91	3.48[a]	11.17[d]
Estonia	4.14	30.24	3.94	9.84[e]
Latvia	7.79	29.41	3.54	15.86[f]
Lithuania	5.47	28.82	2.76	14.03[g]

Source: KSH (1999, pp. 83, 288, 404-406); GUS (1999c, pp. 391, 544); ESA (1999b, p. 39), (1999e, pp. 190-191, 203, 249), (2000a, pp. 90, 110); LCSP (2000a, pp. 20-21); SDL (1999i, pp. 94, 542), (2000b, p. 12)
Notes: [a] Figure from 1997. [b] Total export of agricultural raw materials and processed food products. [c] EU (1998, p. 16), figure from 1996. [d] GUS (1999a, p. 13). [e] ESA (1998, p. 212). [f] LCSP (1999b, p. 265). [g] SDL (1999e, p. 24).

below 20 percent in 1998, for the first time in the 1990s, a decrease that can be attributed to the strengthening of light industry and car manufacturing.

Food industry accounted for a significant proportion of manufacturing in Poland in 1998, one-fourth, and was by far the most important single branch, with an output more than twice as great as light industries or metallurgy. The domestic market is the primary target for food processing, with almost 90 percent of the food items being sold on the Polish market. Food processing is still more prominent in the Baltic states than in Hungary and Poland, its proportion being approximately 30 percent, and although the figure has been decreasing for years, it remains overwhelmingly the most important branch of manufacturing in all three countries.

The proportions of the GDP and national employment in these countries accounted for by food industry are compared in Table 22. The figures and their interpretation raise the following issues:

1. First, food processing contributes more to the economic output of each country than would be anticipated from its proportion of the labour force.
2. Two circumstances place reservations on an analysis of the above GDP figures:
   ♦ Labour constitutes only one aspect of the production inputs, as capital and raw materials are also important constituents of the full picture.

♦ The proportions of GDP and employment point to the advantages of the food industry over other branches of the economy in the given country and consequently these figures primarily reflect the domestic power and position of the food industry and can not be used for direct comparison between countries.

The agrifood export ratios are already directly comparable between the countries examined. All five countries export ten percent or more of their food production. The export ratios for the Baltic states in 1998 did not fully reflect the impacts of the Russian crisis, as they had decreased by only a few percentage points compared with the previous years. The balance of trade in food was negative for both Poland and the Baltic states, so that it was only Hungary that managed to export more food than it imported in 1998.

Poland's food exports also play a significant role in the country's total exports. Food production did not become as vulnerable here as it did in the Baltic states upon the collapse of eastern trade relations, chiefly because of the large size of the domestic market, which can be considered extraordinary for this group of countries. Thus the Polish demand was able to alleviate the market problems of the food industry at the time of serious recession. The other reason is the successful reorientation of export sales to Western European and CEFTA markets, which proceeded as fast as in Hungary.

8.1.2.1. Corporate Reforms

The rapid changes of the operational environment for the food processing companies have been touched upon in section 8.1.1, but the companies themselves also changed fundamentally. *The state-owned companies* operating in a command economy environment *had to be altered to private companies* that comply with the conditions of a market economy. Two stages were required for accomplishing the task:

1. *Restructuring the state-owned companies.* This involved adopting the conventional business types of a market economy, such as limited liability or shareholding companies. Restructuring also implied the rationalisation of plant size and profile improvement.
2. *Privatisation.* This involved transforming state ownership into private ownership by means of various privatisation techniques. In practice, privatisation often implied the disaggregation of large companies into smaller segments.

The two stages often proceeded simultaneously, although there were also cases in which they were separated in time. Food manufacturing was typically among the first economic branches in the CEE region to be privatised, and the whole food industry or some segments of it were subject to exceptional privati-

sation regulations in a number of countries, mostly because of the powerful demands for compensation and the tight business connections with the politically delicate agricultural sector.

All three *major types of privatisation* occurred in the food industries of the selected group of countries:[51]

1. *Commercial privatisation*. With the exception of a few industries, Hungary applied this type as an overall approach to food processing. Many examples can also be found in Poland and the Baltic states, but mostly in second stage processing.
2. *Compensation-based privatisation*. Within the selected countries, mostly Lithuania, or the Baltic states in general, represented this type, although certain characteristics can be identified in Poland and Hungary, albeit to a less extent. Of the CEE countries, which are not in the current sample, the privatisation policy in the food industry of the Czech Republic, Slovakia, the Ukraine and Russia followed a largely compensation-based pattern.
3. *Mixed privatisation*. A wide spectrum of privatisation techniques was applied in Poland, the methods varying not only by industries, but also from one company to another.

8.1.2.2. Food Industry in the 1990s

The jamming of the raw material supply, market difficulties, the rapidly changing and insecure economic and legal environment and the radical restructuring of the companies drove food production into a severe crisis in the early 1990s, when the output from both agriculture and food processing declined drastically in the whole of Central and Eastern Europe compared with the levels in late 1980s. Agricultural production reached a minimum in 1993-95, whereas food processing has recovered since the mid-1990s thanks to the consolidating domestic markets and to a less extent to the slow revival in exports to the CIS countries.

The output of the food industry in Poland dropped below the average for the 1980s in the early 1990s and reached a minimum in 1993, since when production has grown steadily. A remarkable recovery in fact took place between 1994 and 1996, although – as in other CEE countries – the rapid pace of growth slowed down by the end of the decade.

The food output in the Baltic states ranged from USD 0.9 to 1.5 billion in 1998, but this spectacular development was hit dramatically by the Russian fi-

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[51] The model known as "employee privatisation", which was applied in its purest form in Slovenia, is not regarded a separate type here. It has been used in all the selected countries to some extent, but has not dominated privatisation of the food industry in any of them.

nancial crisis in August 1998. Sales started to decrease at once, and the annual decline in the following year was as high as 17, 16 and 6 percent in Estonia, Latvia and Lithuania, respectively (Table 23/a). The sales problems on the eastern markets had repercussions for domestic food prices, as products initially intended for export ended up on the domestic market and generated a state of oversupply, which – through intensive competition – dragged food prices down.

Tables 23/a-c. Trends in food processing indicators from 1993 to 1999.

23/a.	Sales revenues (million USD)						
	1993	1994	1995	1996	1997	1998	1999[a]
Hungary	6,800	7,958	8,672	8,608	8,247	8,109	8,336
Poland	14,540	15,015	18,594	24,187	24,413	25,801	26,137
Estonia	n.a.	584	760	811	933	964	801
Latvia	n.a.	610	706	883	994	980	840
Lithuania	981	1,028	1,052	1,283	1,446	1,449	1,362

23/b.	Gross industrial profit rate[b] (in percent)						
	1993	1994	1995	1996	1997	1998	1999
Hungary	0.24	0.73	0.70	1.55	2.77	2.72	2.94[c]
Poland	1.73	2.09	2.52	2.71	2.37	2.11	..
Estonia	n.a.	n.a.	0.18	1.96	2.46	-0.65	0.029[d]
Latvia	n.a.	n.a.	n.a.	6.07	6.13	1.26	0.002[e]
Lithuania	n.a.	n.a.	7.92	5.26	5.08	3.05	..

23/c.	Labour productivity (thousand USD/capita)						
	1993	1994	1995	1996	1997	1998	1999
Hungary	40.7	49.2	56.8	59.8	58.6	55.9	..
Poland	28.8	30.2	35.2	45.8	45.4	47.1	..
Estonia	n.a.	20.9	28.8	31.9	36.5	39.8	..
Latvia	n.a.	17.7	21.1	25.2	26.2	26.5	..
Lithuania	14.0	17.3	17.2	25.0	31.0	31.6	..

Source: AKII (1998); GUS (1999c, pp. 391, 459), (1999d, pp. 436-438); SDL (1998b, pp. 8), (1998c, p. 260), (1999h, p. 16), (2000b, p. 16); direct data: ESA, Industry and Energy Statistics Section; LCSP, Industry and Fishery Statistics Section.
Notes: [a] Source: UN (2000, p. 75). [b] Profit before taxes/gross sales revenues. [c] The figure was calculated based on the 606 largest food processors' profits. [d] 1999 I. half, ESA (1999g, p. 33), (1999h, pp. 10, 47). [e] 1999 I. half, LCSP, Industry and Fishery Statistics Section.

While prices in general continued to rise at a moderate pace of 1 to 3 percent, the prices of food decreased by 2-3 percent (UN 2000a, p. 79).

The Russian crisis undermined the profitability of Baltic food manufacturing so much that it became negative in Estonia in 1998 and diminished seriously in Latvia and Lithuania (Table 23/b). Although the profit rate in the food industry has grown at a modest rate in Hungary, it had approached 3 percent by 1999. Profitability in Poland has remained stable between 2 and 3 percent since as early as 1994.

The data in Table 23/c show the sales revenues per capita between 1993 and 1998.[52] The figures indicate an expeditious improvement in all these countries. One important background factor is the steady lay-off of labour. Output levels rose every year between 1993 and 1998, in spite of the concurrent fall in employment.

8.1.3. Foreign Direct Investment in the Food Industry

Both the changes in the external economic environment and the internal restructuring placed a severe financial burden on the food processing companies of Central and Eastern Europe. Maintaining the previous production levels proved to be a great challenge, and the revolving credits used for raw material procurement imposed excessive interest burdens on them. More and more firms were forced to postpone investments, and even the replacement of fixed assets. Since

Table 24. Proportions of foreign-owned registered company capital in the food processing industries of Central and Eastern Europe on December 31, 1998 (in million USD).

	Hungary	Estonia	Latvia	Lithuania[a]
Registered company capital	1,756.2	134.4	249.4	620.7[b]
of which: foreign-owned	1,099.6	58.9	71.1	124.8[b]

Source: ÉFOSZ (1999, pp. 2, 37); ESA (2000a, p. 94); LCSP (1999a, p. 11); SDL (1999b, pp. 22-23).
Notes: [a] Data from 1999 first half. [b] Equity figures.

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[52] Calculation of the classical labour productivity indicator would have required figures for value added in the food industry, which were unavailable.

the state had withdrawn from subsidising their investments and the banking sector was developing concurrently with the reforms in the agricultural and food sector, an acute shortage of capital emerged. This coincided with the change in ownership of the food processors. The new owners were required to finance the purchase prices for the companies and their modernisation investments at the same time.

There were realistic chances of succeeding in these two things simultaneously only with the involvement of external resources, and in this respect foreign investors proved to be financially strong new owners who could afford to inject sufficient capital into the daily operations of the companies and into technical improvements and modernisation. They showed great interest in food processing in Central and Eastern Europe from the outset, and foreign capital started to flow in immediately after corporate restructuring had been completed.

Although the changes in all the countries of the region practically coincided in time, foreign investors showed varying interest in the food industries of the different countries. A marked disparity emerged among the five countries as far as foreign capital penetration was concerned (Figure 33), the reasons for which will be investigated below.
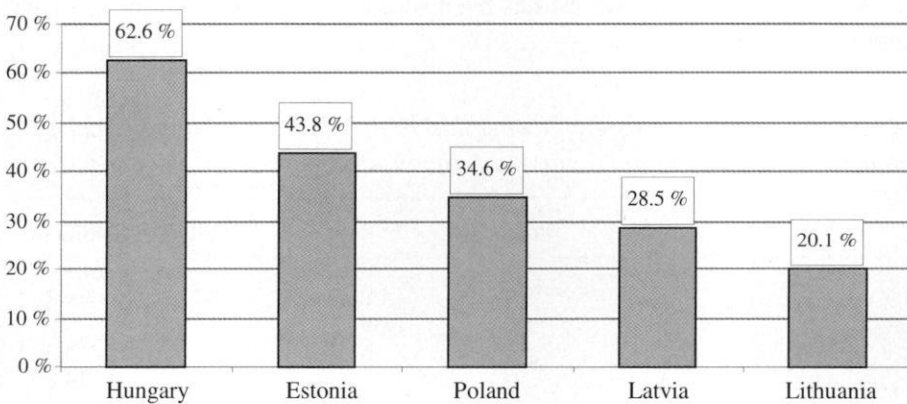
Figure 33. Proportions of foreign-owned registered company capital in the food industries of the five CEE countries examined as of December 31, 1998.[53]

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[53] For Poland: 1997 data, sales by foreign-owned companies as a proportion of total sales in the food industries.

8.1.3.1. Distribution of FDI between Food Industries in Poland and in the Baltic States

Foreign direct investment in the food industry followed an uneven distribution among countries, and also among the individual segments of the food industry in each country. The general tendencies for the distribution of FDI among the food processing industries of the CEE countries have already been presented in section 5.1, and these overall trends also held good in Poland and in the Baltic states.

The case of Poland is quite peculiar in terms of the arrival agenda for FDI and its distribution among the food processing industries. Foreign investments flowed in slowly in the early 1990s, even in the case of the internationally very popular segments, but later on, from the middle of the decade onwards, the influence of foreign capital increased sharply in the soft drinks, beer, tobacco and confectionery industries and a medium level of foreign participation was recorded in the potato, fish and fruit and vegetable processing. Foreign investments have entered the largest segments, such as meat and dairy products, very cautiously (Table 25), obviously on account of the large size of these industries.

In the Baltic states it was the industries manufacturing high value added products such as tobacco, confectionery, soft drinks, beer and sugar that were sold first, whereas foreign capital was slow to enter the bakery, meat and dairy industries, and almost no interest has been shown towards the milling industry, except in Latvia (Table 25).

Table 25. Proportions of foreign ownership in the food processing industries of Hungary, Poland, Estonia, Latvia and Lithuania (in percent).[54]

	Hungary	Poland[a]	Estonia	Latvia	Lithuania
Dairy	59.2	17.7	9.2	0.5	32.6
Meat	41.7	13.3	69.8	18.1	4.1
Fish	-	27.3	2.1	14.4	4.5
Sugar	33.0	15.8	-	32.0	67.0
Bakery	30.6	16.1	44.7	41.3	6.7
Brewery	90.3	78.3	81.8	61.3	82.1
Tobacco	93.3	87.6	-	81.0	98.8

Source: ÉFOSZ (1999, p. 37); GUS (1999d, pp. 436-441); direct data: ESA, Industry and Energy Statistics Section; LCSP, Industry and Fishery Statistics Section; Latvian and Lithuanian industry sources.

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[54] Baltic states and Hungary: proportion of foreign-owned registered company capital, 1998 data. Poland: 1997 data, sales by foreign-owned companies as a proportion of total sales in the food industries.

Dairy industry has been the flagship of food processing in all three Baltic states. So far, Lithuania has attracted an appreciable amount of foreign capital into its dairy industry almost entirely in the form of financial investments, while the dairy industry of Estonia has lured a few strategic investors. The other important segment, meat processing, has aroused the interest of foreign investors mostly in Estonia, where they already own nearly 70 percent of the industry. The bakery industry has been a popular investment target in Estonia and Latvia, and its attractiveness is also expected to increase in Lithuania in the future. The sugar and confectionery industries in Lithuania are predominantly in the hands of foreign investors.

Foreign investors purchased the tobacco monopolies in all three countries in the early phase of privatisation,[55] and the beer industry proved equally attractive in all three countries. Beer consumption in the Baltic region started from a relatively low level but showed a brisk recovery, and this was definitely among the major motivating factors.

8.1.3.2. National Characteristics of FDI in the Food Industry

The characteristics of foreign direct investment in the food industries in Hungary were discussed in Chapters 5 to 7, and we will now focus below on the corresponding major tendencies in the other four countries.

Poland, having a market of nearly 40 million consumers, attracted a remarkable amount of foreign capital. The largest investors were multinational enterprises that favoured the manufacturing of high value added products. These distinct preferences of investors have resulted in a sharp anomaly in the investment structure within food manufacturing. Modernisation of the companies is proceeding dynamically in the expanding industries that are subject to foreign influence, such as tobacco, soft drinks, beer and vegetable oil, which primarily supply domestic markets. On the other hand, the amount of investment in sugar, meat and dairy processing has remained below the desired level for international competitiveness.

Inward foreign direct investment possesses numerous interesting characteristics in Poland. The primary reason for the slow inflow was the indecisive and unclear process of privatisation of the food industry. An illustrative example is the tobacco industry, which enjoyed the greatest popularity among foreign investors throughout the whole region. This was in the hands of foreign investors in Hungary, and even in the Baltic states, as early as 1993, but the same level of penetration was reached in Poland only in 1996. The impatient foreign investors

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[55] The Estonian company has ceased production since the acquisitions. The story of the Estonian tobacco industry is discussed in section 8.5.6.

resolved the problem of slowness and lack of transparency in privatisation by means of green-field investments in some industries, where this strategy resulted in two features: (1) foreign influence increased slowly due to the size of the investments and the time interval they required to mature, and (2) a considerable technology gap arose among processing companies in the same industries.

A common characteristic of the *Baltic states* is the small size of their markets, as even the combined number of consumers remains under 8 million. Market size affected the inflows of foreign direct investment in several ways:

1. Firstly, the largest investors set foot in only one of the countries and supplied the entire Baltic market from there, taking advantage of the Baltic Free Trade Agreement (BAFTA).
2. Secondly, the multinational enterprises, pursuing an even broader perspective, did not establish production facilities there at all, but considered the Baltic market an extension of Poland.
3. Thirdly, the magnitude and proximity of the Baltic markets have best suited food processing investors in the adjacent Nordic countries (Table 26).

Despite the fact that privatisation policy shared many similar characteristics in the three Baltic states, the pattern of FDI in the food industries showed some discrepancies between Estonia, Latvia and Lithuania. Since a detailed account of the disparities and common characteristics will be given in section 8.4, the following list will highlight only some particularly important and interesting factors:

In *Estonia*, the receipt of foreign capital in the food industry has been determined by the country's renowned liberal economic policy. The removal of all import duties, including those on foodstuffs, in the early 1990s was a truly unique political measure for the whole of Europe. Outside observers expected this to reduce the inflow of foreign capital, since the substitution threshold for food imports as opposed to domestic production was very low. This caused the country's food trade balance to sink sharply to a deficit, but the foreign investors did not entirely stay away. Apart from a couple of multinational enterprises, the majority of the investments originated from Finland, which has close linguistic and cultural ties with Estonia. Foreign capital increased its ownership ratio to a very high figure, reaching 43 percent in 1998. This can be attributed to the small size of the country and its food industry, so that the acquisition of a few companies elevated the proportion immediately.

Latvia presents two interesting characteristics. Privatisation resulted in notable overlaps between the new owner groups and political leaders at the state and local levels. Although this phenomenon is familiar in many other transition economies, the interconnection between active politics and corporate ownership has been particularly strong in Latvia. The other peculiarity is the high share of "foreign investments" with a domestic background. The number of "off-shore"

enterprises is exceptionally high in the Latvian food industry by comparison with other post-socialist countries. In fact, domestic ownership is behind many of these investments. These are rarely strategic investors, the nature of the investments tending rather to be financial, a geographical detour aimed at taking full advantage of the special financial or taxation incentives offered to foreign investors.

Lithuania has a fair-sized food industry, especially in relation to its size and geographical location. Some multinational enterprises entered the country and built bases there, and one special characteristic of foreign investments in the Lithuanian food industry is the relatively high proportion of financial investments. Almost all dairy investments and some of those in the animal feed industry originate from development and investment funds, or from other financial institutions. As opposed to the general tendency in Central and Eastern Europe, there are also numerous companies with less than a 50 percent share in foreign ownership in Lithuania.

8.1.3.3. Geographical Origin of FDI in the Food Industry

The giant multinational enterprises that have invested in food processing facilities in Hungary and Poland have naturally influenced the distribution of FDI by geographical origin (Table 26). The most active countries in the Hungarian food industry have been the Netherlands, the United Kingdom and the USA, represented primarily by multinational companies, and Austria and Germany, which took advantage of their geographical proximity.

The investments made by a few large multinational companies also determined the rank order of investing countries in Poland, where the leading coun-

Table 26. Top three investing countries in the food industries of Hungary, Poland, Estonia, Latvia and Lithuania in 1998.

Rank	Host country	Hungary	Poland	Estonia	Latvia	Lithuania
1.	Investing country	Netherlands	USA	Finland	Finland	USA
2.		Austria	Germany	USA	Great-Britain	Denmark
3.		Germany	Netherlands	Sweden	Sweden	Finland

Source: KSH (2000b, pp. 70-89); LCSP (2000a, p. 11); SDL (1999c, p. 14); direct data: PAIZ; ESA, Industry and Energy Statistics Section.

tries were the United States, the Netherlands, Switzerland and the United Kingdom, while Germany also showed notable investment activity utilising its geographical proximity through the agency of its small and medium-scale investors.

The minor differences between the Baltic privatisation policies largely influenced the advance of foreign capital into the individual states. Estonia was the most successful in attracting foreign direct investment, largely on account of its manner of privatisation and its geographical proximity and close cultural relations with Finland and to some extent Sweden. These two adjacent Nordic countries have accounted for two-thirds of total inward food processing investments in Estonia. The food processors of Northern Europe generally attempted to take advantage of the investment prospects in the Baltic region.

Foreign investments arrived in the Baltic states in two waves. Some multinational companies appeared in the first wave in the early 1990s, while the Northern European investors arrived in the second wave and have gradually increased their influence ever since.

The following two conclusions can be drawn from the distribution of FDI in the food industry by geographical origin in the five selected countries:

a) Two large groups of investors can be identified: (1) multinational companies and (2) enterprises in adjacent or nearby developed countries which take advantage of their geographical proximity.

b) The multinational companies have been more active in the larger host countries, whereas investors from the adjacent countries have had a greater weight in the FDI stock of smaller host countries, whose markets are considered marginal by the transnationals.

Based on the review of the major characteristics and indicators of the state of FDI and food processing in Hungary, Poland and the Baltic states, we can conclude that the FDI penetration patterns into the food industries comply with the general trends for Central and Eastern Europe in all five countries.

8.2. Comparative Extension of FDI-Concentration Maps – Driving Forces Determining the Industries' Positions

A dynamic extension for FDI-concentration maps was defined in section 7.1 (page 112), when industry life-curves were used to trace the history of the Hungarian food processing industries over the past decade. The comparative approach offered by FDI-concentration maps involves a new extension aspect, namely geographical extension for a single period of time, according to which *national FDI-concentration maps* can be defined as *scatter plots including the positions of all observed food processing industries for a given country in a given year. Several factors affect the positions that these industries will take up on the map*. From the viewpoint of the food processing industries, *the driving forces can be categorised into two major groups*:

♦ *external factors*, which can further be decomposed into global, regional and national forces, affecting all food processing industries equally, and

♦ *internal factors*, which are associated with the industry's inherent characteristics, special features, group of products, manufacturing technology etc.

Although the discussion relates primarily to the food industry, most of the statements can easily be generalised to other manufacturing industries.

8.2.1. External Factors

8.2.1.1. Globalisation – the Ultimate External Factor

Globalisation has taken up the attention of economists for over two decades.[56] It is a trend that has substantially modified the worldwide economic environment. In his analysis of international competition and the historical evolution of global industries, Porter (1986) dates the start of globalisation to the end of the 19th century, a time of numerous inventions that promoted economies of scale and accelerated communication and transportation.

Between the two world wars, foreign affiliates of global companies usually conducted independent strategies, and the world economy was made up of national economies as separate segments. An intense acceleration of globalisation then took place in 1950-70, when a series of new inventions and removal of certain trade impediments together speeded up the process. In Porter's view (1986, pp. 43-44) the most important factors motivating globalisation are the following:

1. Technical developments, which increased the optimal plant size many times over in a number of industries.

2. The demand for products, which started to become more homogeneous with the increase in information flows and private travel and the equalisation of incomes.

3. The sharp drop in the real costs of transportation after the war, with the emergence of new, effective transportation equipment such as containers, tanker ships and freight aircraft. This made the shipping of bulk commodities fairly inexpensive.

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[56] The trend is often interpreted more broadly than as just an economic term. Many scholars regard globalisation as a phenomenon prevailing concurrently in the fields of economics, society and culture which has both positive and negative attributes. Globalisation usually increases social welfare through rationalisation and improved efficiency, but paradoxically, some of its impacts also detract from welfare (Dunning 1997).

4. The concurrent relaxing of impediments to international trade such as tariffs, cartels and patent associations.
5. The strengthening of global coordination at this period.

Transnational companies emerged which had clear global strategies, and the homogenising marketing and business patterns, infrastructure and distribution channels allowed these to harmonise the activities of their international subsidiaries all over the world.

A new acceleration of globalisation was witnessed in the past decade, in which Dunning (1995) highlights the impact of two factors:

1. In the late 1980s and early 1990s more than thirty countries gave up the command economy and over 80 countries liberalised their foreign direct investment policies. Market liberalisation reinforced the free flows of products and capital both within the transnational companies and among independent enterprises.
2. The innovation pressure brought to bear on companies. "...the escalating costs of research and development (R&D) coupled with ever truncated product life-cycles are compelling firms both to downsize the scope of their production and to search for wider markets" (Dunning 1995, p. 127). The companies which spend a lot on innovation feel that they have to combine their accumulated expertise with the competence of other firms in order to achieve a better cost-benefit ratio. This is the clear reasoning behind strategic alliances and company mergers.

The transnational companies, growing through mergers and acquisitions, have been the engines of the globalisation in a number of industries. They propel the integration of the entire world economy, and it is the very fact of these merger and acquisition activities and the reasons behind them that reveal the global background to the most significant statement in the dissertation, namely the fact that foreign investors in the food processing industries of the CEE region are motivated by a market-seeking attitude. The transnational food processing companies consider each position on the individual national or regional markets, but only a summed market share is regarded as a real indicator of progress. Nevertheless, all segments are important contributors to the final result.

The most significant driving force behind globalisation is derived from a fundamental characteristic of "the firm" that is well-known in microeconomic theory. The ultimate objective of firms is the maximisation of profits. In order to survive in intensifying competition, it has to strengthen its market power and be more efficient than its rivals are. Hence globalisation is eventually driven by two factors, growth pressure and efficiency pressure:

1. Growth pressure bursts open the boundaries of saturating national markets,[57] and companies respond to this challenge by stepping out into the international arena and targeting new, emerging markets.
2. Efficiency pressure is partly connected with growth pressure, since efforts to achieve economies of scale simultaneously increase efficiency. One of the most obvious ways to improve efficiency is to reduce costs by employing a more favourable mix of globally available production factors. Cooperation, mergers and acquisitions among companies also serve this purpose, as do changes in production through a recombination of raw materials, labour, technology, know-how, or market information. Efficiency pressure, like growth pressure, is usually resolved by means of internationalisation, or participation in the globalisation process.

It should be noted how similar the factors motivating globalisation are to those motivating foreign direct investment. The list presented on page 67 includes four FDI motivating factors, of which market seeking is cognate with the growth pressure on companies, while the seeking of resources, efficiency and strategic assets can be associated with efficiency pressure.

Companies contribute to globalisation by employing various levels of business interaction. The most basic level and at the same time an essential component of globalisation in the food industry is growth in world trade. In the category of tighter business relations, licensing agreements centred on certain products, additives or recipes are worth mentioning, as the executive managers of multinational enterprises view these as a transitory phase between conventional trade in goods and foreign direct investments.

While mergers play the dominant role in the globalisation of many industries, such as automotive industry, the food industry is characterised by the growth of multinational companies through acquisitions. The joint ventures established by the multinational food processing enterprises are somewhat transient in nature, for sooner or later one or other of the owners will make attempts to buy up the whole venture. This could be seen even in Central and Eastern Europe, where prior to the economic reforms foreign companies founded joint ventures in order to ensure an early presence, many of these being discontinued or purchased entirely by the foreign partner during the privatisation and economic liberalisation of the 1990s.

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[57] This particularly applies to food items, since in accordance with Engel's law, expenditure on food falls coincidentally with growing incomes. Although the decline is somewhat compensated for in the developed countries by the growing consumption of high quality, functional, or high value added food products, this is not sufficient to alleviate the severe growth pressure on companies.

Traill (1996, pp. 390-391) distinguishes three aspects of globalisation in the food processing industry, and three areas for economic research:

(1) International trade theory places the significance of world trade and world markets at the centre, and accentuates the power of trade for promoting economic growth.

(2) The representatives of international corporate economics emphasise the role of transnational corporations both in world trade and in relation to foreign direct investment.

(3) Marketing professionals represent a third standpoint. In their view, globalisation is embodied in converging consumer markets.

Globalisation is effective in the field of food processing in all three aspects. (1) Trade in processed food items has speeded up in an unprecedented way over the past decades. (3) International consumption patterns are converging in the case of numerous food products, and global brands in certain groups of products are spreading dynamically throughout the world.

Given the topic of this dissertation, the explanation contained in the current chapter starts out from the company and industry level, hence the survey of the literature on the definition of globalisation and the forces that motivate it has relied primarily on the standpoints of IO scholars, who consider that (2) world trade and converging consumer markets are facilitators of globalisation, but assert that the real determinant force in the process is the operation of international business.

To summarise the literature review, the definition of globalisation may be rephrased as follows: *globalisation is an acceleration in trade in consumer goods, services, technology, capital and other production factors. It is a bundle of business transactions that cross national boundaries and represent the growing international activity of economic players.*

A knowledge of international procedures is imperative in order to comprehend the external forces that affect the market structure and foreign capital penetration in the food processing industries of Hungary and Central and Eastern Europe. The major force in this is globalisation, together with its driving forces, conditions and implications (Figure 34).

An important condition on globalisation and recent accelerator of the trend is the liberalising world trade in agricultural and food products. One of the major topics of discussion in the negotiation rounds of the World Trade Organisation is the removal of tariffs and duties impeding trade in agricultural and food products (Csáki 2000). The protectionist attitude, which used to justify its goals in terms of ensuring food supplies, has been loosening its hold.

The technical background to this is formed by revolutionary developments in the field of transportation and logistics, which facilitate a growing world trade even in perishable food products. Besides, other aspects of technical progress

such as R&D, communications, business infrastructure and electronics have assumed increasing importance in the food industries. Technical progress is therefore an indispensable "infrastructure-type" precondition that supports the current intensity of globalisation in the food industry.

The purpose of this discussion on globalisation was to prepare for introducing the external factors that affect the positions of the food processing industries internationally on the FDI-concentration maps. Most of the issues mentioned in Figure 34 can be attributed to globalisation.

Point O signals the presumed basic position of an industry on the figure, while point P signifies a more concentrated market structure, which may be caused by initially high concentration in the industry or the world-wide tendency for growth in company sizes. The appearance of a multinational company on any national market will definitely promote the concentration process because of the very size of the company.
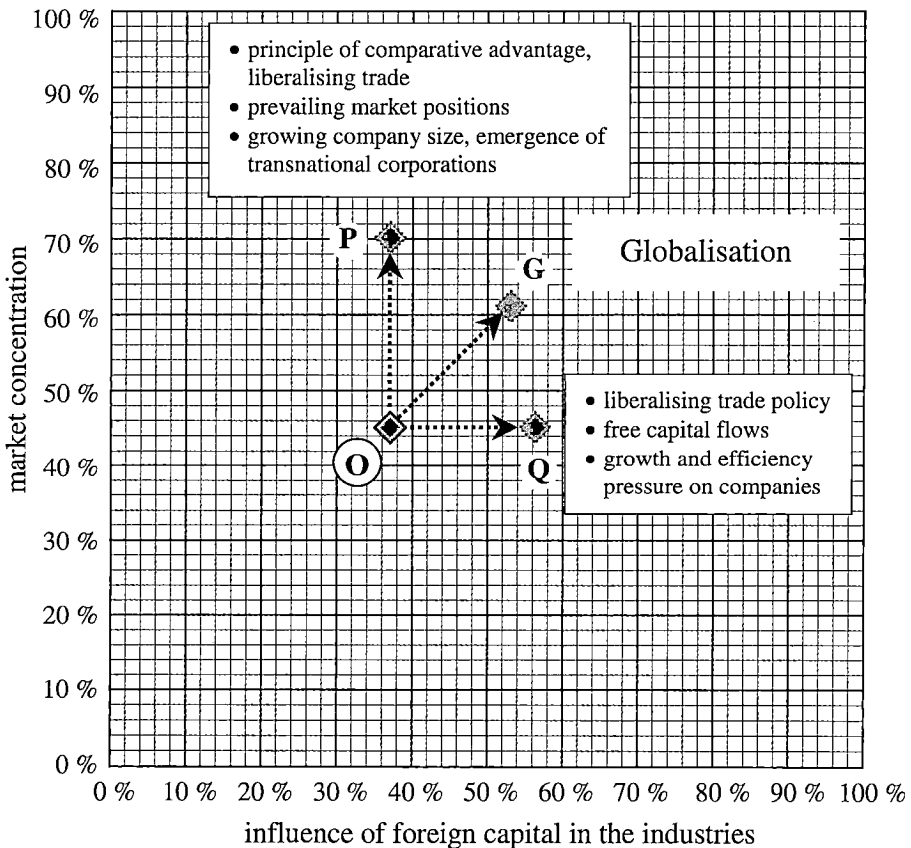
Figure 34. External factors at the international level that determine the array of industry positions on national FDI-concentration maps.

163

A paradox deserves to be mentioned at this point, namely that the purpose frequently attributed to market liberalisation is to promote competition or a "deconcentrating process". This may work at the level of a national economy, but the direction is reversed internationally through the effects of globalisation: the liberalising of world trade results in internationalisation and the consolidation of large companies, which in return, raises the level of concentration on individual markets.

The emergence of point Q instead of point O in Figure 34 is a result of the same factors that enhance international capital flows. They are the driving forces and conditions for globalisation, as described before. The resultant force can be derived from the directions of the vertical and horizontal forces, i.e. globalisation pulls industries towards the zone of point G as opposed to point O.

8.2.1.2. External Factors Effective at the Regional and National Levels

The survey of external factors can be continued at lower geographical levels. The factors effective at the regional and national levels can be grouped into general and CEE-specific forces.

The most important general factor on the national economic level that influences the array of food processing industries on the FDI-concentration maps is the economic policy of the respective country. Public policy can drive an industry in virtually any direction on the map.

The general aspects of economic policy, particularly the attitude towards foreign direct investments, affect movements on the horizontal axis. Beyond this, the emergence of extreme cases, i.e. points Q and S as opposed to point O, will be determined by (1) the size of the region or country examined, and (2) the costs of capital investments:

(1) The larger the size of the host market, the more foreign investments it will attract. This is outlined in the framework of the gravity model in the FDI literature (Brenton et al. 1998; Barrel and Holland 1999).

(2) Transaction costs, which play an important role among the installation and operational costs of investments, are determined by the general legal, economic and infrastructural environment of the host country (Figure 35).

Competition policy and SME policy will determine the vertical positions of industries. A crucial aspect of competition policy is supervision and the right to intervene in M&A cases in monopolistic, dominant company or oligopolistic markets, in other words to ensure adequate conditions for competition. SME policy includes the measures by which governments are able to influence entry barriers by enhancing conditions for the establishment and development of small and medium-sized enterprises.

164
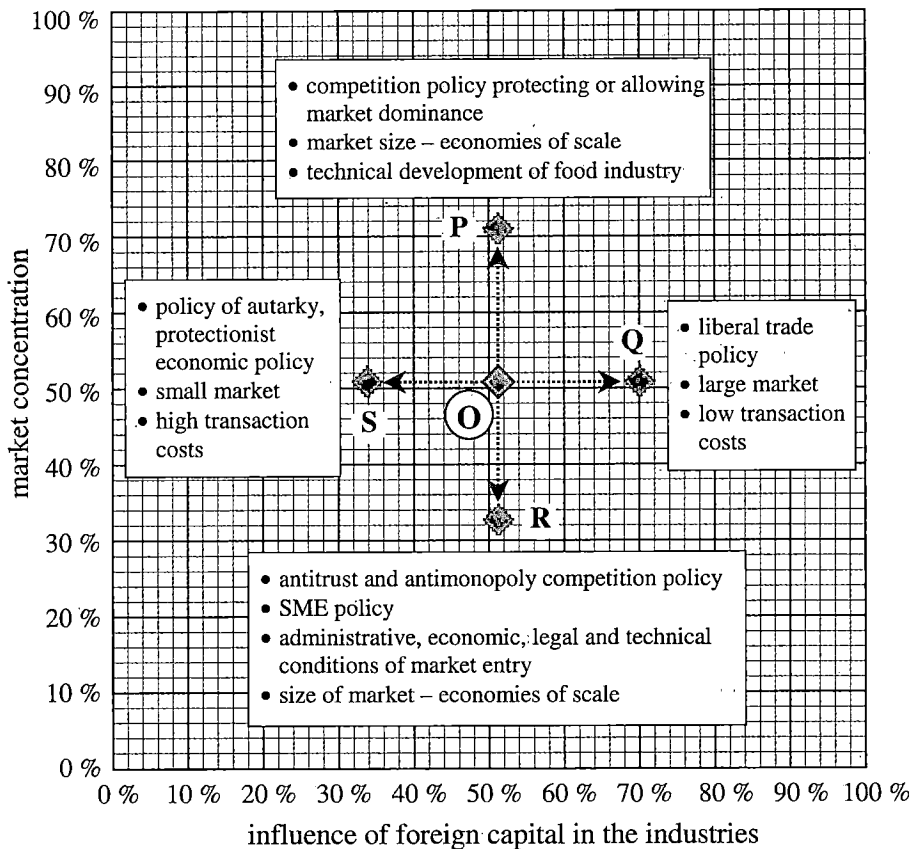
Figure 35. External factors at the level of the national economy that determine the positions of industries on national FDI-concentration maps.

Besides political factors, which affect market structure, the vertical extremes – i.e. the emergence of point *P* or *R* instead of *O* – will be driven by relations of market size and economies of scale. The pursuing and achieving economies of scale would result in a much more concentrated market structure in a smaller market, than in a larger market.

The level of technological development in the food industry in a particular country may influence concentration within industries,[58] but this is not a neces-

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[58] The idea is based on the following logic: the high cost requirements of developing/purchasing and applying new techniques or technology imposes a kind of technical threshold, since companies are able to utilise these opportunities only above a certain magnitude. The application of the new technology has "spiral repercussions", since it further consolidates the large companies and reinforces concentration.

sary determinant. Entry barriers can also modify the position of food processing industries on the vertical axis, and there are administrative, economic-financial, legal and technical conditions for the entry of new ventures into a market, some of which can also be ascribed to forces that operate at the national level.[59]

8.2.1.3. CEE-Specific External Factors

The Central and Eastern European countries started their transition from a command economy to a market economy over a decade ago. The main direction of the fundamental economic and social reforms in all the national economies has been the same throughout the region, but the initial stage of development, the pace of the reforms and the set of policy measures have varied considerably from country to country. Since this geographical extension uses FDI-concentration maps to compare the food processing industries of the five selected CEE countries, a separate review is required of CEE-specific external driving forces.

Privatisation policy and its concrete implementation are the most essential external factors of the CEE-specific driving forces on the national FDI-concentration maps, where the positions of food processing industries in the horizontal plane are determined by (1) the pace and (2) the type of privatisation:[60]

(1) Protracted privatisation may hold back the arrival of foreign investments, whereas multinational companies will be keen to exploit privatisation that is launched early and implemented rapidly.

(2) The type of privatisation is another essential factor modifying the proportion of a food processing industry in foreign ownership. Voucher-based privatisation, or privatisation favouring the interests of local actors in the agrifood chain will result in a very low presence of foreign investments. Consequently, the industries would be located around point S as opposed to point O. Commercial privatisation, on the other hand, would engender a location around point Q instead of point O.

Apart from privatisation, the stability of the host country will affect foreign investments. A predictable operational environment will stimulate foreign participation, while a quickly changing economic environment or political instability will restrain it. Consumer demand is another factor affecting the horizontal axis, in that greater purchasing power or a higher national income will attract foreign capital, while a permanently low level of disposable incomes will obviously impede foreign investments.

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[59] The levels of entry barriers vary from one industry to another, so that this is also listed among the internal factors in Figure 37.

[60] Holland and Pain (1998) present a comparative country matrix which encompasses the entire Central and Eastern European region and use this to confirm the impact of the type of privatisation on FDI.

The most influential of the CEE-specific factors determining the position of industries on the vertical dimension is again privatisation. Some of the privatisation strategies in the region left the food processing industries in a concentrated position around point P, where they used to be located in the command economy era. Conversely, the decentralised privatisation employed by many countries in a number of industries induced location in the proximity of point R as opposed to point O. The establishment of competition offices as part of the institutional reforms and the policy of enhancing conditions for small and medium-sized enterprises became important factors in determining market structure. Similarly, bankruptcy and liquidation laws were enacted in most of the countries of Central and Eastern Europe. Legal and institutional reforms applied differently in the emerging market economies.
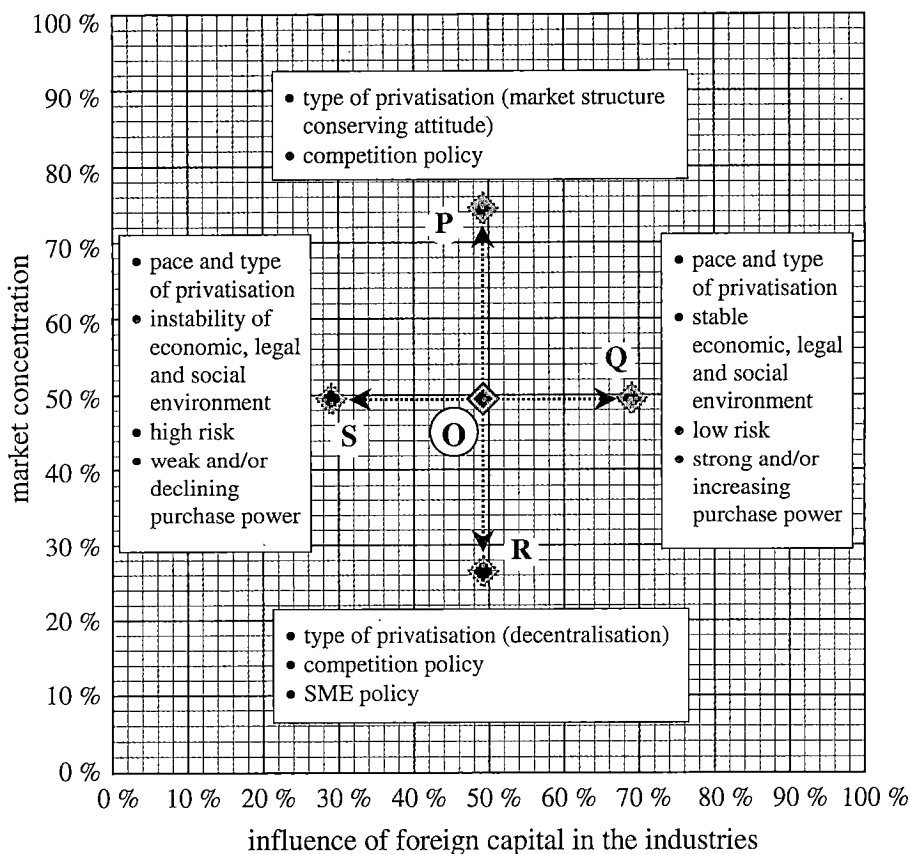
Figure 36. External factors at the regional and national levels – CEE-specific driving forces determining industry positions.

Of the external factors, global factors exert their effects at the level of the world economy, while the regional or national factors encompass determinants that are effective in certain groups of countries or in individual countries. Nevertheless, since the external factors alone are unable to provide a sufficient explanation for the arrangement of the food processing industries on the FDI-concentration maps,[61] a review of internal factors derived from the attributes of individual industries is also necessary.

8.2.2. Internal Factors Affecting the FDI-Concentration Maps

The cluster analysis of the Hungarian food sector undoubtedly served as evidence that food processing is made up of industries that are divergent in many aspects, this observation will be confirmed for the entire region in the national FDI-concentration maps for the CEE countries to be introduced below (Figures 38/a-e). The following description includes the internal factors stemming from characteristic features of the processing industries themselves that determine the positions of industries on the FDI-concentration maps.

The reasons for the horizontal positions of the food processing industries were investigated in Chapters 4 and 5 for the case of Hungary. The list below is partly a generalisation of these results, as well as incorporating non-quantifiable factors.

1. The interest of foreign investors was minimal in the case of inconsiderable segments of the food industry, or of first-stage processing industries which are especially exposed to fluctuations in agricultural raw material production.[62]

2. If the acquisition of an existing company was not possible for some reason, foreign investors tended to stay away, or − in the case of extremely good profit or market perspectives − they opted for green-field investments.

3. Foreign capital prefers the second-stage processing industries, for two main reasons: (1) there is no agricultural lobby to be feared, (2) these industries have excellent market and profitability prospects.

4. The cost/benefit ratio of market entry was often very favourable for foreign companies in those industries where they were given chances to conquer existing market shares by means of company acquisitions.

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[61] Privatisation or competition policy may treat certain industries or groups of industries differently from others, even within the same country. In this context, some external factors may also govern the distribution of the food processing industries on the FDI-concentration map for the same country.

[62] A special exception to this rule concerns the sugar and vegetable oil industries throughout Central and Eastern Europe.

Entry barriers and the technically related question of capital intensity may modify the location of industries in a vertical direction. Entry barriers and high capital, advertising and R&D intensity in a given industry will imply market success on the part of large companies, and hence increasing concentration. Exclusive knowledge and market rights together with exclusive access to raw materials or certain markets, or even preferential access to these production factors, can cause the level of concentration to escalate.

One important factor may be a market structure with a history going back several decades versus one which has evolved very recently. These characteristics not only influence the divergence of individual industries, but may also cause noticeable discrepancies in the horizontal investigation of selected food processing industries between countries (section 8.5).
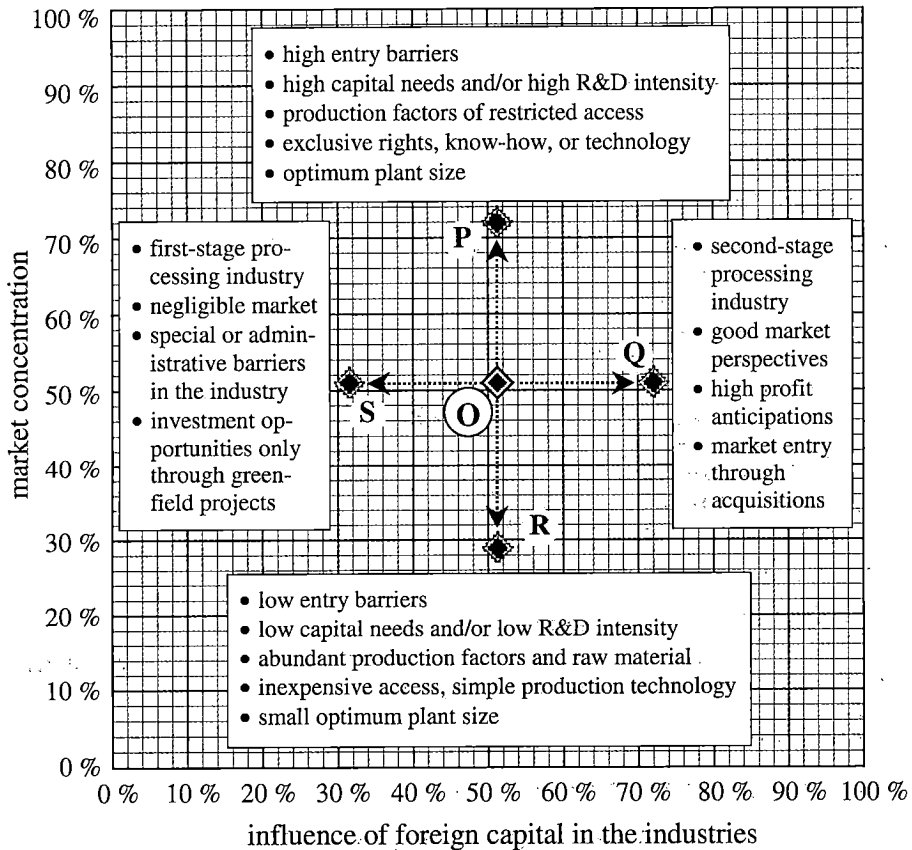
Figure 37. Internal factors determining the positions of industries on the national FDI-concentration maps.

8.3. Comparative Analysis Based on FDI-Concentration Maps

The spatial, or geographical, extension of the FDI-concentration maps implies their use to examine the food processing sectors of Hungary, Poland, Estonia, Latvia and Lithuania. The comparative analysis starts with the construction of national FDI-concentration maps, for which industry-specific data are needed. The latest figures originate from 1998 in the case of Hungary and the Baltic states, while detailed data for Poland were available only from 1996 and 1997. Foreign influence was measured by the proportion of foreign-owned registered capital in the industries in the case of Hungary and the Baltic countries, but due to the unavailability of the corresponding figures for Poland, foreign influence was assessed from the sales figures of foreign-owned companies in the food processing industries. Most of the international data originate from the national statistical offices.

The scope of the food processing industries in the various countries is not identical to that in the Hungarian food processing industry, which includes 17 segments. The main reasons for this are (1) that it is difficult to gain access to data and (2) that the structure of food processing differs between the countries:

(1) In the case of the Baltic states and Poland, data on market concentration and foreign influence were unavailable for some small food processing industries.

(2) Certain food manufacturing fields can be regarded as independent industries only in some of the countries observed, due to disparate geographical or climatic conditions.

   ♦ Winemaking, based on the growing of grapes, does not have a measurable equivalent in the Baltic countries for climatic reasons.

   ♦ Fish processing has an important role in the Baltic countries and in Poland, which all have seashores, but is negligible in Hungary.

   ♦ Potato processing is considered a separate industry alongside fruit and vegetable processing only in Poland, which has traditionally been a large potato producer.

Figures 38/a-e reflect the disparate privatisation policies of the five countries, and indicate the differences in the market and production structures of their food processing sectors. The international comparison of FDI-concentration maps facilitates an interesting and enlightening classification of food processing industries. The lessons learnt from the comparative charts in Figures 38/a-e and derived from the country-specific analyses in sections 8.4 and 8.5 can be summarised in the following points:

170

1. *The principal characteristic of foreign investments in the food processing sectors of Central and Eastern Europe is market-seeking.* This statement is the most essential conclusion reached in this concrete international application of the FDI-concentration maps. The relevance of such a generalisation is supported by the fact that although the five countries represent categories of varying magnitude and applications of different privatisation techniques, the foreign investors' preference for concentrated food processing industries is a clear and definite trend in all cases.

2. *The food processing industries of all the countries surveyed can be grouped into four distinct clusters.* A cluster analysis of the Hungarian food processing industries was performed in Chapter 6, and the section below provides evidence for the above opening statement for the other four countries, too. The four clusters may be described as follows:

   ❖ Cluster 1: industries with high foreign capital - high industry concentration,

   ❖ Cluster 2: industries with medium foreign capital - medium industry concentration,

   ❖ Cluster 3: industries with low foreign capital - low industry concentration,

   ❖ Cluster 4: industries with low foreign capital - high industry concentration.[63]

   In order to simplify the explanation, *abbreviated notations* will be employed. The names used to identify the clusters are derived from the global FDI-concentration map outlined in the conclusions to this dissertation.[64]

   ❖ Cluster 1 may be referred to as the *global cluster [1].* This name may sound bizarre at first, since we are engaged here in analysing national food processing sectors, but it is justified by the disposition of the global FDI-concentration map, in that this cluster encompasses the food processing industries which are globalising in the world. Cluster 1 appears in the CEE region as a result of the effects of general globalisation

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[63] The levels of concentration in Clusters [3] and [4] should be interpreted as high or low according to the trend for the country concerned. The CR_4 concentration ratios in Cluster [4] are very high in the Baltic states, 90-100 percent, whereas those in Cluster [3] are considered "low" by comparison, 40-60 percent. Similarly, the CR_4 figures for the Cluster [4] industries in Poland, although only 40-60 percent, are considered high in relation to the really low figures of 10-30 percent in Cluster [3] (Figures 38/a-e).

[64] A justification of the cluster names is presented in association with the global FDI-concentration map in Chapter 10, section 10.4.2 (on pages 272-275).

Figures 38/a-e. Comparative FDI concentration maps for the food processing industries of Hungary, Poland, Estonia, Latvia and Lithuania in 1998.

Poland figure:

CR_3 concentration rate

[1] [2] [3] [4]

100% 90% 80% 70% 60% 50% 40% 30% 20% 10% 0%

0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%

sales revenues by foreign-owned companies as a proportion of total sales in the industries

Figure 38/b. **Poland**

Hungary figure:

CR_4 concentration rate

[1] [2] [3] [4]

100% 90% 80% 70% 60% 50% 40% 30% 20% 10% 0%

0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%

proportion of registered company capital in foreign ownership
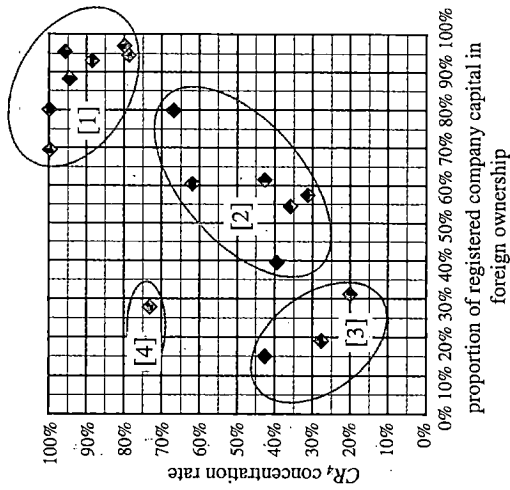
Figure 38/a. **Hungary**

172
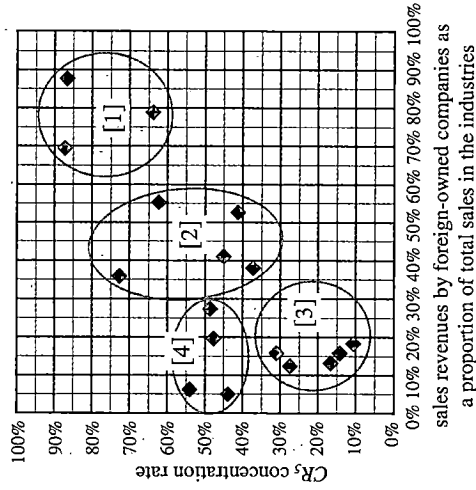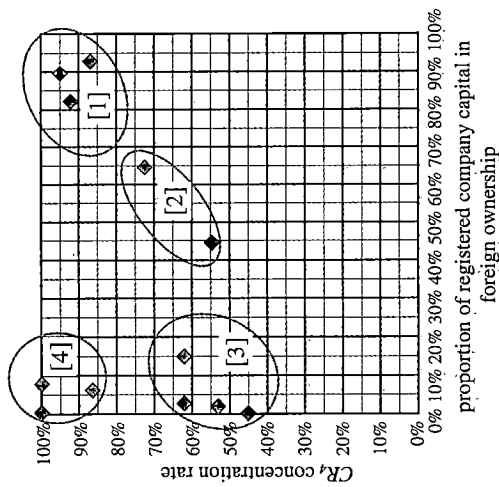
Figure 38/c. **Estonia**
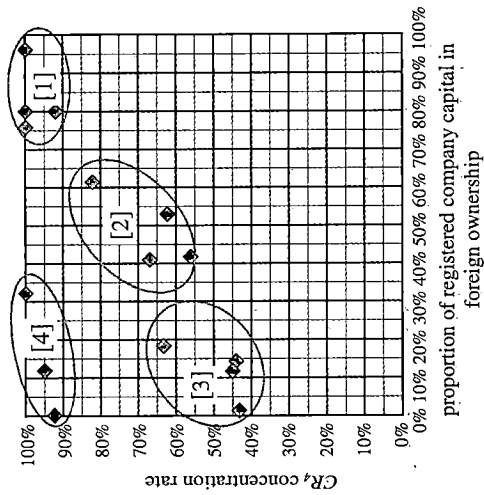
Figure 38/d. **Latvia**
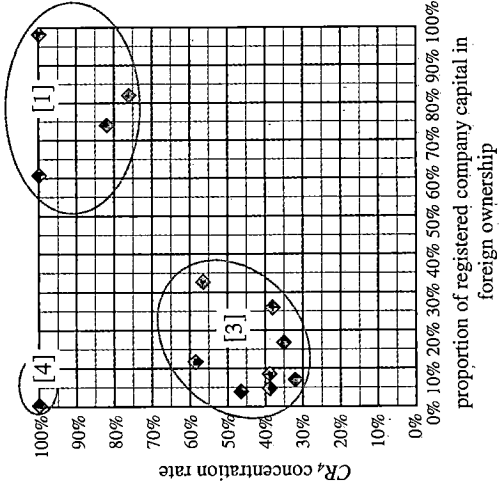
Figure 38/e. **Lithuania**

Notes: Sources of data base used for calculations and constructing the maps: AKII (1999); GUS (1999c, pp. 436-441); Chechelski (1998); Girgždienė et al. (1998); and direct data from the national statistical institutes and industrial interest representative organisations. In the case of Hungary and the Baltic countries, foreign influence was represented by the proportion of registered company capital in foreign ownership, while sales by the foreign-owned companies as a proportion of total sales in the food processing industries were used in the case of Poland. Data for Hungary and the Baltic countries are from 1998, and data for Poland from 1996-97. Ovals and numbers in parenthesis mark the clusters of industries.

173

on the markets of food products. This means that an active and prominent presence of transnational corporations is an important feature of these industries, either in their foreign trade or in foreign direct investment.

❖ Cluster 3, having opposite characteristics to the previous cluster, consequently receives the name: *local cluster [3]*. This comprises atomised industries which have very modest foreign participation. Production in these industries, and most often also distribution and sales, will be conducted locally.

❖ Cluster 2 is positioned between the two extremes on the FDI-concentration map, and can therefore be referred to as the *middle cluster [2]*. While the composition of the global and local clusters can be predicted with high probability from the given international procedures and characteristics of food manufacturing segments, the member industries of the middle cluster are not at all so self-evident. In the food processing of a particular country, national economic policy directions and other factors determine whether industries will eventually take up positions in the middle cluster as opposed to the global or local clusters.

❖ The fourth group is called the *transition cluster [4]*, since it comprises highly concentrated, domestically owned food processing industries that diverge from the general trend. This is a characteristic of the CEE countries, which is one reason for the label "transition". Furthermore, the emergence of this transition cluster is associated with industry-specific exceptions, special structural or ownership reforms, or an unfinished privatisation process. This implies that the industries are expected to leave their current positions and move towards lower concentration and/or higher foreign influence in the future, in which case the cluster may eventually disappear.

The above classification is based on the possible domains of occurrence of industries on the global FDI-concentration map. The clusters on the national maps will be identified as global, local, middle or transitional on the grounds of their positions relative to each other and the corresponding positions on the global map.

3. Despite the similarity of the basic tendency, interesting *divergences can also be observed in several aspects within the group of countries.*

a) *Concentrated and still domestically owned food processing industries exist in all the countries.* The transition cluster [4] appears in the Baltic states more markedly than in Hungary or in Poland, which can be attributed to two factors:

♦ The Baltic states did not decentralise all the food industries, and they occasionally set up administrative barriers to restrict purchases by foreign investors in certain concentrated industries.

♦ The concentrated industries in Poland and Hungary were either decentralised through privatisation or sold to foreign investors, thus conserving their concentrated structure.

b) *The trend line* marking the relationship between concentration and foreign capital *is situated higher in the case of all the Baltic states than for Hungary and Poland,* on account of the significant differences in market size. The Baltic states have 1.5 to 3.5 million consumers each, and although they have notable export sales, their food industry output is much smaller than that of Poland or Hungary. Consequently, the CR_4 indicators (or CR_5 in Poland) are to be interpreted quite differently in the Baltic states: i.e. the level of concentration is higher on average due to the smaller sizes of the industries and the relatively higher market shares of the leading companies.

c) *The Hungarian food processing industries congregate in the global cluster [1], while the Polish ones tend to converge towards the local cluster [3].* The reasons are to be found both in the different concepts of privatisation and in the sizes of the food processing markets in the two countries:

♦ Privatisation of the food processing industries in Poland has been going on for several years and the privatisation policy was initially hesitant and featured a combination of different approaches, whereas the Hungarian food processing industries were privatised rapidly and mainly through direct bidding transactions.

♦ The output of the food processing industry is 3.5 times larger in Poland than in Hungary, and the shift in ownership structure has therefore been quite slow and cumbersome, taking a much longer time than in many smaller countries.

For the above reasons, foreign capital will need a relatively long period to gain significant positions in the Polish food industry.

Decentralisation predominantly served to fragment the production structure of the first stage processing industries, but concentration rates in these industries in Poland are expected to follow the Hungarian example with time and to enter a steadily rising phase, albeit a slower one than in Hungary.

d) A peculiar and exceptional disparity can be observed *in Lithuania*, in that *the middle cluster [2]* of food processing industries *is entirely missing*. This may be ascribed to the Baltic concept of privatisation, a policy, which favoured exclusively domestic owners in the case of certain selected industries, whereas commercial privatisation techniques were applied to other industries. This Baltic privatisation was carried out in its clearest form in Lithuania, and the results can still be perceived on the FDI-concentration map. The corresponding maps for the Estonian and Latvian food sectors used to show a similar picture until the mid-1990s, but have now broken away from this "bipolar status".

8.4. Country-Specific Analyses

The following country-specific analyses list the characteristics of food processing in the five countries. Despite the separate discussions, the main objective remains the comparison of national food processing sectors. Therefore, all the country-specific sections are of similar structure, being concerned with:

1. *Privatisation.* It was privatisation of the food industry, albeit in different aspects, that determined both the market concentration and the inflows of foreign direct investment. A summary of privatisation gives useful background information prior to the cluster analysis and the review of the characteristics of food industry FDI.

2. *Cluster analysis.* The cluster analysis of the food processing industries is intended to demonstrate the presence of the four clusters defined above in the five CEE countries (page 171, point 2). The analysis provides valuable additional information in many respects: it distinguishes the separate groups of industries and it helps uncover the characteristics common to industries within the same group and the divergent patterns existing between the groups.

3. *FDI in the food processing industries.* Foreign capital has penetrated into the food processing industries in an unequal manner in each country, and separate examples are needed to illustrate the situation in each case. This third analytical point also contains a ball diagram, a special graphical transform of FDI-concentration maps which introduces a third dimension into the analyses, the sizes

of the industries. By contrasting the ball diagrams for the five countries, further aspects of foreign investments can be identified.

The discussions on a particular country will entail numerous references to parallel or disparate processes in the other countries. It is important to note that ball diagrams based on the national FDI-concentration maps, as used in the current section (Figures 40, 43, 47, 50, 54), depict the proportions of various industries within one national food industry at a given time, and thus the sizes of the balls are not directly comparable between the charts of the countries.[65]
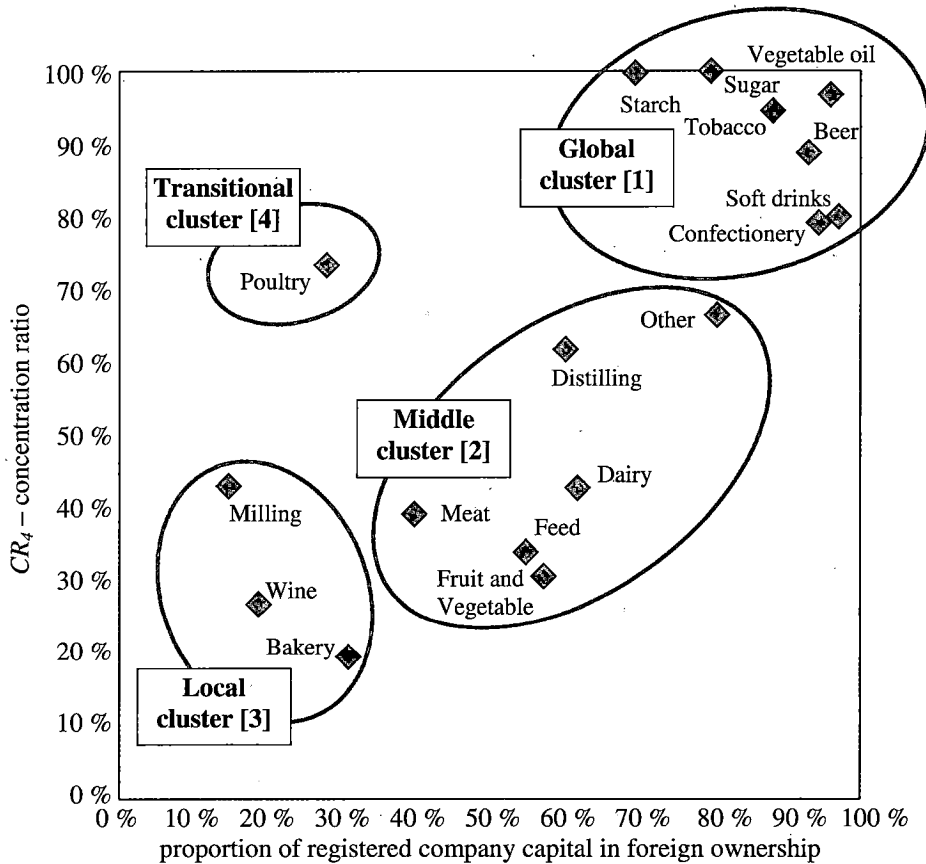
Figure 39. Four-cluster classification of the Hungarian food processing industries, based on 1998 data.

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[65] The country-specific analyses will be followed by FDI-concentration maps that provide horizontal pictures of certain selected industries across the five countries. The sizes of the balls in Figures 56 to 62 are already directly comparable between countries.

8.4.1. Hungary

The cluster analyses for the Polish, Estonian, Latvian and Lithuanian food processing industries suggest that the most appropriate agglomeration level is that of four clusters. Although three groups of industries were distinguished in the cluster analysis of the Hungarian food processing industries in Chapter 6, the position of the poultry processing industry, which was believed to be an outlier from the main trend, now becomes clearer in the light of the FDI-concentration tendencies of the new countries, so that it can be considered the only representative of a transition cluster [4]. In order to ensure comparison with the other countries, the Hungarian food processing industries may also be subjected to a four-cluster grouping using the 1998 data (Figure 39).
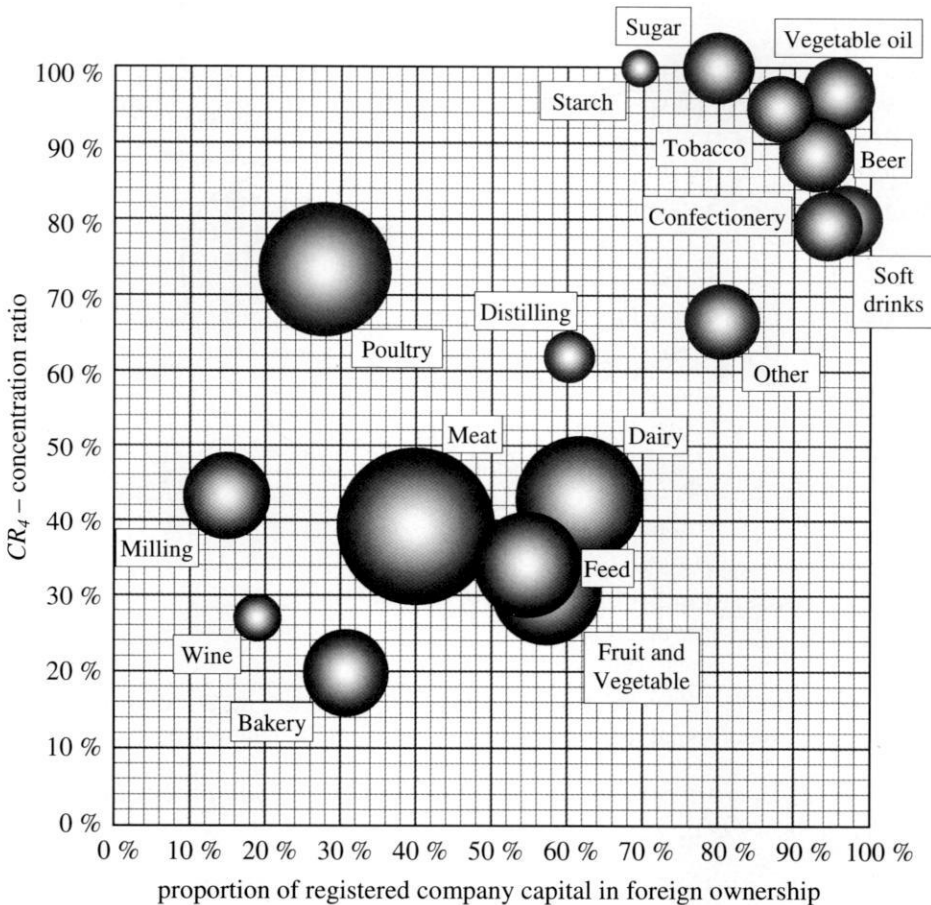
Figure 40. FDI-concentration map of the Hungarian food industry on three dimensions of investigation, based on 1998 data.

178

The history of the Hungarian food processing industries over the past decade was monitored by means of a dynamic extension of the FDI-concentration maps, i.e. industry life-curves. This brief section on Hungary attempts to provide an additional analytical viewpoint in the form of a ball diagram.

The fact that the largest industries converge in the middle cluster [2] can immediately be noticed in Figure 40. As will be noted later, this is a special feature of Hungarian food processing. The second observation to be made from the figure is the high number of medium-scale industries in the global cluster [1]. The intensity of foreign ownership is demonstrated by the combined low weight of industries in the local cluster [3].

8.4.2. Poland

8.4.2.1. Privatisation

Privatisation was regulated by the Act for the Privatisation of State Companies passed in July 1990. It was followed by a number of later amendments and new regulations, the most important of which were the Act on National Investment Funds and their Privatisation (April 1993) and the Act on the Restructuring and Privatisation of State Companies (August 1996). Under the first privatisation act in Poland, 4,086 state-owned companies and 1,666 state farms were involved in a change of ownership (Parkiet 1999).

Due to the "one company at a time" concept, Polish privatisation began very slowly, so the simultaneous privatisation of companies was soon adopted to speed up the process. Three major types of privatisation technique were developed in Poland, the most appropriate of which was selected in each case.

1. *Indirect privatisation,* or capital privatisation, was applied in cases of large and medium-sized state companies. The technique implied forming the company first into a State Treasury Company (in the form of corporation and limited liabilities), after which it could be sold to investors. However, only 18 percent of the 1,094 companies designated to be privatised by this method were successfully sold to private owners (Parkiet 1999).

2. *Privatisation through liquidation* was followed in the case of small and medium-sized state-owned companies. Liquidation should not be interpreted here in its original meaning, but rather it refers to a special technique allowed for in the Act for the Privatisation of State Companies. The "liquidated" company was ready for sale or leasing immediately. Since the method presumed the interest of one or more buyers or potential investors, it was appropriate only in the case of financially healthy and attractive companies. Of the 1,408 companies listed in this group, the privatisation of 1,346 had been completed by July 1997 (Parkiet 1999).

3. The third method was the *conventional liquidation of bankrupt companies*, and the sale of their assets to investors.

These three privatisation methods were supplemented with the following ones after 1992:

4. The programme of the *National Investment Funds* involved 512 companies, which were privatised through 15 investment funds. The funds are actually property management agencies in which Polish citizens can gain ownership shares through compensation coupons.

5. In the case of *corporate restructuring privatisation*, tenders are requested for the restructuring and management of state companies. After successful restructuring, each property management body is granted preferential rights to buy its company.

6. Companies, which were in financial difficulties and did not have a chance of rapid privatisation, were registered under a *Stabilisation, Restructuring and Privatisation* programme. The Ministry of Privatisation endeavoured to improve these companies in cooperation with the financial institutions involved and to sell them afterwards.

Polish privatisation has included a variety of colourful methods which have made the procedure rather less transparent. In the food industry, where privatisation began only in 1991, the slow pace of restructuring caused serious delays. Although the number of new food processing enterprises has been steadily growing, the privatisation of the huge state-owned companies proceeded slower. As many as 139 companies were still entirely owned by the state in 1998.

Of the 371 companies involved in privatisation up to December 31, 1998, 188 had been restructured and registered in the ownership of the State Treasury, and the majority of these remained in state ownership, albeit in the form of corporations or limited liability companies. Among the food processing companies, 125

Table 27. Number of companies in the Polish food industry between 1992 and 1998.

	1992	1993	1994	1995	1996	1997	1998
State-owned companies	448	429	365	260	214	176	139
New companies, small enterprises	5,072	8,292	9,346	9,617	10,275	10,805	11,405
Food processing cooperatives	562	579	583	567	566	570	563
Total	6,082	9,300	10,294	10,444	11,055	11,551	12,107

Source: MAFEP (1999, p. 43).

were privatised in the framework of the second method detailed above, and 56 in the framework of the third (MAFEP 1999).

Foreign investors acquired negligible shares in the major Polish food processing industries in the first half of the decade, apart from a few investment projects in second-stage processing industries. This fact is only partly explained by the large size of the country, however, as the slow headway made by foreign investors was mostly attributable to the mixed privatisation of the food processing companies. Investors were forced to opt for green-field investments rather than participation in privatisation and the acquisition of companies.

Privatisation proceeded most slowly in the sugar, milling and distilling industries, and as late as 1995, one fourth of the production capacity in food manufacturing was still owned by the state (Kupiec et al. 1996).

8.4.2.2. Cluster Analysis

Poland is the largest of the countries considered here, and it also has the largest food industry. Cluster analysis involved data on 17 individual industries, for which the dendrogram in Figure 41 indicates the formation of four distinct clusters.
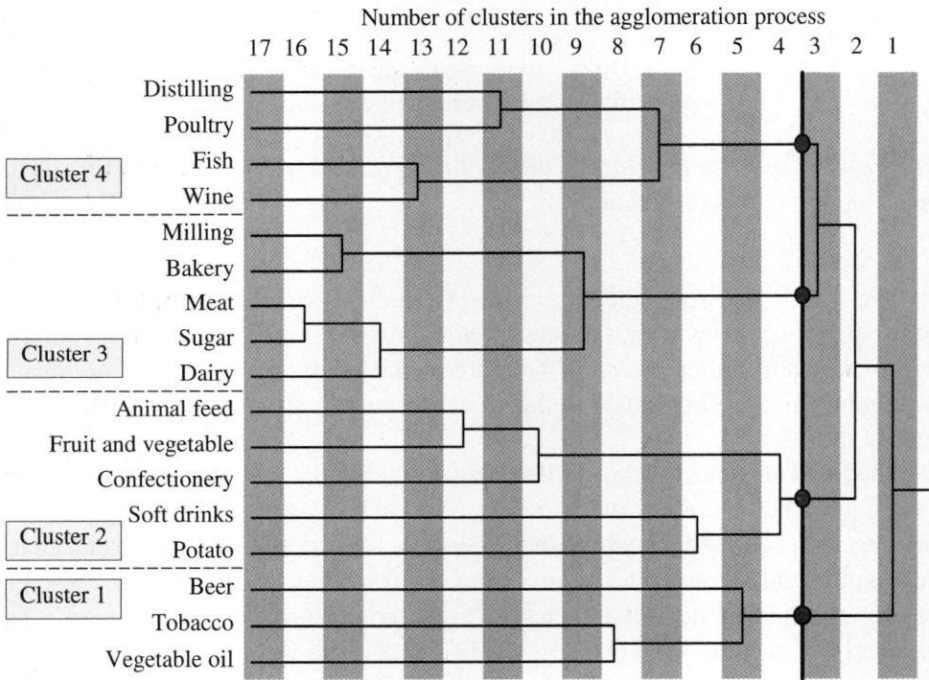
Figure 41. Dendrogram of the cluster analysis of the Polish food processing industries, based on 1996 and 1997 data.
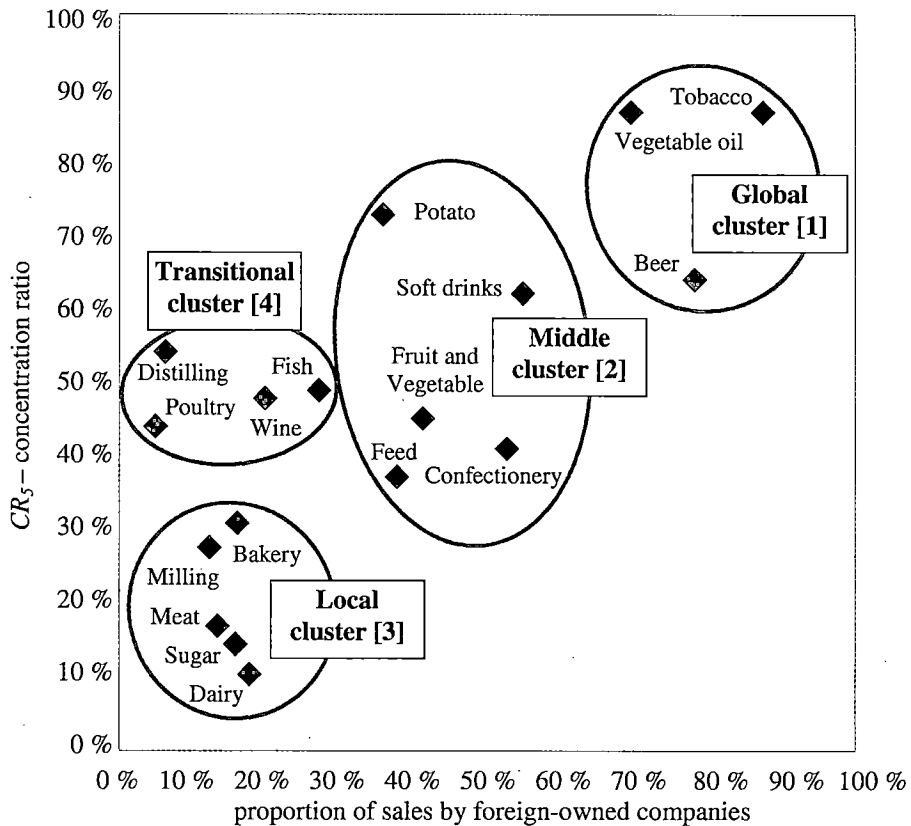
Figure 42. Four-cluster classification of the Polish food processing industries, based on 1996 and 1997 data.

The industries of the global cluster [1], such as vegetable oil, tobacco and beer, span a spacious area, and the middle cluster [2] also encompasses industries which are scattered over a wide area, while those in the transition cluster [4], and even more obviously in the local cluster [3], are grouped together very tightly.

The local cluster includes milling, sugar and bakery in addition to two major fields, the meat and dairy industries. A remarkably low level of concentration, the lowest to be found anywhere in the countries observed here, is a special characteristic of this group. The industries of the transition cluster [4] (low foreign capital and high concentration) have "high" concentration ratios primarily by comparison with the local cluster [3]. Distilling is the weightiest industry in the transition cluster [4], and is also among the most successful ones in terms of productivity and performance. It continued under state ownership until 1999, and its privatisation was scheduled to begin in 2000.

182

8.4.2.3. Foreign Capital in the Polish Food Processing Industries

The industries with the largest output in Poland are spread over all four clusters (Figure 43). Two of the main ones, the meat and dairy industries, which are situated in the local cluster, are considered in more detail in the current section because of their significance and the low amount of foreign direct investment in them. The tobacco industry is uncommonly large in Poland, but is located in its usual zone by CEE standards. The location of distilling on the FDI-concentration map matches the situation in the Baltic states.

Although the soft drinks industry can usually be found in the global cluster [1], it is a member of the middle cluster [2] in Poland. Coca-Cola operates ten bottling plants there and PepsiCo five, and although their combined share of the soft drinks market is a dominant one, there are over fifty additional mineral
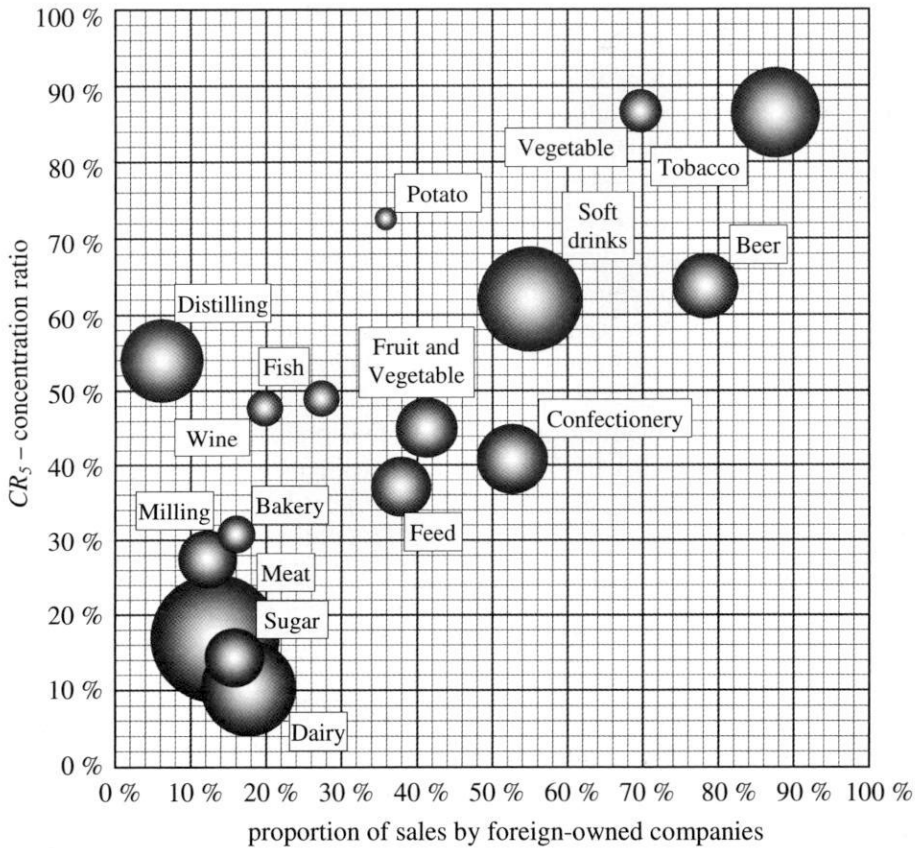
Figure 43. FDI-concentration map for the Polish food industry on three dimensions of investigation, based on 1996 and 1997 data.

water and soft drinks manufacturers. Furthermore, the figure of soft drink industry includes all fruit juice production, this is why the overall contribution of foreign ownership is much lower than the international average. The large size of soft drinks industry and the small size of fruit and vegetable processing are also explained by the statistical classification of fruit juice production. On the other hand, potato processing is recorded separately in Poland and not as a part of fruit and vegetable processing as is done elsewhere.

Among the medium-sized food processing industries, the positions of beer, milling, bakery and animal feeds do not cause any big surprises. Conversely, the positions of the confectionery and sugar industries are astonishing. The reasons for the sugar industry diverging so much from the usual positions in the CEE economies will be explained in the horizontal comparison of FDI-concentration maps for selected food processing industries among the five countries in section 8.5.3.

The Polish food industry had attracted USD 3.6 billion of foreign direct investment by the middle of 1998, and the amount of investment commitments exceeded USD 1 billion. The tobacco industry was the biggest recipient, having absorbed over one-fifth of the total (Figure 44), while investments in the soft drinks and confectionery industries were ranked second and third. These three industries together had attracted over half of the food industry FDI by that time.

Penetration by foreign direct investment increased considerably over the next year, however, so that the FDI stock exceeded USD 4.5 billion in June 1999 and investment commitments were simultaneously over USD 1.1 billion (PAIZ 1999b). The order of the top recipient industries also changed slightly. The tobacco industry retained its leading place, but the penetration of FDI into the soft drinks industry decreased relative to that in confectionery and in the foreign-dominated beer industry.

A list of the top 30 investors as of June 1999 is presented in Annex 11, from which it may be seen that the structure of their investments is fairly concentrated. Altogether, 113 companies have invested more than USD 1 million in the Polish food industry, the top five having each contributed 7-9 percent of the total. These investors together account for nearly 40 percent of the total FDI stock in the food industry. The group includes several large, diversified investors, whose activities spread over the boundaries of many food processing fields (Annex 11).

The most significant food processing industry in Poland is *meat processing*, which accounted for one-fifth of the output of the food industry in 1997.[66] This consisted exclusively of state-owned companies in the late 1980s. The liberal legislation for the founding of new enterprises that has existed since 1988,

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[66] Combined figures for meat and poultry processing.
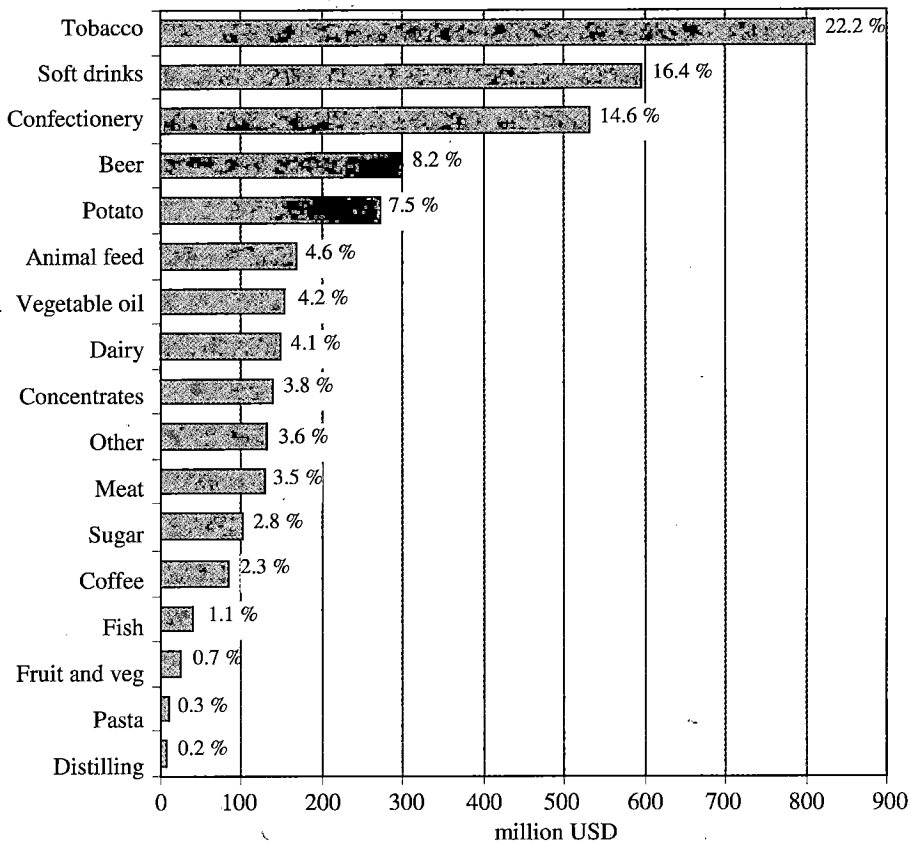
Figure 44. Distribution of FDI stock in Poland by food processing industries as of June 1998 (Wiatrak and Sawicka 1999, p. 319; PAIZ 1999b).

coupled with high meat prices and increasing demand, resulted in the establish-ment of hundreds of new meat processing companies in the early 1990s. These were competent rivals for the large processors, owing to their mobility and cost-effective production methods. Six thousand new processors took over 60 percent of the industrial slaughtering trade and 25 percent of meat processing from the large-scale processors (Kupiec and Leat 1999). Profitability declined dramati-cally by the middle of the decade, however, and the industry was already accu-mulating serious losses in 1995.

The structure of Polish meat processing has been uncommonly scattered, with the six largest firms having a combined market share of only 20 percent, while the 25 largest ones only 30 percent (Urban 1997). Large privatised pro-cessors and small and medium-sized enterprises manufactured the majority of the meat products, while the state-owned companies accounted for only 14 per-

cent of the meat processing output in 1996. The peak in newly established companies had additional serious consequences besides the fragmentation of market structure, as these further inflated the redundant capacity existing in the meat industry and worsened the problems arising from obsolete production technology. Some two-thirds of the slaughtering capacity of the large processors had been built before 1935 (Kupiec et al. 1996), and the newly established companies were apt to achieve cost savings by ignoring the sanitary and hygiene regulations. Approximately 40 percent of the new companies were vegetating or on the verge of bankruptcy by 1998, the combined production of these making up 27 percent of the total meat processing output.

The meat industry had absorbed only 3.5 percent of the total food industry FDI by the middle of 1998 (Figure 44), very little compared with other processing fields. The two most essential projects were the 51 percent purchase of Constar by US Epstein and the share of the Spanish company Campofrio in Morliny S.A.

The second most significant food processing segment in Poland is *dairy industry*, which accounted for 11.5 percent of the total output of the food industry in 1997.

The production structure of the dairy industry had been greatly scattered before 1989, as the industry used to consist of over 350 dairy cooperatives. These were actually under state control, as milk producers owned less than one percent share in them, but each operated in its designated territory, without interfering with the others. A national association of dairy cooperatives existed for channelling down central commands, being cognate in this respect with the Hungarian dairy trust.

The 1990s brought dramatic changes in the life of the industry. The ownership structure of the dairy cooperatives changed rapidly in the course of the economic reforms, and milk producers had attained a 60 percent ownership stake by the middle of the decade. Also, where the cooperatives had previously manufactured identical groups of products and enjoyed a quasi-monopoly on the regional markets, although with negligible national market shares, they suddenly became mutual competitors. Competition was also stepped up by the establishment of 136 new, privately owned dairy processors by 1996 (Przepiora and McLeay 1999, p. 55). The rapid headway made by the new companies became a severe burden for the large old ones, whose aggregate market share fell rapidly in the mid-1990s.

Inflation and the removal of the 40 percent price subsidy on milk products doubled dairy prices and induced milk producers to prefer direct sales of milk on the open market rather than selling it to the processing companies. This resulted in a sudden raw material shortage, leading to a 50 percent under-utilisation of processing capacity in the industry. The increased fixed costs, the burden of financing credits and the removal of all state subsidies drove dozens of dairy coop-

eratives close to bankruptcy. By the middle of the decade, the average profitability of the profitable companies was as low as 1.22 percent, while those making a loss were operating at −5.88 percent profitability on average. The overall profit balance for the industry was a negative one.

From this time onwards the dairy processors, including the cooperatives, began polarising in terms of financial performance. The number of cooperatives diminished to 280 by 1997, and half of those remaining were still struggling for survival. The largest and most vital cooperatives and 60 of the newly established companies were supplying 80 percent of the Polish dairy market, but the market leader still commanded less than 3 percent of the aggregate sales revenues, which implies a very even distribution of market positions. The current number of over 500 dairy processors is predicted to decline to 100-150 in five to ten years, of which presumably only a half will be cooperatives (Janicki 1997, p. 45).

Polarisation is also perceivable in the product structure. The strong dairy cooperatives and large processors are diversifying their production towards highly processed and high-priced product groups, while the weak cooperatives are stuck with the traditional products, including milk, butter, curd cheese and conventional cheeses (Seremak-Bulge 1999, p. 45).

Foreign investors have shown a moderate interest in the Polish dairy industry, as only four percent of the total food industry FDI stock had ended up in the dairy industry by the middle of 1999 (Figure 44). The example of the Polish dairy industry summarises the major attributes of foreign investors' attitudes towards food processing in the CEE:

1. The modest amount of investments and the low foreign share of total registered company capital can be ascribed to the large size of the industry and its scattered structure. The excessive amount of redundant capacity is also one factor that discourages investments.
2. The processors with a traditional product mix suffer the most from serious structural and quality problems and a cumbersome raw material supply network caused by the scattered distribution of milk producers. Foreign investors are reluctant to cover any financial losses stemming from these disadvantages. Another very pronounced feature in the field of conventional dairy products is the equality of market and competitive positions between producers.
3. Foreign investors have tended to target one clearly defined segment of the industry, aiming almost exclusively to manufacture highly processed, high-priced products such as flavoured milk drinks, speciality cheeses, desserts and ice cream, all of which usually have a high profit margin. This selective investment strategy has served the two major objectives of foreign investors: the maximisation of profits and the pursuit of market power.

The largest foreign investors, Nestle (Slupska), Kraft (Chorzele), Hochland (Kazimierz Wielkopolski) and Nutricia (Gdansk Mackowy), did not necessarily purchase the largest dairy processing cooperatives, but they certainly acquired the most vital ones (Przepiora and McLeay 1997, p. 55). Meanwhile, the Hoogwegt group, Land O' Lakes Inc. and Friesland Dairy Foods also established their positions by purchasing dairy processing cooperatives. Some of the foreign investors ensured their presence on the market by establishing their own production subsidiaries or purchasing other private companies. An example of the latter type is Danone (Wola in Warsaw and Tychy). The share of the foreign owned companies in the market for conventional dairy products is negligible, but it can be as high as 10-60 percent in the case of UHT milk, cheese, yoghurt and ice cream (Górska-Warsewicz and Krajewski 1997).

Unlike the situation in the Hungarian dairy industry, foreign investors are unwilling to participate in the manufacture of mass products – milk, butter, curd cheese and conventional cheeses – on the Polish market, probably due to the extremely scattered market structure and low profit margin. There are several cooperatives and private firms in the industry which have stable positions and are constantly modernising their processing technology, thus competing fairly well with the foreign-owned companies. In this respect it is worth mentioning a spillover effect attributable to foreign investors: that their presence and strategies force most Polish processors to improve their marketing and logistic activities and to pay attention to packaging and their product mix. Not all the domestic companies will be able to emulate the techniques of the foreign owned companies and catch up with them, however, and several hundred firms will probably fail in the slowly advancing process of market concentration.

8.4.3. Estonia

8.4.3.1. Privatisation

The Privatisation Act, which regulated the privatisation of large and medium-sized companies, was approved and came into force in Estonia in June 1993. The main method of privatisation was tender-based direct sale, but this approach was applied only in the second-stage food processing industries. The privatisation of the grain, dairy and meat processing companies was regulated by a special amendment, called Article 32, which reflected pressure from the agrarian lobby, in that it promoted ownership by the producers of the respective agricultural raw materials. This meant that the producer cooperatives were granted the following concessions for the purchase of food processing firms:
- ◆ the right to make the first bid,
- ◆ the stipulation that a maximum of 10 percent of the purchase price needed to be paid at once, and

♦ the remainder to be paid over ten years at a maximum interest of
15 percent (Sepp and Loko 1999).

Privatisation of the food industry proceeded rapidly. Three years after the Privatisation Act came into force, the majority of the companies, even of those to which Article 32 applied, had been privatised. Most of the milling companies had been sold by the beginning of 1995, the entire dairy industry was in private hands by October 1995, and the last large state-owned meat processing firm was privatised early in 1996.

The agricultural producer cooperatives became the dominant owners in the industries regulated by Article 32, while foreign and Estonian private persons and corporate investors were more active in the rest of the food processing industries.

A cardinal element in Estonian economic policy is the country's liberal trade policy, which has been in force since the declaration of independence. Estonia has, quite exceptionally, applied zero import duty to all products, including agricultural and food products, since 1994. Global and European rivalry from over-subsidised agricultural products was felt at once, of course, as these came to be dumped on the Estonian market at a time, when the country's own agricultural producers were already struggling for survival in the severe recession caused by restructuring. The priorities of the Estonian government nevertheless dictated that the agricultural sector should be pushed into the background and over-shadowed by the general liberal trade policy.

Agricultural producers saw a life-line in the opportunities for gaining ownership of the main food processing industries, and they consequently fought for control of the dairy, meat and grain supply chains. The ownership rights over processing companies were intended to strengthen vertical relations, as the government's objective was to ensure a regular demand for agricultural products. Thus it was that ownership by the raw material producers became a dominant feature precisely in those industries which were dependent on FSU markets. The jamming of exports in the middle of the decade, followed by a temporary recovery in 1997 and 1998 and the Russian crisis later in 1998, nevertheless shook the most successful of the Estonian food manufacturing industries, including dairy and fish processing. These market difficulties had repercussions for the financial status of the agricultural producers – as the owners of processing facilities – with nine of the 13 largest meat processing companies alone going bankrupt between 1996 and 1998.

The main problem for the export-oriented industries was the amount of redundant capacity. Overproduction was notably worsened by the mass appearance of small enterprises, primarily in meat and fish processing, while redundant capacity in the milling and animal feed industries exceeded 80 percent.

Foreign investors have stayed away from the privatisation of the first-stage processing industries in Estonia for several reasons:

1) The preferential treatment of agricultural producers created unequal conditions and discouraged potentially interested foreign investors.
2) The orientation of the oversized processing industries towards exports to the FSU block, the companies' obsolete technology, the market dependence and rapidly emerging under-utilisation of production capacity, together with the economic crisis, detracted considerably from the appeal of these industries.
3) In accordance with the "import-FDI substitution effect", the pursuance of a liberal trade policy by a host country will induce foreign companies to export goods to it rather than capital, in other words, such a country can expect increasing imports instead of increasing FDI inflows.

The last of these reasons applies to the entire food processing industry, and could be presumed to lead to dynamically growing food imports and a persistent negligible level of FDI in the food industry. Reality does not bear this out, however, since the Estonian food processing industry is the second most foreign-dominated after that of Hungary. The Estonian experience suggests, in fact, that foreign investors are driven by considerations other than the advantages attainable purely through trade in commodities.

The flow of foreign capital into food processing in the CEE was primarily motivated by considerations of market power, as already confirmed. It has also been pointed out that the primary target for foreign investors in the food industry has been the domestic market of the host country. Export opportunities are regarded only as additional benefits arising from the transactions. The high proportion of foreign ownership in Estonian food processing is explained best by one of the main theses of this dissertation:

1. Due to the small size of the Estonian food processing industry, market concentration ratios are high. This means that one large investment project may facilitate control over an entire industry, a viewpoint which sheds a great deal of light on the background to the company acquisitions made by foreign investors in the fruit and vegetable, poultry, meat, beer, soft drinks and tobacco industries.
2. Foreign investors held back in the case of the largest industries. They did not participate in the process of eliminating the redundant processing capacity, but waited for natural selection to clean out the industries eventually by means of a wave of bankruptcies. They may also have been hesitant in order to make sure about the persistence of the recovery on the FSU markets. The cautiously growing foreign investments in the meat and dairy industries have targeted the secure Estonian and adjacent Baltic markets, and only in principle, or in the long run, do they consider the perspective of exports to the FSU area.

8.4.3.2. Cluster Analysis

The cluster analysis resulted in clearly separated groups despite the small number of industries. As in the other countries, each of the four typical clusters can be found in Estonia (Figure 45), and the member industries are tightly grouped. Fruit and vegetable processing became connected with beer and soft drinks at an early stage to form the global cluster [1], while the tightly associated pairs formed by the fish processing and milling industries and the animal feed and dairy industries made up the local cluster [3].

The transition cluster [4] – as will be confirmed later in the case of Latvia and Lithuania – is a peculiar grouping that deviates notably from the main trend, but is a characteristic feature of the Baltic countries. The middle cluster [2] includes only two industries: the meat processing and bakery industries, which were joined relatively late in the agglomeration process (Figure 45). Both of them are significant on the domestic market, however. Interestingly, the meat and bakery industries are closer to the domain of the global cluster in Estonia than in the other countries.

Estonia is the smallest of the five countries examined, a fact that is reflected both in the size of its food industry and the array on its FDI-concentration map. The number of industries is also the smallest among the five countries. Estonia had no sugar or tobacco industry at all in 1998, and the data on poultry processing are recorded under meat processing. Certain food processing industries –
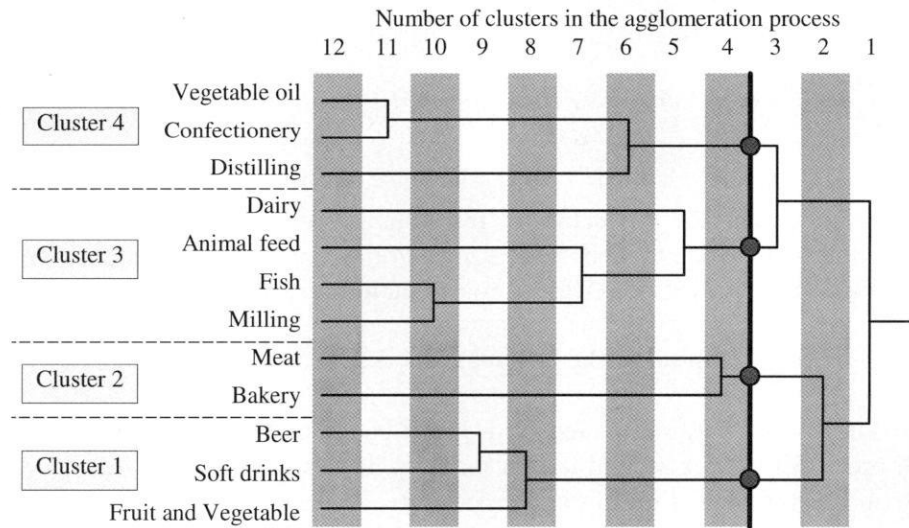
Figure 45. Dendrogram of the cluster analysis of the Estonian food processing industries, based on 1998 data.
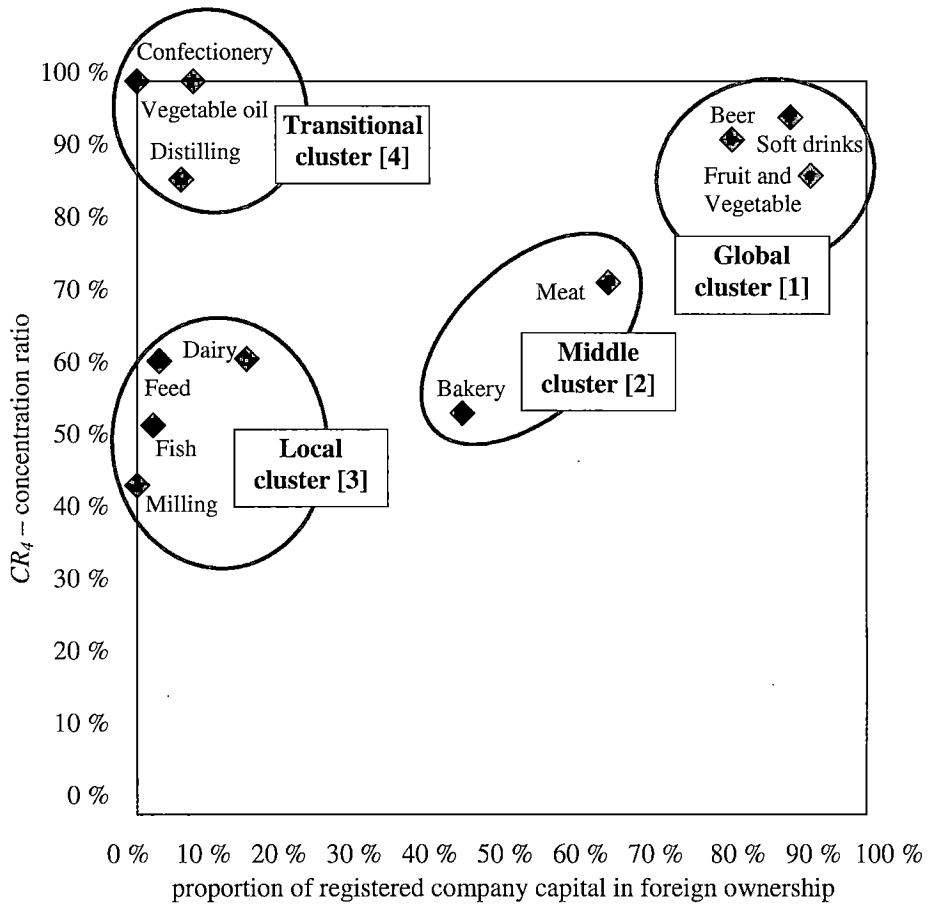
Figure 46. Four-cluster classification of the Estonian food industry, based on 1998 data.

such as starch and the production of fruit wines – are missing from the FDI-concentration map due to their small size and/or the lack of data. Hence, Figure 46 presents the positions of 12 food processing industries.

8.4.3.3. Foreign Capital in the Estonian Food Processing Industries

The dominance of the dairy industry is immediately evident in Figure 47, with fish processing as the second largest industry. It was not accidental that these two sub-sectors ended up in the same cluster, as they share several common features. Both industries are highly export-oriented, with fish processing being directly dependent on exports, since 88 percent of its output was exported in 1997. The balls refer to the proportion of production output, measured in value

terms on the basis of the 1998 data, which already include the first signs of the recession caused by the Russian crisis of August 1998.

In the industries of the global cluster, huge foreign investors attained on overwhelming influence through acquisition of the dominant companies. In the beer industry, Baltic Beverages Holding, owned by the Scandinavian consortium Hartwall-Pripps-Ringnes, acquired the Saku Brewery, the largest investment in fruit and vegetable processing was concluded by the Swedish Procordia AB in acquiring Põltsamaa Felix, while Coca Cola, the largest foreign investor in the Estonian food industry, dominates the soft drinks sector. A list of the major foreign investors who had arrived by the beginning of 1998 can be found in Annex 12.
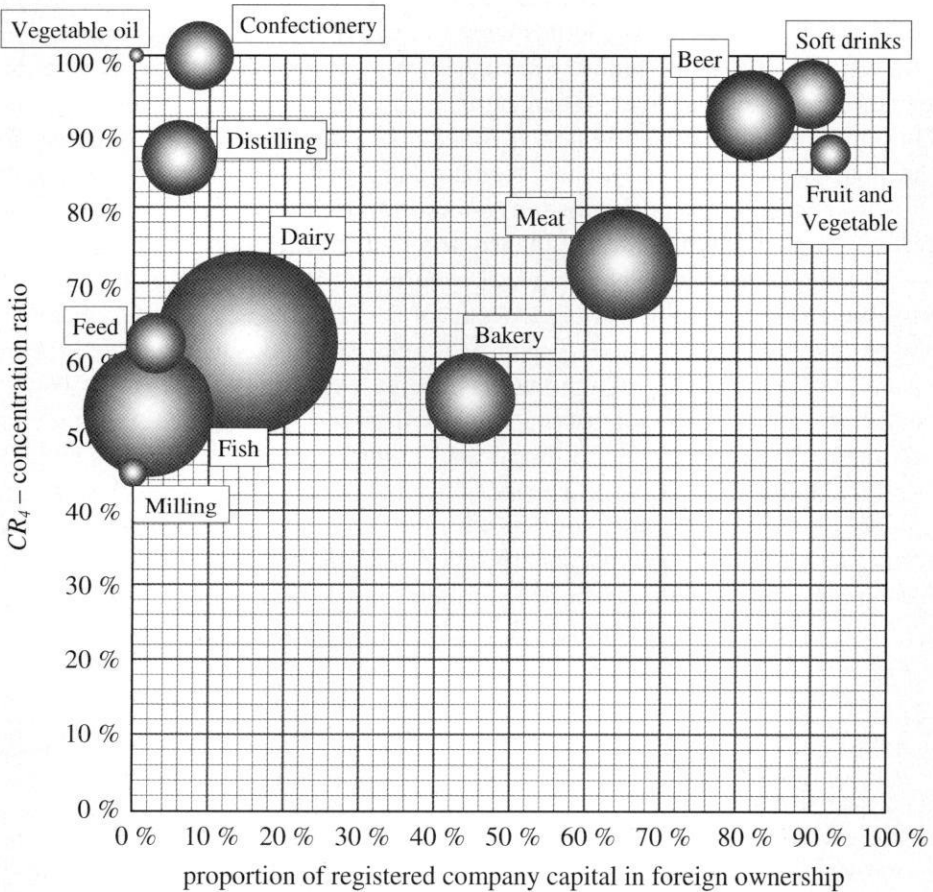
Figure 47. FDI-concentration map of Estonian food processing on three dimensions of investigation, based on 1998 data.

Dairy processing is by far the most significant food industry in Estonia, accounting for one third of the total food manufacturing output in 1998 (Figure 47). In the early 1990s the dairy industry consisted of 11 large companies, which were decomposed to 36 processing facilities and sold separately to the milk producers' cooperatives, and to a less extent to other domestic investors in the framework of decentralised privatisation (Sepp and Loko 1999). This decentralisation pushed the CR_4 concentration ratio down somewhat, but it started to increase spectacularly from the middle of the decade.[67]

Partly because of the privatisation policy that preferred domestic ownership and partly due to the distorted capacity structure and outdated production-sales structure, foreign investors entered the Estonian dairy industry at a slow pace. Their caution is demonstrated by their indifference towards the market leaders and their strategy of purchasing healthy, medium-sized processors, which are easier to manage and in which changes in management, technology, marketing and product mix can be accomplished more easily than in big companies. The proportion of the dairy industry's total sales revenues attributable to foreign-owned companies was over 25 percent in 1997. The Finnish dairy concern Valio Oy stands out among the investors in terms of growth perspectives, as it controls the high-priced segment of the Estonian dairy market through the corporate growth of one company. Finnish investors may well want to expand and reinforce their position in the future by acquiring other processors.

The biggest problem for *fish processing* in the Baltic region is the product mix, which relies entirely on the demands of the FSU market. The proportion of the product structure of the Estonian fish processing industry accounted for by canned fish exported to eastern markets decreased from 100 percent to 77 percent in the product structure of the industry between 1990 and 1998, while that of frozen, filleted and other culinary fish products that are well marketable in Western and Central Europe increased from zero to 23 percent. Despite the evident problems, fish processing is still more successful in Estonia than in the other Baltic states in terms of modernisation and product-mix reform. Even so, it has not yet attracted any appreciable foreign capital, for a variety of reasons:

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[67] There were three processing alliances in the Estonian dairy industry as of 1998: *Ühinenud Meiereid* (United Dairies), the *ETFC* Group and the *Eesti Piim* (Estonian Milk) Central Cooperative. Only the dairies belonging to *ETFC* had common owners that time. *Ühinenud Meiereid* had long been an association of four independent processors with joint purchasing, marketing, and export functions, while *Eesti Piim* was similarly established as an umbrella organisation to coordinate the sales and product strategy of 12 independent dairies (Eke Ariko 1998, p. 26). Thus only the companies in the ownership of the *ETFC* Group were taken as one market player when calculating the concentration ratio for the Estonian dairy industry.

1) There are no multinational giants in the fish industry which domi-
nate international or European capital flows as some companies do
in other industries.
2) The Estonian fish processing industry is relatively well concen-
trated, and its dependence on the unstable eastern markets still
serves as a warning to foreign investors. The 20 percent market
shares of the two leading companies suggested good export posi-
tions for 1997, but did not necessarily mean equally great power on
the much more reliable domestic market.
3) Fish processing is an essential component of any rural development
strategy, and it is therefore subordinated to several ministries and
organisations at the same time. The insecurity of fishing is further
increased by the annual changes in catch quotas in the Baltic Sea.
4) In some isolated instances, the foreign investors have been turned
away because they represent a threat or rival to the current owners
or raw material producers rather than an investing patron
(Jansik 2001b).

Only a few small Scandinavian investments had reached the Estonian fish
processing industry by the middle of the decade, and some of these have already
been withdrawn. Apart from the Scandinavian owners, there is also some Rus-
sian capital invested in the industry. The fish industry is rarely a large recipient
of FDI in the CEE region, and hence it is a regular member of local clusters in the
national FDI-concentration maps.

The position of the *meat industry* can be explained by two large foreign in-
vestments that have taken place alongside some very tiny projects. The Finnish
HK Ruokatalo acquired a majority share in Estonia's largest and most modern
meat processor, Rakvere Lihakombinaat, and a group of Northern European stra-
tegic and financial investors have attained a notable level of ownership in the
largest poultry processor, Tallegg.

8.4.4. Latvia

8.4.4.1. Privatisation

The first version of the Act on the Privatisation of State and Municipality-owned
Companies in Latvia was passed in 1992, with an amendment approved in 1994.
The act covered many food processing firms, although privatisation in the most
significant industries such as dairy and meat processing, milling, bakery and the
sugar industry was regulated by separate laws.

The 1992 version of the Privatisation Act prescribed certain shares for the
state (5 percent), employees (5-20 percent) and private investors (50-90 per-
cent), the main objective being to equalise the ownership structure out among

these groups (Miglavs et al. 1999). This method was used to privatise the major companies in the confectionery and fruit wine making industries. The disadvantages of the method soon became clear, however, namely that it resulted in complicated corporate decision mechanisms brought about by the interlaced ownership relations. The modified privatisation law already allowed the acquisition of a majority share by a strategic investor, and this provided serious incentives for foreign companies, which promptly made use of the opportunities, so that the main companies in the starch, tobacco and fruit and vegetable processing industries had been sold off by 1995.

The special laws for privatising the first-stage processing industries, passed in 1993, simply allowed the rights of ownership over smaller dairy cooperatives to be distributed among the milk producers for free. Although the privatisation of the large dairy, meat and grain processing companies involved real money (in practice mostly credits or bank loans) and to a less extent compensation coupons, priority in ownership terms was still given to the producers of the respective agricultural raw materials. Farmers did not fully utilise the ownership rights which would have been allotted to them by law in most of the industries, however, and the unsold shares in the dairy companies and considerable stakes in other indebted dairy firms were taken over by financial institutions. The privatisation of the dairy and meat industries had been completed by the beginning of 1996, while that of milling industry started only in 1995 and proceeded more slowly. The special privatisation laws resulted in high ownership by agricultural producers in the first-stage processing industries concerned, in that they acquired a 70 percent stake in the dairy industry, 50 percent in the milling industry and 30 percent in the meat processing industry.

8.4.4.2. Cluster Analysis

The FDI-concentration map for Latvia is an excellent demonstration of the trend in interaction between market concentration and FDI penetration. The dendrogram shows the path by which the cluster analysis proceeded (Figure 48), which resulted in four distinct groups, the tight clustering within each being illustrated on the map (Figure 49).

The composition of the global [1], local [3] and middle clusters [2] evolved primarily in a comparable manner to that observed in the other CEE countries, with two surprising exceptions:

(1) The beer industry, which belongs to the global cluster [1] everywhere else, is situated only in the middle cluster [2] in Latvia, largely on account of the considerable combined market force of the small domestic breweries. Also, foreign investors have not attained notable positions in the medium-sized companies, although they have done so in the overwhelming market leader, Aldaris.

196
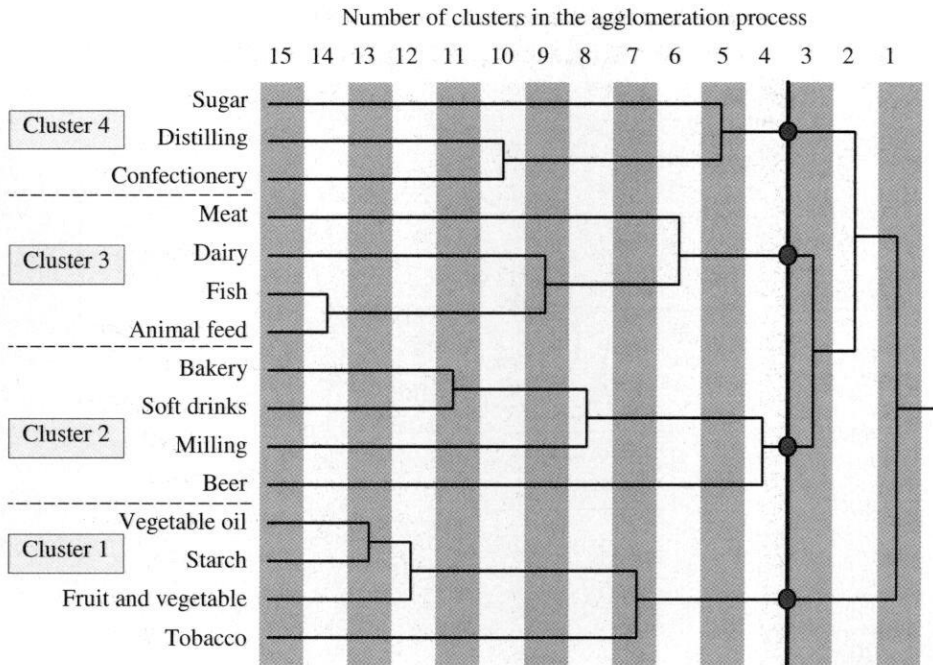
Figure 48. Dendrogram of the cluster analysis of the Latvian food processing industries, based on 1998 data.

(2) The other surprising exception is the milling industry, which is usually located in the local cluster in Central and Eastern Europe, where foreign investors do not show any serious interest in milling. The milling industry in Latvia has recently moved into the appeal zone of bakery industry, however, with a strengthening of vertical relations, and thus both the largest bakery company and the largest mill were purchased by Nordic, i.e. predominantly Swedish-Finnish investors (Vaasan & Vaasan, Cerealia AB and Melia Oy). The close business relations between these companies in their resident countries also connect them as owners in Latvia, and hence the reinforcing of the vertical relations in Latvia is not surprising. The milling industry, as elsewhere in the region, is struggling with problems of the under-utilisation of its capacity, outdated technology, shrinking markets and dozens of newly established enterprises. In such a situation, the dominant bakery company, which itself emerged as the result of the merging of three large bread factories in the mid-1990s, "dragged" the milling industry into the middle cluster [2] through its vertical relations and supply chains.
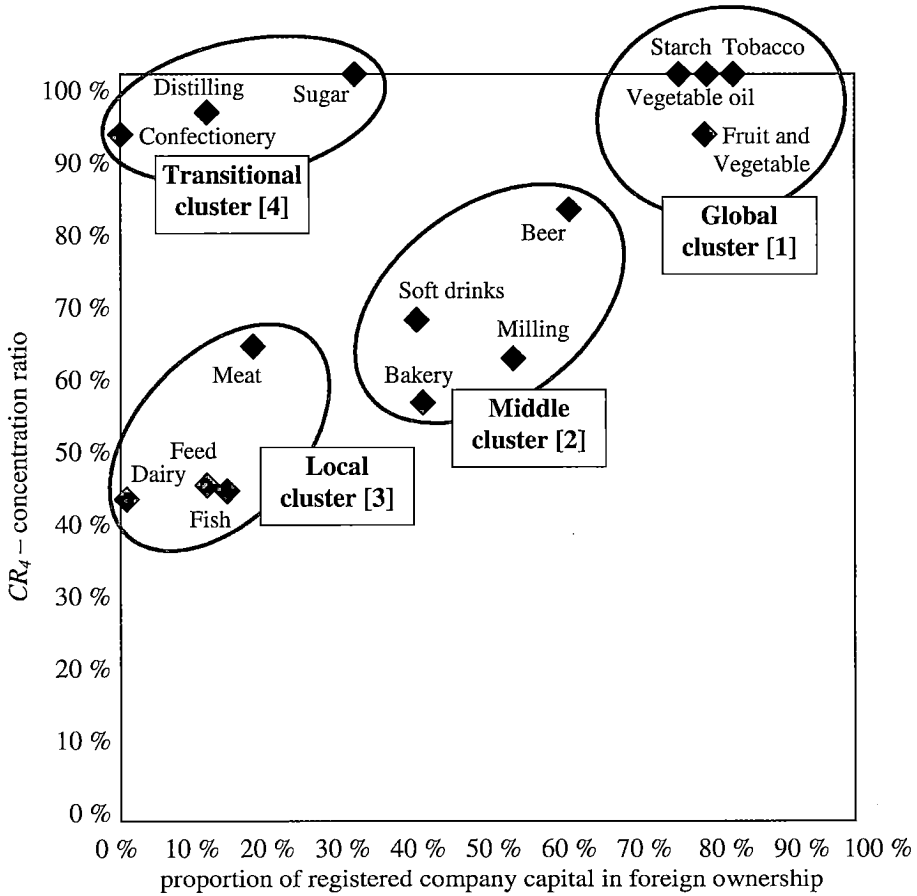
Figure 49. Four-cluster classification of the Latvian food processing industries, based on 1998 data.

The results of the cluster analysis, shown in Figure 49, demonstrate the accentuated presence of the transition cluster [4] in Latvia, and thereby reveals a previously undetected peculiarity of some interest: that out of all the countries whose food processing industries are examined here, the interrelation between politics and economics is strongest in Latvia.

This phenomenon was manifested in the active participation of politicians in the process of privatising the food industry. The holding companies established by the leading politicians had an insider view of the financial status and market prospects of the processors to be privatised, and this enabled the best-known corporate investor to acquire the dominant companies in a number of food processing industries such as confectionery and distilling.[68] The elite among the

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[68] The most powerful holding company of this kind was Ave Lat Group, which was founded by the Latvian prime minister and other politicians.

domestic owners also shared the ownership of a major company in the bakery industry with foreign investors, the first case of its kind in that country, since surprisingly, they let the foreigners take over the majority share.

8.4.4.3. Foreign Direct Investment in the Latvian Food Processing Industries

Two facts are worth mentioning in connection with the ball diagram for the Latvian food processing industry (Figure 50):

(1) The weights of the industries are proportionally even between the major clusters, and the large and medium-sized industries are also evenly distributed among them.

(2) The three large first-stage processing industries – dairy, meat and fish – are still located in the local cluster and have not moved towards the middle cluster.

At first sight, the even distribution would suggest that Latvian food processing is diversified and the production factors and resources are divided evenly, but in fact the lack of specialisation points to problems in the two most significant and most obviously export-oriented industries. Dairy and fish processing have been struggling with severe structural problems such as high redundant capacity, capital shortage and market difficulties. Consequently, the country's neighbours – Estonia in the case of fish processing and Lithuania in dairy and the sugar industry – are emerging as its competitors in the foreign markets.

A purely Baltic comparison suggests that a solid production basis has been built up in the fruit and vegetable processing industry in Latvia, which is fairly well concentrated by CEE standards and it is dominated by foreign – chiefly US – ownership. This explains its surprising position in the global cluster [1].

The top foreign investors in Latvian food industry are presented in Annex 12. An interesting and quite exceptional feature of Latvia in a Central and Eastern European context is the fact that the industries of the grain supply chain are among the recipients of the largest investments, mainly provided by Northern European companies.

Domestic ownership, primarily by agricultural producers, has come to dominate the main first-stage processing industries such as dairy, meat, fish and milling. After the completion of privatisation, foreign investors have differed markedly in their levels of interest in these industries.

Foreign capital is entirely absent from the *dairy industry*, where the milk producers have kept hold on their ownership shares. On the other hand, foreign investors are not attracted by companies that represent an industry afflicted by redundant capacity, tough competition and obsolete technology. Although the Latvian dairy industry – like those of its two Baltic neighbours – has undergone some concentration recently, the concentration ratio CR_4 was only 46 percent in
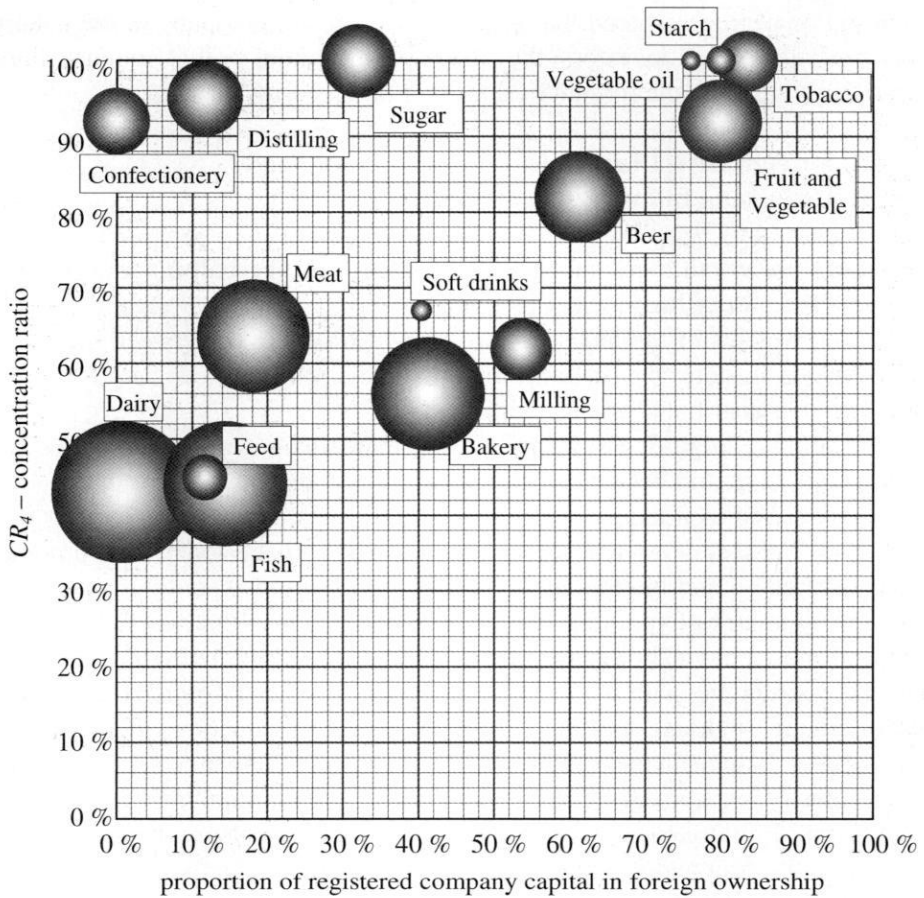
Figure 50. FDI-concentration map of the Latvian food industry on three dimensions of investigation, based on 1998 data.

1996, 10-15 percent lower than in Estonia and Lithuania. The main difference lies in the physical process of concentration itself, for while strong companies have pursued an active policy of conquering the market in Estonia and Lithuania, even the strong companies have been relatively passive in relation to this process in Latvia. They are content to "increase" their market shares passively by taking over the vacuum that emerges through the failure of competitors. The majority of the Latvian dairy companies' export trade is directed to Russia and the other FSU republics. It has become evident since the Russian crisis that the Latvian dairy companies that have good market prospects in the long run are those that concentrate primarily on the domestic market, but they need capital for the modernisation, a problem which can most obviously be solved by the involvement of foreign investments.

200

In the *meat industry*, the Estonian company Rakvere Lihakombinaat purchased the market leader, Rigas Miesnieks, soon after privatisation, and both were subsequently taken over by the same Finnish strategic investor. This single transaction raised the proportion of foreign ownership in the industry to nearly 20 percent.

Foreign investors attained various shares in the *milling industry*, but the most significant project is the investment made by the Swedish company Cerealia in the largest Latvian mill, Rigas Dzirnavnieks. The exceptionally high proportion of foreign ownership in the Latvian milling industry was motivated by vertical relations (section 8.5.2).

8.4.5. Lithuania

8.4.5.1. Privatisation

In order to comprehend the characteristics of privatisation in Lithuania, it is expedient to review the major issues that faced this policy in the food industry.

Under the first privatisation law, passed in 1991, employees of the processing companies enjoyed preferential rights to buy 30 percent of the shares, an opportunity which they rarely took advantage of. In the same year, a list was completed of the companies to be sold to foreigners. Although several food processors were included in this list, only the tobacco factory in Klaipeda and the confectionery plant in Kaunas were purchased by multinational investors (Phillip Morris and Kraft Jacobs Suchard). As a result, foreigners acquired dominant shares in these two industries.

The Lithuanian government changed its attitude to food processing privatisation drastically in 1992, and the law was modified to give definite priority to the agricultural producers, in that farmers were required to pay only 5 percent of the real purchase price of a processing company and could pay the rest off with compensation coupons (Girgždiene et al. 1998). The regulation covered the privatisation of dairy, meat and grain processing. Even these preferential rights did not result in a breakthrough for the producers as purchasers, however, probably on account of the weak financial situation of agricultural production and the limited resources available to the farmers.

Privatisation of the food industry was speeded up by means of two further modifications of the law, one of which stipulated that agricultural producers were required to pay as little as 2.5 percent of the purchase price in cash. This and other incentives eventually accelerated the privatisation process, so that nearly 90 percent of the food industry was in private hands by the end of 1998.

8.4.5.2. Cluster Analysis

In the light of the privatisation events, it is obvious that agricultural producers will have eventually succeeded in gaining a dominant ownership position in most of the food processing industries in Lithuania. Foreign investors were allowed to obtain shares in the processing companies only very slowly and as a consequence they achieved considerable influence only in the beer and sugar industries, apart from the above two examples of the tobacco and confectionery industries.

Thus a bipolar division of industries in the Lithuanian food sector has prevailed until very recently, as can clearly be seen in the FDI-concentration map. This interpretation is also supported by the cluster analysis, as the dendrogram in Figure 51 demonstrates that the industries make up two distinct but internally coherent groups, the distance between which remained considerable until the last step in the clustering process. The value assigned to the distance, 0.681, was the largest between any two clusters combined in the present calculations (see the agglomeration tables for the national cluster analyses in Annexes 13-16). A two or three-cluster classification of the Lithuanian food processing industries is therefore well justified and relevant.

In common with the situation in the other Central and Eastern European countries, the excise or luxury product groups converge to form a global cluster
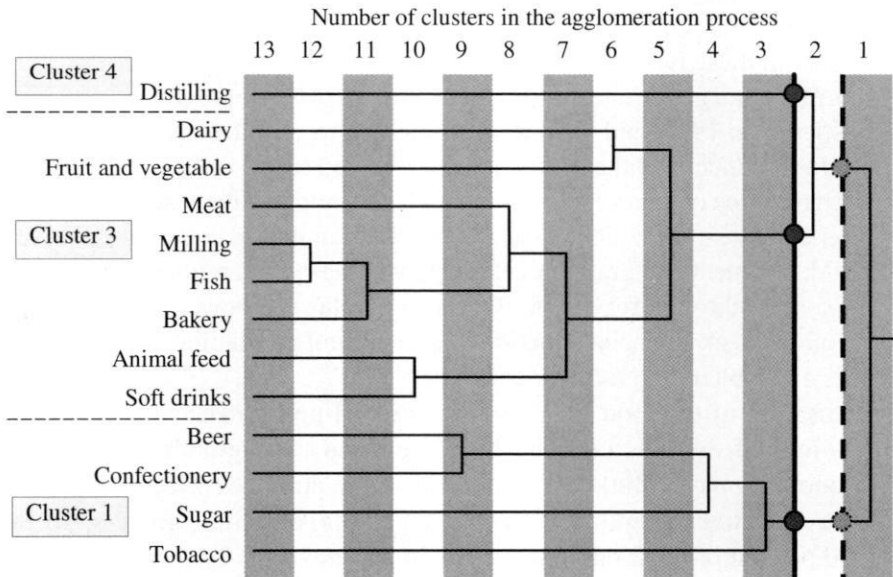
Figure 51. Dendrogram of the cluster analysis of the Lithuanian food processing industries, based on 1998 data.

[1] in Figure 52, while the first-stage processing industries form the majority in the local cluster [3].

Lithuania is the only one of the countries considered here where the middle cluster [2] is missing. Regulations have hindered the agricultural producers' rights to sell their shares, and hence the movement of the meat, fish and milling industries towards increased foreign influence is expected to take place only very slowly and mostly in the long term. The transition cluster [4], which is common to all the countries, is represented by the distilling industry in Lithuania. Since this consists only of four companies, it has a CR_4 concentration ratio of 100 percent. The state still owned 97.5 percent of the equity of these four companies in 1998, and privatisation was scheduled to be launched in 2000.
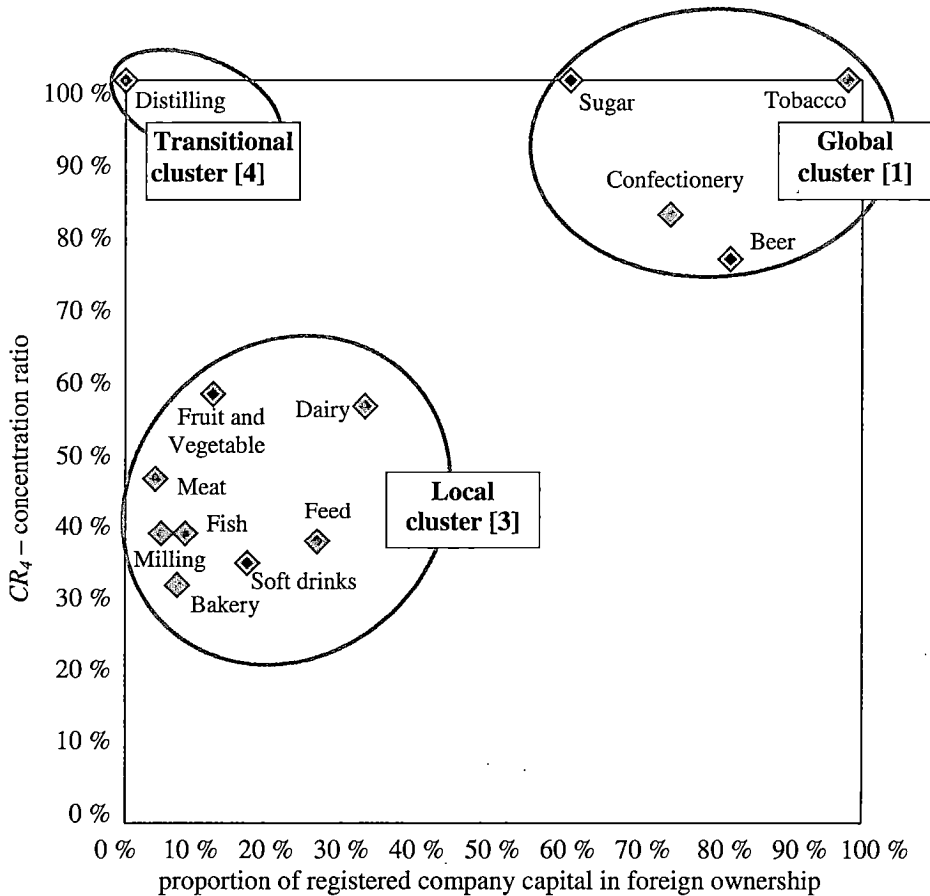
Figure 52. Three-cluster classification of the Lithuanian food processing industries, based on 1998 data.

8.4.5.3. Foreign Capital in the Lithuanian Food Processing Industries

Brewing attracted the most foreign capital into the Lithuanian food industry, followed by tobacco, confectionery and sugar (Figure 53). The presence of foreign capital is negligible in several first-stage processing industries such as fish, milling and meat. These low levels of foreign ownership can be ascribed to the preferential rights given to agricultural producers in the privatisation process, the weak financial status of the industries and their low attractiveness.

The data on the food industry FDI stock are in full agreement with the array of the FDI-concentration map, the only exception being the dairy industry, as the contributions of financial investors are not included in Figure 53. On the other hand, the acquisitions of the largest dairy processors owned by foreign investors are taken into account in the FDI-concentration map. These have elevated aggregate foreign ownership, although the official statistics for Lithuania record them as cases of domestic corporate ownership.

The statistics indicate considerable foreign ownership in the animal feed industry, which can be attributed to financial investors, together with the largest strategic investor, Master Foods Inc.

The overwhelming size of the Lithuanian food industry's flagship, the *dairy industry*, calls for a separate detailed discussion of its characteristics (Figure 54).
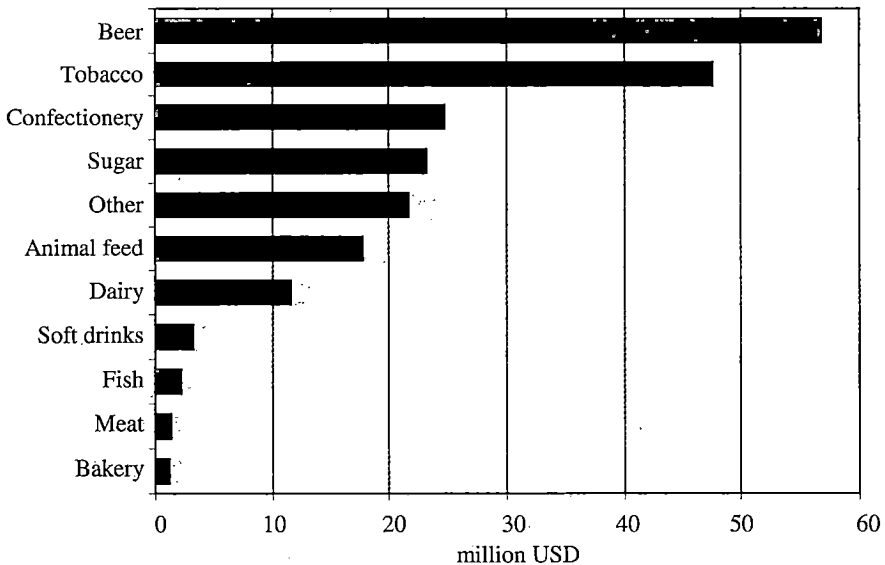
Figure 53. Distribution of food industry FDI stock in Lithuania by processing industries, as of June 1999 (data from SDL).

Despite the fact that it is the largest first-stage processing industry in Lithuania, foreign investors had attained a considerable share in it by 1998.

The position of the Lithuanian dairy industry on the FDI-concentration map can be explained by the following factors:

1. Dairy processing is better developed on average than the rest of the Lithuanian food industry. It is an export-oriented branch, which has also achieved success on the western markets beyond that recorded on the traditional eastern ones.

2. The most successful companies were restructured through a spontaneous wave of privatisation by the management and employee buy-out technique in the very first phase, before 1992. The relatively lower stakes of raw material producers in the best companies than in other processing fields also promoted the influx of foreign investors.
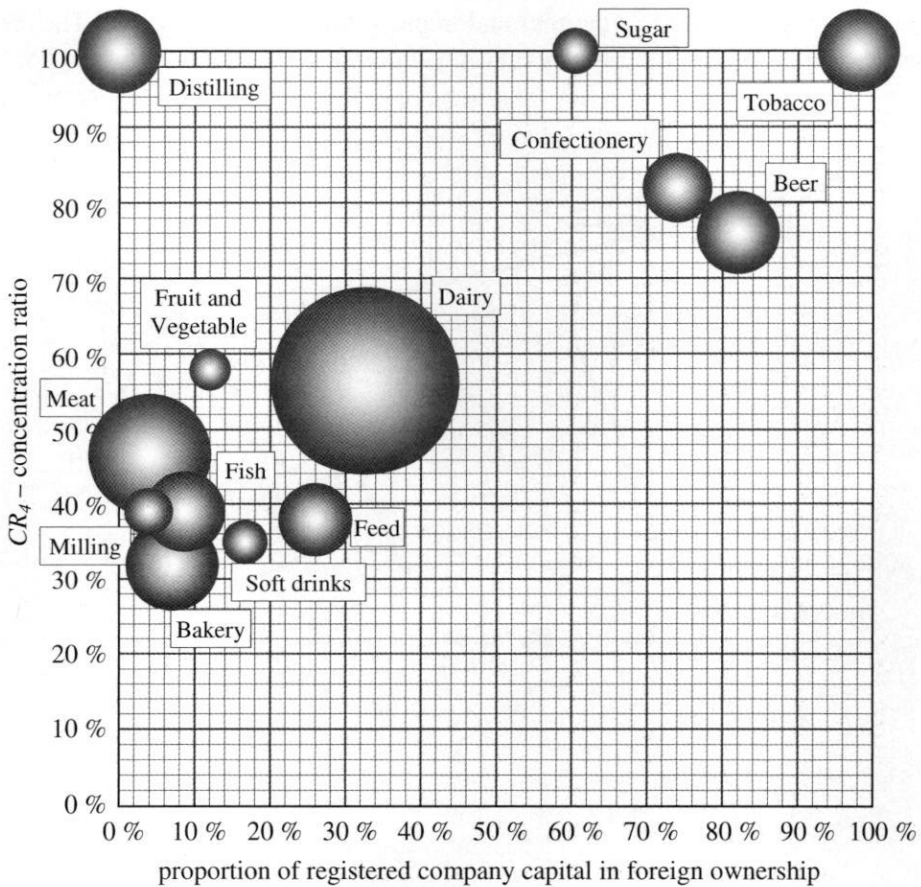
Figure 54. FDI-concentration map for the Lithuanian food industry on three dimensions investigation, based on 1998 data.

3. Several dairy companies which were operating with outdated technology or an old-fashioned product mix and producing low-quality products went bankrupt, their domestic markets being taken over by successful, rapidly growing competitors, a situation which has driven the concentration ratio upwards from year to year.

The leading Lithuanian dairy processors achieved an extraordinary level of 5-13 percent profitability in 1998, which is unusual in a Central and Eastern European context. Surprisingly, these good perspectives in the industry aroused the interest of financial investors rather than strategic investors, so that the leading dairy processors attracted notable foreign owners such as EBRD, Namura or the Bankers Trust Company.

Concentration and foreign ownership have constantly grown in the industry, since the foreign-owned companies became committed to dynamic expansion, buying out their surrounding competitors systematically and taking over the market shares of those that have gone into liquidation. Concurrently, they set about modernising their processing lines and improve their competitiveness. The concentration process in the Lithuanian dairy industry is illustrated in Figure 55.
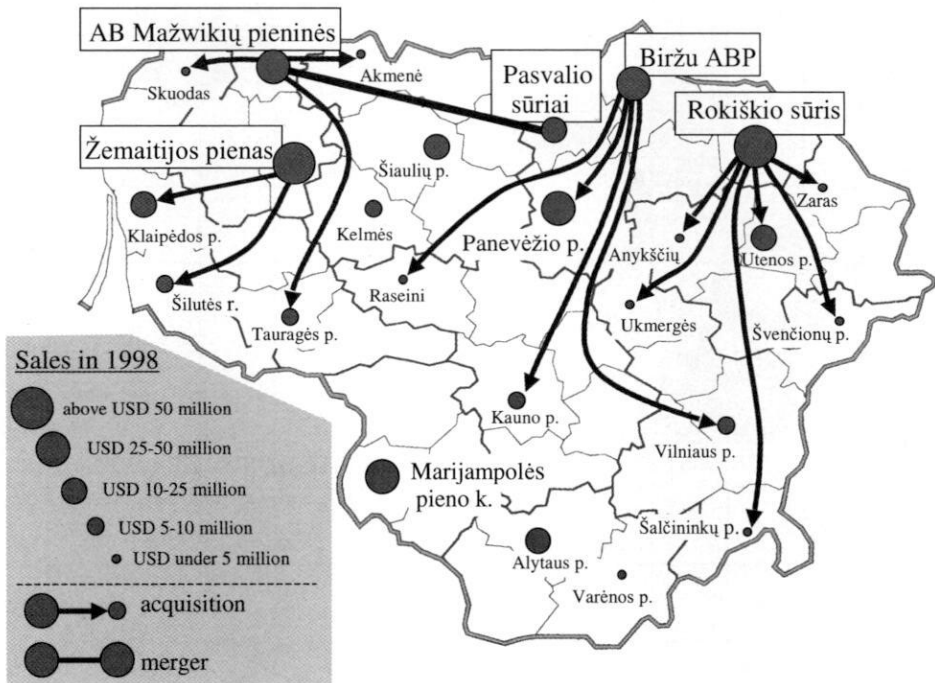
Figure 55. The concentration process in the Lithuanian dairy industry between 1995 and 1999 (Jansik 2001b, p. 128 based on Lietuvas Rytas, March 1999).

The changes in the structure of the dairy industry in Hungary and Lithuania have been fairly similar. Contrasting Figure 25 on page 129 with Figure 55 on the opposite page, the following conclusions can be drawn:

1. Both the Hungarian and Lithuanian dairy industries have become concentrated through company acquisitions.
2. The majority of the acquisitions have been made by foreign-owned processors. Five out of the six largest dairy companies in Hungary and three of the four largest in Lithuania are now fully or partly owned by foreigners.
3. The type of foreign capital seems irrelevant as far as the market strategy is concerned. The Hungarian companies owned by strategic investors and the Lithuanian companies owned by financial investors pursue the same offensive market strategy.

Market concentration is forecast to continue in the coming years. The majority of raw milk procured in Lithuania is only of second quality, due to the scattered farm structure, and in practice the expanding dairy processing companies reserve the first-quality milk, while the weaker processors, which are owned by the producers and suffer from domestic and export market difficulties, are forced to make do with the poorer quality. The gap in technology and quality between the two groups of companies is increasing, as the strong ones are gaining in strength and the weak ones are losing their positions. Paradoxically, ownership by agricultural producers, which was designed to break the concentration of the dairy industry, itself became the propellant of the process.

8.5. Horizontal Comparison of FDI-Concentration Maps for Selected Food Industries

The grouping of the food processing industries in the five CEE countries into four clusters indicated that the industries in the same clusters shared many more characteristics than the two investigated initially, concentration and the influence of foreign capital. One of the main regularities was the convergence of first-stage processing industries in the local [3] and middle clusters [2] and that of second-stage processing industries in the global [1] and middle clusters [2]. Although the distribution of the food processing industries follows the same trend on the FDI-concentration maps for all countries examined, there are astonishing exceptions as far as the concrete industry positions are concerned. The following comparison confirms that the positions of the industries are a function of concentration in the previous period, privatisation and general economic policy, the size of the country and its food markets, the internal characteristics of the particular industry and the level of processing (first-stage or second-stage processing).

Each of the following horizontal[69] comparative case studies includes a group of five corresponding industries from the observed countries, plotted on a common FDI-concentration map. The industries selected for the analyses are those which are the most illustrative and offer interesting conclusions on differences and similarities in terms of foreign direct investments. In order to ensure comparability, the balls in Figures 56-62 indicate the sizes of the industries expressed in USD.

8.5.1. Meat and Dairy Industries

The background to the two first-stage processing industries was discussed thoroughly in the case of each country in the previous sub-chapter. *Meat processing* is the leading industry in both Poland and Hungary, while the much smaller balls representing the Baltic meat processing industries are signs not only of an absolute difference but also of the lower relative significance of meat processing than of their dairy industries.[70]

Poland attracted only limited foreign investments in its vast and scattered meat industry, whereas several of large meat processors in Hungary, such as Pick, Pini, Délhús and Sága Foods, have foreign owners, which has moved the industry up to the domain of the middle cluster [2]. In the Estonian meat industry, Rakvere Lihakombinaat, the most modern and vigorous processor, became the dominant company thanks to a series of bankruptcies among its competitors, which meant that the acquisition of Rakvere Lihakombinaat by a foreign investor carried the meat industry immediately into the neighbourhood of the global cluster [1].

The foreign ownership of the market leader has largely determined the situation of the Latvian meat industry, while there has not been any notable foreign investment in meat processing in Lithuania.

The dispersion of the *dairy industries* offers even more lessons. The first pattern to be recognised is the relatively large size of the Baltic dairy industries by comparison with their Hungarian and Polish counterparts, a fact which is indeed interesting in the light of the considerable size difference observed in the case of meat processing. This can obviously be ascribed to the heightened significance of the dairy industry in the Baltic countries. The second observation regarding the map for the dairy industry highlights the fact that the field includes two clearly distinct groups of products: (1) conventional products and (2) highly processed dairy products.

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[69] The adjective "horizontal" stems from the ordering logic by which the fields of national food industries are listed in columns placed side by side. A horizontal slice across this diagram results in a group of corresponding processing fields representing the various countries.

[70] Since meat and poultry processing are combined in Figure 56, the same was done for Hungary in order to ensure comparability.

Figure 56. Horizontal comparison of FDI-concentration maps for the meat industry on three dimensions investigation.

As it was noted in the case of Poland, foreign investors almost exclusively tend to specialise in the production of highly processed dairy products and are usually not interested in the manufacturing of bulky, conventional or low-profit products. Hence, the Polish dairy industry eventually remained in the zone of the local cluster [3], despite the high absolute value of foreign investments.

No foreign capital has been present in the Latvian dairy industry, while foreign investors avoided the purchase of large processors in Estonia and placed their emphasis on corporate growth in medium-sized subsidiaries instead, again focusing on highly processed products. In Lithuania, financial investors acquired 20-25 percent stakes in the largest processors, which have a diversified range of products and enjoy good export positions. The strongest foreign influence was attained in the Hungarian dairy industry, where such investors are exceptionally closely engaged in the manufacture of conventional products as well.
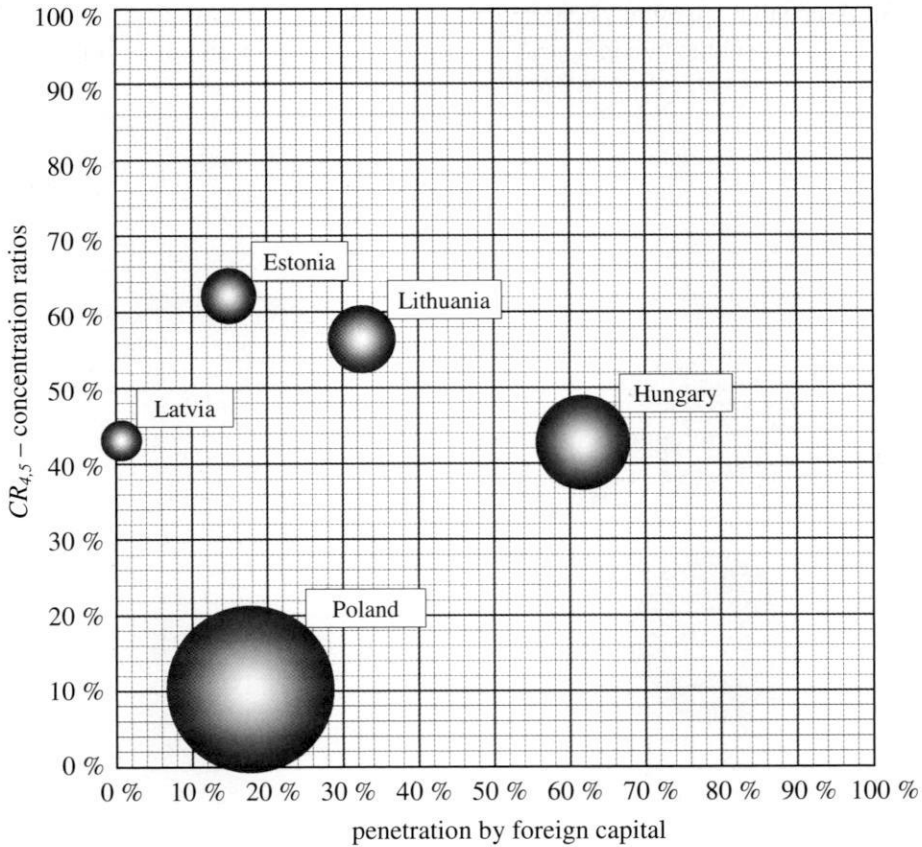
Figure 57. Horizontal comparison of FDI-concentration maps for the dairy industry on three dimensions investigation.

8.5.2. Milling and Bakery Industries

Consideration of the milling and bakery industries facilitates interesting conclusions, even though a fairly widely dispersed set of locations can be detected on the map.

1. As a general rule, the grain processing industries tend to be situated in the low concentration-low FDI intensity quarter of the map.
2. A pronounced concentration existed in all the Baltic bakery industries. Although foreign investors are usually rather indifferent towards bakeries in Central and Eastern Europe, the industry attracted considerable foreign direct investment in two Baltic countries, Estonia and Latvia, where Northern European strategic investors attained valuable market positions through the acquisition of the largest bakery companies.

3. A peculiar, parallel phenomenon can be identified in three countries, where the two industries of the grain processing chain are situated close to each other. In the case of Poland and Lithuania, this can be attributed to the minimal foreign investment in both industries, but the instance of Latvia is a notable precedent, since foreign investors there have pursued control over the entire chain through active acquisitions, even including a cross-acquisition over the borders of industries within the grain processing chain. Consequently, both industries can be found in the area of the middle cluster [2] in Latvia.

4. The distance between the milling and bakery industries in Estonia and Hungary can be explained by certain special circumstances. The weak milling industry in Estonia was knocked out by the liberal trade policy, as a result of which the bakery companies cover their
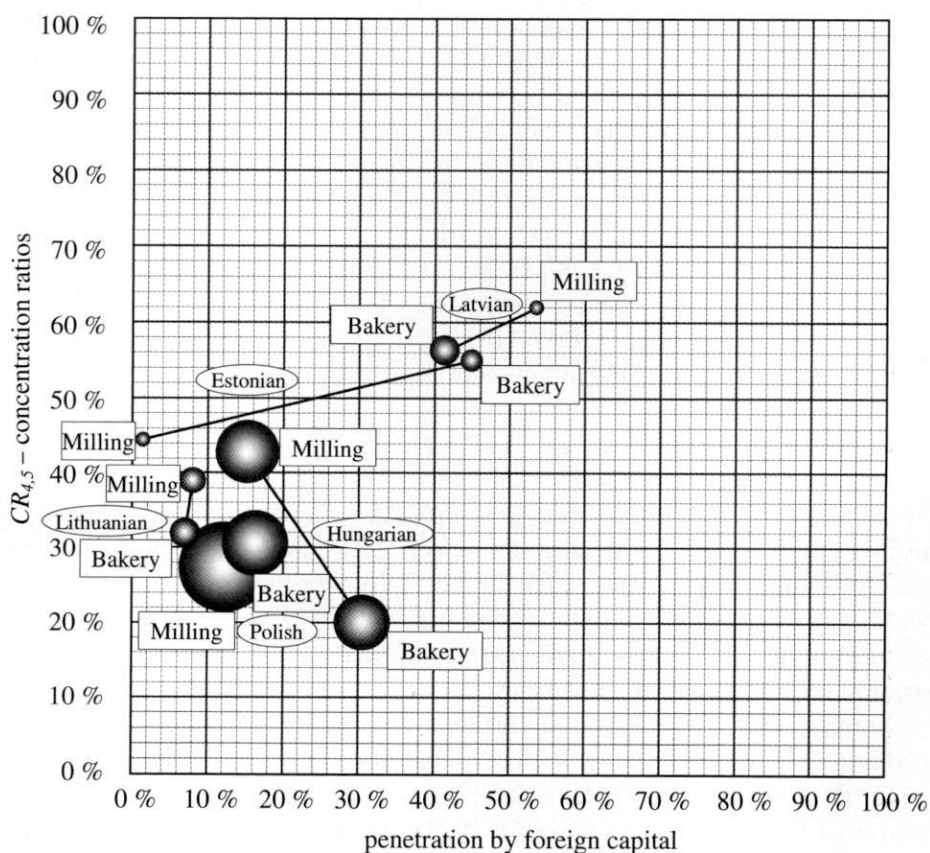
Figure 58. Horizontal comparison of FDI-concentration maps for the milling and bakery industries on three dimensions of investigation.

211

raw material procurement with imports. In Hungary, the distance stems from the difference in market structure. Bakery is traditionally the most fragmented industry in Hungarian food manufacturing, whereas milling is in the hands of large companies, although its main product, flour, suffered from problems in the market in the 1990s and remained an unattractive target.

5. Another interesting phenomenon relates to the sizes of the industries: bakery is larger than milling in the Baltic countries, while milling has a larger output than bakery in Poland and Hungary. This can be explained by several factors: the favourable climatic conditions for grain production in Poland and Hungary, the significant animal feed manufacturing activities of milling companies, and the fact that some activities such as biscuit production in Poland and pasta manufacture in Hungary are not recorded statistically under bakery.

As for the future of the two industries of the grain processing chain, a group of highly attractive products is anticipated to draw notable foreign investments into the bakery industry in the larger countries. Similar selective FDI penetration has also occurred in the Polish dairy industry. In Hungary and Poland, foreigners are expected to become active only in the manufacturing of highly processed products such as flavoured or frozen bakery pastry and biscuits, so that their overall influence in the bakery market will grow very moderately.

The full range of bakery products is covered by foreign-owned companies in the Baltic countries, as in the Hungarian dairy industry. It is worth remembering that the main reason for the two different strategies observable in the bakery industry across Europe is the initial level of industry concentration.

8.5.3. Sugar Industry

Sugar is a politically influenced food processing industry everywhere in the world. Therefore, the dispersal to be noted in the positions of the Central and Eastern European sugar industries on the FDI-concentration maps reflects the wide spectrum of national policies and verifies the statement that the political attitude of the host country is an important determinant of foreign direct investment in addition to global tendencies.

Foreign investors are especially interested in the sugar industries of the CEE countries, since the sugar market is typically highly protected. In the CEE region, the motives of foreigners are reinforced by an attempt to gain as much as possible of the national sugar quota of the EU aspirants. Since a high investment propensity is a given characteristic as far as the foreign investors are concerned, the intensity of foreign influence in the sugar industry is entirely a function of the host country's policy.

212

As privatisation of the first-stage processing industries was regulated by special laws or amendments in many CEE countries, foreign interest was also initially lower in those industries, so that no doubt was raised about the low FDI level. The sugar industry, however, has been a unique first-stage processing industry as far as intensive foreign interest and special market mechanisms are concerned, and a reserved attitude towards foreign investors is engendered by a strong lobby of agricultural producers in many countries.

An additional characteristic of the Central and Eastern European sugar industry is irrational plant size, the processing capacities of the CEE sugar refineries being no more than one fifth to one fourth of that of their western equivalents on average (Walkenhorst 1999). In order to achieve economies of scale, *sugar industry rationalisation* has started or is well under way in the CEE countries.[71] This involves increasing the average plant size, improving the modern factories and closing down the obsolete ones. Since the procedure exacerbates social tensions, however, its pace is eventually determined by the direction and dedication of national economic and agricultural policies.

The sugar industries in the four countries are situated in quite different positions, on the opposite edges of the FDI-concentration map (Figure 59).

Hungary applied the commercial-based privatisation approach to the sugar industry as well. Of its 12 sugar refineries, seven were purchased by three main groups of foreign investors (Eridania Beghin Say, Agrana and Tate & Lyle), while the remaining five were combined into one company under the name of Magyar Cukor Rt (Hungarian Sugar Co.), which was primarily owned by domestic agricultural producers. The rationalisation of sugar processing started very quickly, as a result of tough competition. Several plants were closed and the foreign companies eventually purchased the five domestically owned refineries as well. Since there are altogether three groups of companies in the Hungarian sugar industry, the CR_4 concentration ratio has been 100 percent for years (Annex 8). Owing to this liberal approach, the Hungarian sugar industry has moved into the zone of the global cluster [1].

Lithuania promoted ownership by domestic sugar beet producers for a long time, but by 1998 foreign acquisitions could no longer be resisted, due to production technology difficulties and market problems. The Danish Danisco company bought three of the four refineries, but in return for the investment opportunity,

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[71] The story of the East German sugar industry is an illustrative precedent, as a rationalisation launched and completed within a few years immediately after unification led to all 43 factories being bought by West German and Danish investors. Altogether 34 of these were closed, four were modernised, three were enlarged and two brand new factories were built. At the same time, the output of the East German sugar industry remained the same level, although the performance indicators for the factories improved many times over (Walkenhorst 1999, p. 154).
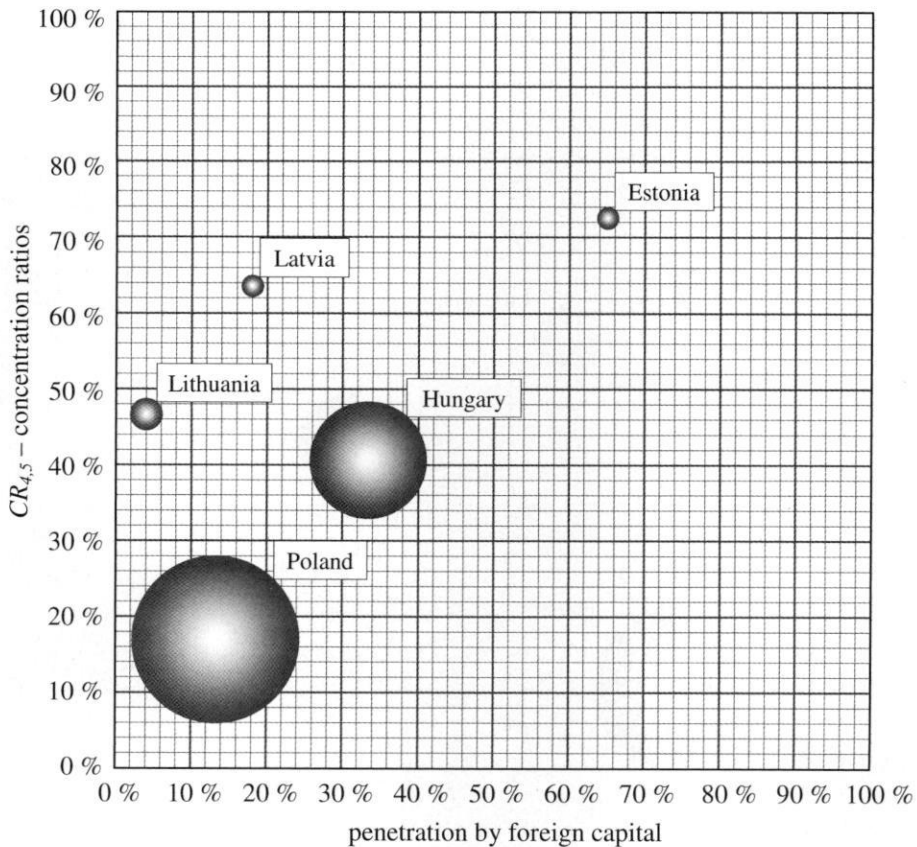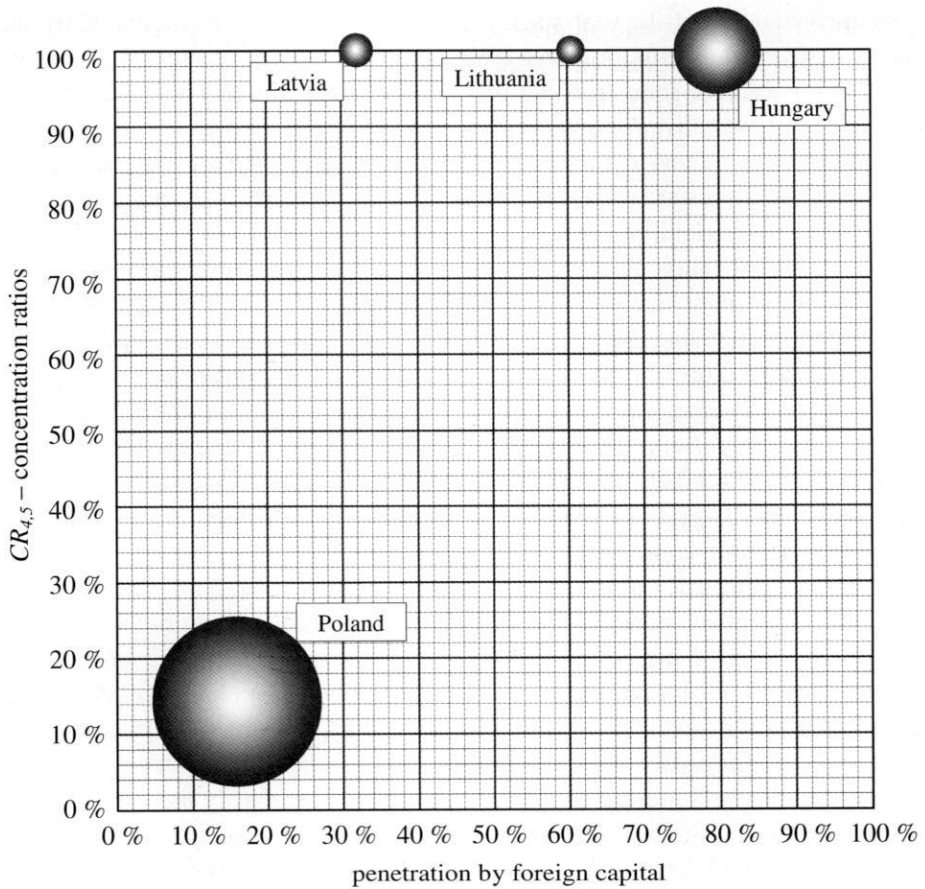
Figure 59. Horizontal comparison of FDI-concentration maps for the sugar industry on three dimensions investigation.

the Lithuanian government asked the investor to commit itself to the procurement of a certain amount of domestic raw material a year. The fourth refinery remained in the hands of domestic owners, but its future was rather insecure in 2000, when state intervention was to save it from total failure. Danisco's plans included the closure of two plants and modernisation of the third one, a rationalisation that may easily result in a monopoly in the future. In terms of economies of scale, one sugar plant could supply the entire Lithuanian market.

The opposite turn in policy took place in *Latvia*. In the early phases of privatisation, one British and one Russian investor obtained shares in two of the three sugar refineries but remained in the minority as far as the ownership structure was concerned. Then the Latvian government froze the acquisition rights of foreigners in response to pressure from the sugar beet producers' lobby, so that only

214

agricultural producers and domestic private persons could participate in the second phase of privatisation.. Three factories also proved to be too many for Latvia, and one of them has already gone bankrupt. As in Lithuania, one company could easily supply the Latvian market.

Poland had 15 sugar refineries before 1990, and these were split into several dozens of separate facilities in the framework of decentralised privatisation. Competition decimated the companies, however, and their number decreased from 85 to 76 between 1991 and 1996 (Rijnsburger and Schroeten 1996). The structure of the Polish sugar industry nevertheless remained decentralised, so that even the market leader had only a 4.2 percent share in 1996. This market dispersion was manifested in the small size of the companies, the average output of a Polish sugar refinery being 20,000 tons/year, where the corresponding figure in the EU was 100,000 tons/year (Chechelski 1998).

Privatisation proceeded languidly, the majority of the restructured companies remaining in the exclusive ownership of the Polish state. The government established four artificial units, called sugar processing holdings, in response to pressure from the sugar beet producers, and the refineries were allocated to these for administrative purposes. Despite their names, the sugar holdings do not have property management functions, but are administrative organisations established to improve the competitiveness of their members through a uniform market strategy and common distribution networks. They are intended to increase the market security of the producers, and thus their presence is a guarantee of the maintenance of irrational plant sizes. The introduction of a sugar quota system reinforced the freezing of an outdated industry structure, in that three-fourths of the quotas were allocated to the four holdings.

Among the real privatised sugar companies, 11 are in foreign ownership, four now belonging to Pfeiffer und Langen, four to British Sugar, two to Sudzucker and one to Tate & Lyle. Foreigners altogether hold 16.23 percent of the Polish sugar quotas. The largest domestic investor is Rolimpex, which has purchased two refineries and rented three.

As of early 2000, the rationalisation of sugar refining had hardly even started in Poland. The industry is concentrating at an extremely slow pace due to objections from the agricultural lobby. Economic policy makers have been reluctant to let the acquisition plans of foreigners or the rationalisation of the industry proceed freely. These facts explain the position of the Polish sugar industry in the domain of the local cluster [3] in Figure 42 (page 182). Experts have calculated that 12 modern sugar refineries would be sufficient to supply the Polish market as opposed to the present total of 76 (Walkenhorst 1999).

The sugar industry provides solid evidence for the fact that foreign investors are capable of improving the technical modernisation, profitability and efficiency of an entire industry in a relatively short space of time. Foreigners operate on purely economic considerations when determining the optimal plant size, and

will strip away the political, rural development and employment components inherited from the command economy from the scope of the sugar companies and replace them with a business and profitability approach.

8.5.4. Distilling Industry

The strategic importance of distilling within the food industry is demonstrated by the fact that its privatisation was postponed to the very end of the process in many CEE countries. The reason for the special treatment is the high value added capability and high profitability of the industry. Distilling utilises low-quality, low-value raw materials which cannot be used by other processing fields at all, while the end product is a high-value excise commodity. It is not acciden-
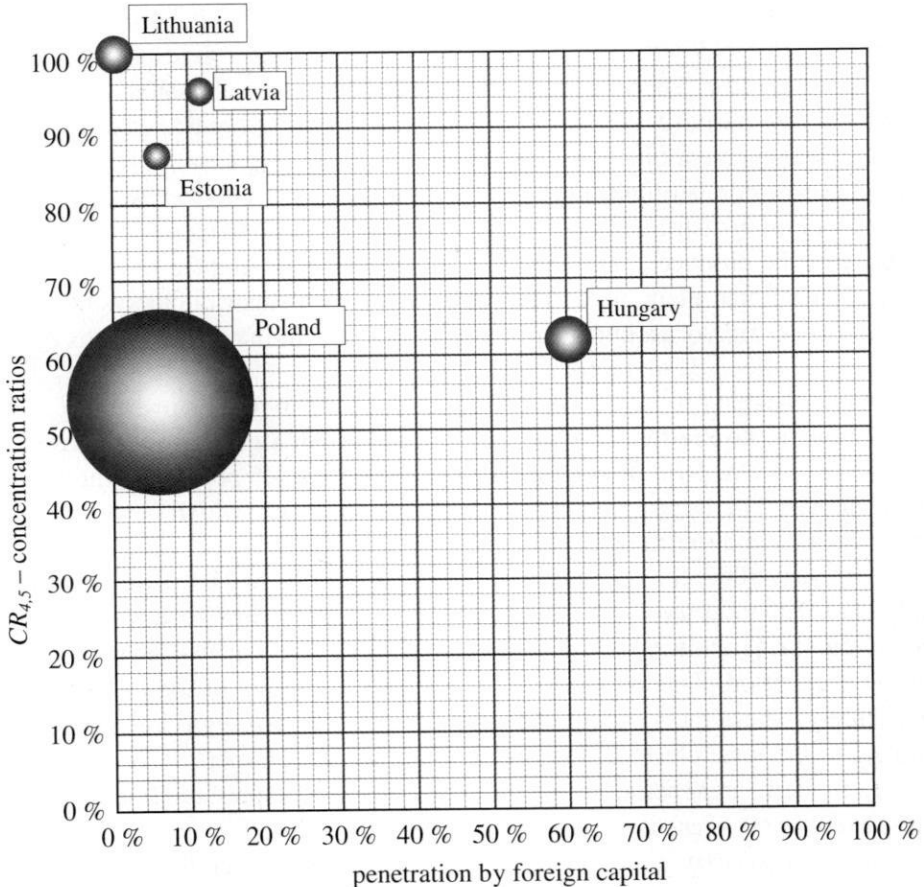
Figure 60. Horizontal comparison of FDI-concentration maps for the distilling industry on three dimensions of investigation.

tal that beside the sugar industry it is distilling which has typically been subject to especially careful and sometimes procrastinated privatisation.

Out of the five countries considered here, the distilling industry remained in state ownership until 1999 in Poland, Estonia and Lithuania. Privatisation had been concluded in Latvia before this, but foreign participation was not facilitated in the case of the dominant companies. Since the distilling industry tends to consist of only a few companies in almost all these countries, the level of concentration is high and the industry remains in the transition cluster [4]. Only in Hungary did its privatisation proceed in parallel with the rest of the industries, accompanied by an active interest from foreign investors (section 7.3.4.7 on page 139). Provided no administrative barriers are raised against company acquisitions in the distilling industries of Estonia, Lithuania and Poland, foreign investors may express serious interest in the privatisation process there, too.
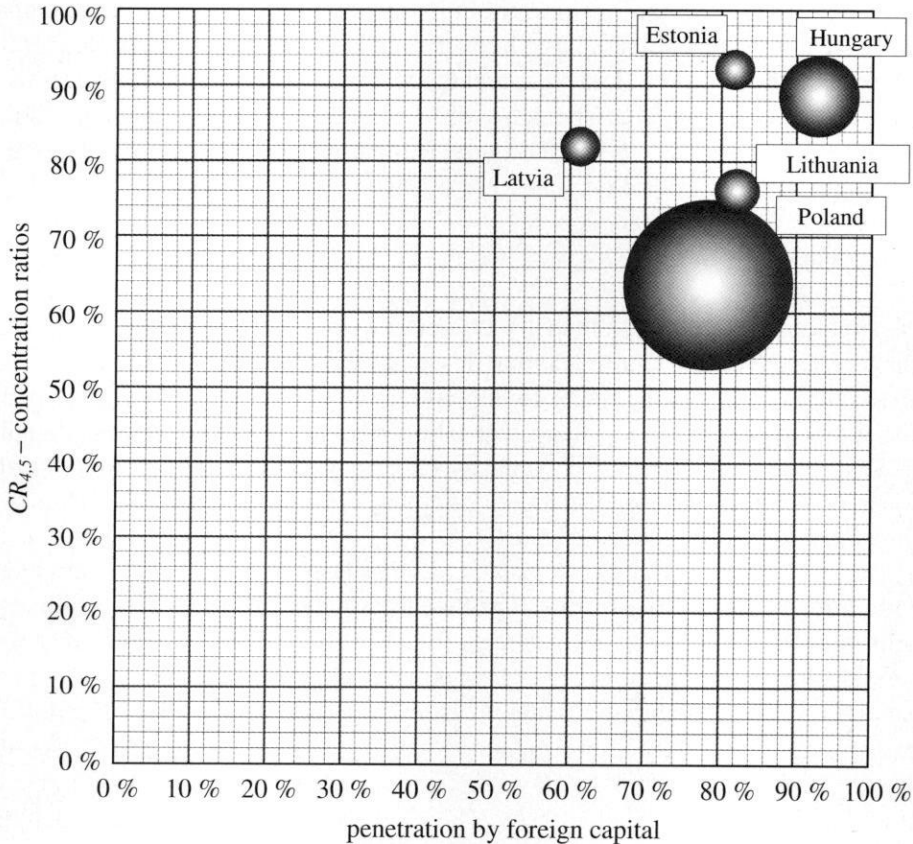
Figure 61. *Horizontal comparison of FDI-concentration maps for the beer industry on three dimensions of investigation.*

8.5.5. Beer Industry

The positions of the beer industry on the horizontal FDI-concentration map for the five countries show a homogenous picture (Figure 61). Brewing was among the first industries to be privatised in most countries, and the promising market perspectives attracted foreign investors. An intensive growth in consumption was anticipated in all the CEE countries.

The market structure before restructuring had already been oligopolistic, and the appearance of foreign investors consolidated the power and influence of the largest breweries. There are currently three to eight subsidiaries of foreign companies competing with each other on the beer markets of all five countries, which makes competition fairly even.

The Swedish-Finnish Baltic Beverages Holding (BBH) has become the market leader in all three Baltic countries, and the Finnish beer and soft drinks manufacturer Olvi also has interests in all three countries. In addition to these, the Danish company Habro is present in Estonia, while Danish Bryggerien and Carlsberg companies possess large breweries in Lithuania. The market leader in Poland is in the hands of Heineken, and the rest of the foreign investors are also well-known companies: Carlsberg, South African Breweries, Weissheimer Malz and AHK Gmbh (PAIZ 1999b). The large Hungarian breweries are all in foreign ownership (section 7.3.4.2 on pages 124-127).

8.5.6. Tobacco Industry

The situation in the tobacco industry is similar to that in brewing (Figure 62), in that foreign investors tend to favour this globally concentrating industry. The tobacco monopolies in the Baltic countries were all purchased by foreign companies at the very beginning of the privatisation process: Eesti Tubaka was bought by Svenska Tobak AB, Rigas Tabakas Fabrika was acquired by the Danish House of Prince, and a multinational company, Phillip Morris, bought up the Lithuanian tobacco company (Annex 12).

The story of the Estonian tobacco factory has become a textbook example of the failure of foreign investments. The Swedish owner arrived with huge investment plans and purchased a 67 percent stake in the company. Meanwhile the Estonian government was forced to levy equal excise taxes on domestically produced and imported cigarettes under pressure from the WTO in 1995. The profitability of Estonian production then decreased so sharply that it was more advantageous for Svenska Tobak to move production to Sweden and export the cigarettes back to the Estonian market. The manufacturing of cigarettes thereby ceased entirely in Estonia and was replaced by imports.

Mostly the same large investors are present in the Polish and Hungarian tobacco industries. The German company Reemtsma dominates the Polish mar-
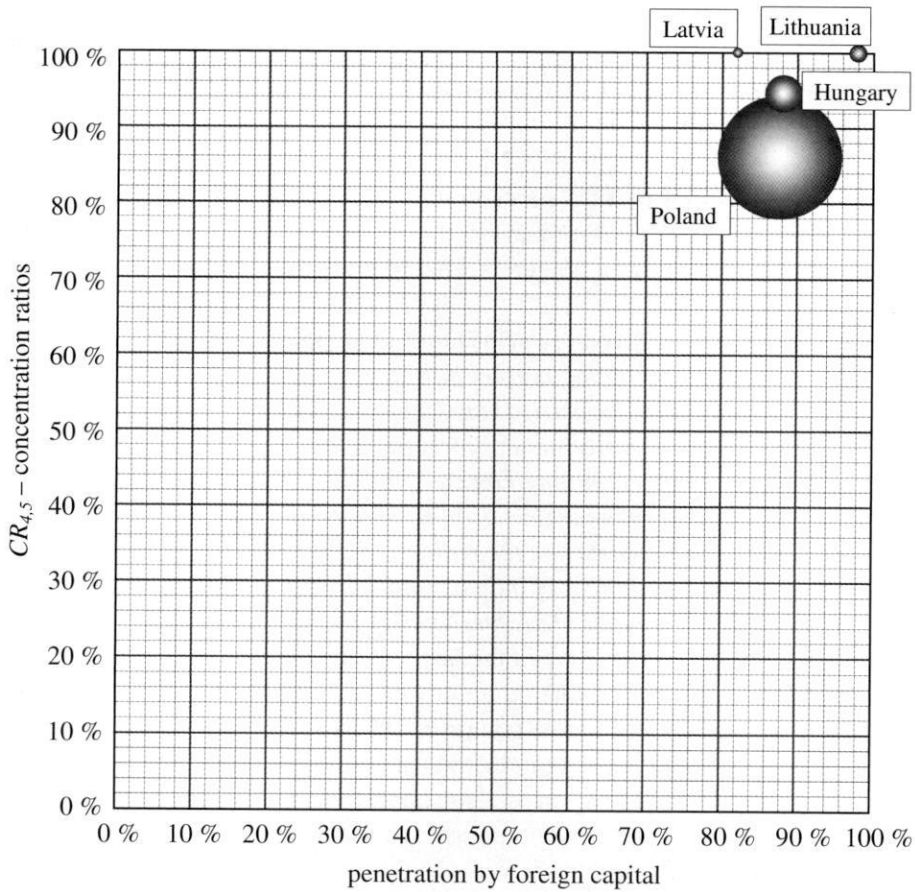
Figure 62. Horizontal comparison of FDI-concentration maps for the tobacco industry on three dimensions of investigation.

ket, representing at the same time the largest single company in the food, beverages and tobacco sector in Poland. The other large tobacco companies are in the ownership of Phillip Morris, Seita, British American Tobacco and R.J. Reynold (Annex 11). The Polish market is an ideal terrain for foreign investors, as profitability is close to six percent despite the 189 percent excise tax, and consumption is stable (PAIZ 1999a). The 20 companies in the industry mostly use domestic raw materials for cigarette production.

8.6. Summary

8.6.1. Conclusions Based on the Comparative Analyses of FDI-Concentration Maps

Geographical extension of FDI-concentration maps is an effective and useful tool for comprehending and comparing the food processing industries of the Central and Eastern European countries, enabling the following statements to be made:

- ♦ *Foreign investors favour concentrated food processing industries and prospects of attaining market power.*
- ♦ *The food processing industries make up four distinct clusters on the dimensions of concentration and foreign capital penetration.*
- ♦ *The type of privatisation implemented and the attitude adopted towards it is a determinant that directly shapes the disposition and locations of the industries on the national FDI-concentration maps.*
- ♦ *The decisions and choices of industry made by foreign investors are also influenced by other characteristics of the industries.*

The ball diagrams constructed on the basis of the national FDI-concentration maps verify that foreign investors attain power very slowly in the largest, first-stage processing industries in most countries, whereas the small, medium-sized, typically second-stage processing industries are purchased quickly.

The horizontal comparative maps also support the above statement, with the additional remark that the corresponding food processing industries in all the CEE countries examined tend to converge to the same cluster. Exceptions to this rule can always be explained by clear-cut, administrative, political or other deviating forces.

The statements made about the Hungarian food industry in Chapters 4 to 7 were proved and upgraded to the general regional level in the comparative analyses of Chapter 8. Foreign direct investments in the food industries of the transitional countries have been motivated by the pursuit of market power.

The attractiveness of concentrated food markets to foreign capital is an unquestionable fact, but it still leaves an open question: *what characteristic of the concentrated markets embodies the ultimate attractive force?* Several attributes can be listed as possible answers to this question.

1. *Monopolistic rent or extra profit.* Dominant company positions undoubtedly resulted in extra profit in a number of industries, the ultimate objective of firms, as known from microeconomic theory, is after all profit maximisation.
2. *Superiority over rivals.* Superiority over the domestically owned competitors in technological, management and other operational aspects is an obvious characteristic of most foreign investors on the

CEE food markets. Foreign investors apparently employed a "double profit if you move fast" strategy against the other foreign rivals, while the rapid achievement of market power truly opened up opportunities for establishing sustainable superiority over all competitors, both foreign and domestic.

3. *Negotiating power in relation to national governments.* This represents an opportunity for the largest multinational companies, which have usually attained dominant or even monopoly positions in their target markets. Full or majority control over a particular processing industry may increase social tensions and raise issues of employment or the market security of raw material suppliers. Market power in these cases has typically implied special treatment, certain business and tax preferences or even specially made contracts with national governments.

4. *Chances for misusing competitive power.* This attribute of a concentrated market may have been an attractive factor in a few cases at least, although it could hardly have been the primary objective of any food industry FDI project. Nevertheless, the numerous cases cited by CEE competition offices confirm that some problems have indeed occurred.

5. *High capital concentration.* This attribute stems from globalisation. Concentrated production and concentrated capital are regarded more and more as preconditions for internationally efficient business. The presence of multinational companies, which lay emphasis on capital concentration, inevitably leads to market power on the national markets, too.

6. *Opportunities offered by privatisation.* The current analysis focuses on a time interval when the food industries of the CEE countries underwent unique and unprecedented structural and institutional changes. The practices of ownership change offered foreign investors many concentrated market positions on a tray. The purchase of the largest companies in the transitional countries was an opportunity that best suited the financial power of companies in the developed countries. Furthermore, from the standpoint of the multinational companies, it was not worth dissipating resources on the purchase and management of separate units when they could easily acquire the same market power in one piece.

None of the above attributes can be judged to be exclusive or ultimate characteristic of concentrated markets that could alone have been responsible for attracting food industry FDI to the CEE region. The concrete examples of industries or individual companies referred to in Chapters 7 and 8 indicate that a combination of the attributes of concentrated markets must have been responsible for

FDI in pursuit of market power. All foreign acquisitions of concentrated markets or dominant companies postulate some form of joint influence of the attributes listed, the concrete case of a particular market or company always representing a unique mix of these. This review of the attributes of concentrated markets leads us already to a delineation of alternative research directions for the future.

8.6.2. Further Research Directions

A further expansion of the range of countries would be a worthwhile direction for later research. Such an expansion should cover those countries in which the food industry has already absorbed a notable amount of foreign direct investment.

Although data collection and the obtaining of information on the food processing industries of various countries is a very time and energy-consuming process, FDI-concentration maps for the Czech Republic, Slovakia, Bulgaria and Romania would most probably provide illuminating results. Even more effort would be needed to construct corresponding maps for countries such as the Ukraine or Russia, although these would hold out promises of very interesting results. The author would expect the findings to confirm the general conclusions and statements about the food sectors of Central and Eastern European countries put forward in this dissertation.

Testing the concept of FDI-concentration maps would be a useful experiment even in the case of developed countries, since mergers and acquisitions by transnational companies are exercising a growing influence in the food processing sectors of the industrialised countries as well. Intuition suggests that a similar arrangement of food processing industries on FDI-concentration maps would be detected as in the Central and Eastern European region. The grounds for these expectations will be established in the chapter of conclusions, where an FDI-concentration map for the global food industry will be presented.

9. Impacts of Foreign Capital on the Hungarian Food Industry

Thesis V:

FDI has contributed to reinforcing the international competitiveness of the Hungarian food industry and has consolidated the position of the agrifood chain in the national economy. The performance of the predominantly foreign-owned food processors differed significantly from that of the predominantly domestically owned food processors in the second half of the 1990s, surpassing them in all the important efficiency and performance categories. The major tendency has been for the performance gap between the two groups to widen since the mid-1990s.

9.1. Balance of Impacts of Food Industry FDI on the Agrifood Chain

Privatisation of the Hungarian food industry proceeded very fast, so that the state owned only 1.1 percent of the aggregate registered capital in 1997, a proportion which had declined to under one percent by 1998 (Table 8, page 48). At the same time, foreign ownership became predominant, and domestic ownership was mostly centralised in the hands of corporations. A notable portion of the domestic stake, however, was also indirectly in foreign ownership, for through their interests in banks and trading companies and on account of the inter-ownership relations in the agrifood chain, foreigners exercised a much greater influence on the Hungarian food industry than their statistically registered 62.6 percent share of corporate ownership would suggest. According to expert estimates, they controlled as much as 65-70 percent of the industry in 1998 (ÉFOSZ 1999, p. 2).

The consolidating foreign power in the process of the corporate restructuring and privatisation of the food industry generated anxiety on the part of various players in the food economy. These early concerns will be addressed below in the light of ten years of experience of foreign investors.

9.1.1. Early Concerns about Foreign Ownership

The early phases of privatisation of the food industry brought about active participation by foreigners and direct acquisitions of companies. Approximately 50 percent of Hungary's total privatisation revenues between 1990 and 1992 originated from the sales of food processing companies (Raskó 2000, p. 93). The concerns about the rapid penetration of foreign capital are illustrated in the following potential risk factors documented in the mid-1990s (Alvincz 1994, p. 120):

- direct and indirect capital withdrawal,
- potential misuse of a monopoly position,
- occupation of the market by running down purchased processing capacities and replacing production with imports,
- squeezing out the traditional domestic food brands,
- using up the resources of the purchased company to achieve rapid profits.

Additional concerns about foreign ownership were related to (1) *reduced revenues for the state budget*, (2) *elimination of certain auxiliary functions* performed by the food industry, and (3) *profit repatriation*:

(1) This argument asserted that the state budget in any case suffered considerably from the tax concessions awarded to foreign-owned companies, and that the losses would only be worsened by the foreigners' cost accounting manoeuvres and profit abating policies.

(2) The foreign owners would ignore the social or rural functions of the food processing companies as they started internal rationalisation. This would mean labour reductions or the reorganisation of raw material procurement channels.

(3) One of the most frequently mentioned concerns over foreign ownership was profit repatriation. As Hungarian law places no limitations on the repatriation of profits, many people were afraid of a mass pull-out of profits from the food industry.

The privatisation of the food industry and the rapid increase in foreign ownership was followed with genuine anxiety, especially by various groups in the agrifood chain. The acquisitions made by foreign investors implied potential risks for three major groups in the chain (Jansik 2000, pp. 98-99):

1. agricultural raw material producers,
2. domestically owned food processors,
3. consumers.

1. The food processing companies constitute the largest market for *agricultural raw material producers,* for whom an ideal solution would have been the transfer of food processing capacity directly into their own hands. Since the restructuring and compensation systems that applied in agriculture did not precede the privatisation of the food industry in time, the raw material producers were left out of the first wave of privatisation. Privatisation methods were modified by the middle of the decade, however, in order to take the interests of the latter into account, but the amendments did not lead to a break-through in ownership relations. The agricultural raw material producers therefore watched the emergence of dominant foreign ownership with understandable anxiety, as

a) they were afraid of losing negotiation power in the agrifood chain upon the appearance of strong foreign investors, and

b) they were worried about the future strategy of the foreign food processors and a potential cut-back in purchases of domestic raw materials.

2. The *Hungarian-owned food processors* obviously regarded foreign investors as their most powerful rivals, and felt that their mere existence and survival were endangered by a form of competition in which the foreign investors would dictate the rules.

3. The most essential concern of *consumers* was related to the prices of foodstuffs. They apprehended that certain goods that used to be affordable earlier would pass beyond the scope of their "personal consumption basket". Some consumers also feared for the continuity of traditional food brands.

9.1.2. Early Concerns in the Light of Experience

A decade has gone by since the appearance of the first foreign investors in the Hungarian food industry, and five years since the completion of privatisation. This time seems sufficient to confront past experiences with the concerns listed above.

9.1.2.1. State Budget Relations[72]

The Hungarian government granted five years of tax relief for all companies registered before 1995 with at least 33 percent foreign ownership, the tax obligations and benefits of which in 1997 are shown in Table 28. The data indicate conspicuously that foreign-owned processors achieved the majority of the profit made in the food industry in that year, more than 73 percent. The calculated corporate taxes paid by the food industry were USD 61 million in 1997, of which exemptions amounted to USD 27.8 million.

The taxation discrimination in favour of foreign-owned companies is demonstrated by the fact that they would have paid nearly 70 percent of the taxes, but since they were granted 97 percent of the tax exemptions, their overall contribution to the corporate taxation of the industry finally remained well below 50 percent. The foreign-owned food processors paid only one-third of their calculated corporate taxes in 1997.

The balance of corporate taxes for domestically owned food processors shows a more solemn picture. They obtained less than 3 percent of the industry's

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[72] The annual 1997 exchange rate 1 USD = 186.8 HUF was used throughout this section to express the Hungarian state budget figures in dollar.

Table 28. Corporate tax obligations and payments of food processing companies in Hungary in 1997 (in million USD).

	Profit before taxes	Calculated taxes	Tax exemptions	Taxes to be paid	Profit after taxes
Foreign-owned companies	177.7	41.8	27.8	14.0	163.7
of which: 100-50 percent foreign	154.2	36.4	24.1	12.3	141.9
49-10 percent foreign	23.5	5.4	3.7	1.7	21.8
Domestically owned companies	32.7	18.7	0.5	18.2	14.5
Total food industry	210.4	60.5	28.3	32.2	178.2

Source: own calculations based on data of AKII.

tax exemptions and they had to pay 95 percent of their calculated corporate taxes to the state budget.[73] The financial and technological gap between the foreign and domestically owned food processors has evidently been widened by discriminatory attitude adopted in the state budget in favour of foreign-owned companies. These had net profits of nearly USD 164 million for free utilisation in 1997, including internal development and dividend payments, while the corresponding taxed profit figure for domestically owned food processors was altogether USD 14.5 million.

The same pattern can also be demonstrated in proportional terms, in that domestically owned companies produced 15.4 percent of the food industry's profits, but their proportion of the freely useable profit remained under 8 percent.

A comprehensive analysis of the state budget relations of the food processing companies results in a much finer picture (Table 29). The payments made by the companies include social insurance costs and taxes, duties and contributions other than calculated corporate taxes, while the benefits embrace tax exemptions and other subsidies that were granted them. All the groups of food processing companies have a positive balance, which means that none of them "sponges on" the state budget. The overall contribution of foreign-owned companies to the net state budget revenues was much weightier than in the category of corporate taxation, although it was again exceeded by the net contribution of domestically owned food processing companies in absolute terms.

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[73] The data in Table 28 may give the impression that domestically owned food processors are over-taxed, since their calculated corporate taxes amounted to USD 18.7 million after an aggregate profit of USD 32.7 million. Actually, it was the large number of companies making a loss that resulted in a high proportion of calculated corporate taxes relative to aggregate profits among the domestically owned processors.

Table 29. Total balance of money flow for food processing companies in relation to the Hungarian state budget in 1997 (in million USD).

	Payments of companies	Benefits	Balance
Foreign-owned companies	190.0	119.4	70.6
of which: 100-50 percent foreign	161.1	95.8	65.3
49-10 percent foreign	28.9	23.6	5.3
Domestically owned companies	148.3	64.2	84.1
Total food industry	338.3	183.6	154.7

Source: own calculations based on data of AKII.

The foreign-owned companies recorded net profits of USD 163.7 million in 1997, of which only USD 56.7 billion was used for internal development, so that USD 107 million was paid to the owners in dividends. The majority of these dividends – as laid down in the dividend conditions included in their articles of association, but in any case a proportion of foreign ownership at the most – presumably left the country; in other words this profit was repatriated. The fears concerning profit repatriation thus proved to be real ones, although the matter has to be interpreted in an international context. The food processing investors at the beginning of the decade had mobilised external resources, capital loans or their own accumulated corporate profits in order to invest in Hungary. As soon as they attained the desired market position and the subsidiary had become a coherent part of the corporation, the Hungarian affiliate was subordinated to the global or regional strategy of the foreign parent company. As long as additional investments result in a growth in efficiency and better economies of scales, or the potential rate of return is high by international standards, the foreign investors will continue to reinvest the profit accumulated in the subsidiary. However, as soon as the parent company achieves its goals or perceives more favourable investment opportunities in other countries, it will withdraw the profit from the Hungarian food industry and utilise it for other investment projects, thus sustaining a permanent flow of international investment capital.

Profit repatriation is a natural and acceptable procedure as long as it is done under legal and controllable conditions. There is a reproachable form of profit withdrawal, however, which is frequently practised by foreign-owned companies in the food industry, and it is this *hidden profit repatriation* that presents the real threat. The amount of hidden profit repatriation is not known, since internal accounting manoeuvres between parent companies and subsidiaries make it impossible to measure. Three major methods can be identified:

◆ cost-based profit repatriation – increasing the costs of the subsidiary to the benefit of the parent company,[74]
◆ profit repatriation by raising the equity (Alvincz 1994, p. 71),
◆ trade-based profit repatriation by means of transfer prices, which is done through internal transactions between the parent company and its affiliates.

9.1.2.2. Social and Rural Functions

A certain group of social and rural functions used to be implicitly assigned to the agricultural sector and the food industry in the command economy, partly because the agrifood sector played a key role in rural employment. Soon after privatisation, the new owners usually cast off these social or rural development functions (Bevan et al. 1999, p. 17). This was particularly true of the foreign owners, who – besides investments and substantial management reforms – hoped to achieve rapid profitability growth by laying off redundant labour and cleaning up the production profile of the companies that they had acquired.

Food industry FDI has been allocated unequally between the regions of Hungary, with foreign capital achieving a smaller share in most of the counties than the role of agriculture or food processing activities in the economic output would have suggested.

The rural functions of the food industry were hardly assisted or promoted at all by foreign investments. Employment in the food industry decreased from 203,000 to 132,000 between 1989 and 1998, the majority of the reductions taking place in foreign-owned companies.

The weightiest statement in this dissertation is the declaration that *the main motivational factor behind foreign investments was the attaining of market power, as is confirmed by the geographical distribution of food industry FDI in Hungary, where investors preferred the proximity of concentrated consumer markets to the proximity of a concentrated raw material supply.* Over 62 percent

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[74] Leibenstein's concept of *X-efficiency* is defined by pushing costs down to the lowest possible level. "Altering a part of the profit into costs" is known as a technique frequently employed by monopolies and it is named *X-inefficiency* in the international literature (Shepherd 1990, pp. 126-128). Costs may exceed the efficient cost level by as much as 10 percent, which erodes the profitability of companies considerably and imposes a tremendous social burden on the economy. The possibility of X-inefficiency increases in close correlation with growth in market influence, so that monopolies or companies in an oligopolistic or dominant firm market structure have an ever-growing probability of accumulating it to a notable extent. There is still no approved, well-functioning method for quantifying X-inefficiency, but its prevalence is considered an unquestionable fact also in the Hungarian food industry. Foreign-owned companies increase it with their market positions and hidden profit repatriation, although it should not be forgotten that domestically owned companies are partly responsible its accumulation as well.

of the investment was focused on Budapest and the surrounding county of Pest, whereas that region's contribution to food industry output does not reach 30 percent (Table 30). The counties, which have traditionally had strong food processing activities, absorbed surprisingly little foreign capital.

The proportion of foreign owners in the registered company capital of the food industry in Budapest and in the county of Pest greatly surpasses the national average of 62.6 percent, being as high as 84-85 percent.

Table 30. County-based division of agricultural and food industry output, employment and food industry FDI in 1998 (in percent).

County	County proportions of				
	agricultural sales revenues[a]	agricultural employment[b]	sales revenues in the food industry	food industry employment	food industry FDI
Baranya	6.87	5.66	4.82	4.57	3.30
Bács-Kiskun	7.37	7.47	5.41	6.83	3.06
Békés	8.96	7.35	4.19	4.88	1.74
Borsod-Abaúj-Zemplén	3.98	5.18	3.08	4.75	1.95
Csongrád	5.79	6.09	5.63	5.59	2.02
Fejér	5.64	5.87	4.30	3.25	3.89
Győr-Moson-Sopron	4.57	5.51	5.83	6.46	3.47
Hajdú-Bihar	10.37	8.91	9.83	7.48	4.96
Heves	2.24	2.92	3.38	3.04	1.89
Komárom-Esztergom	3.18	2.66	5.17	5.49	2.21
Nógrád	0.87	1.43	0.90	0.95	0.70
Pest és Budapest	11.40	8.15	28.51	24.12	62.39
Somogy	4.45	5.30	2.79	2.85	2.63
Szabolcs-Szatmár-Bereg	3.56	3.92	4.06	5.36	0.31
Jász-Nagykun-Szolnok	6.37	7.29	3.31	3.34	1.36
Tolna	5.83	5.76	1.35	1.49	0.04
Vas	2.70	3.99	2.62	2.79	2.00
Veszprém	3.08	3.73	2.18	2.99	0.83
Zala	2.74	2.82	2.62	3.76	1.25
Total	100.00	100.00	100.00	100.00	100.00

Source: AKII (1998, pp. 10, 24) and own calculations based on data of AKII.
Note: [a, b] 1997 data.
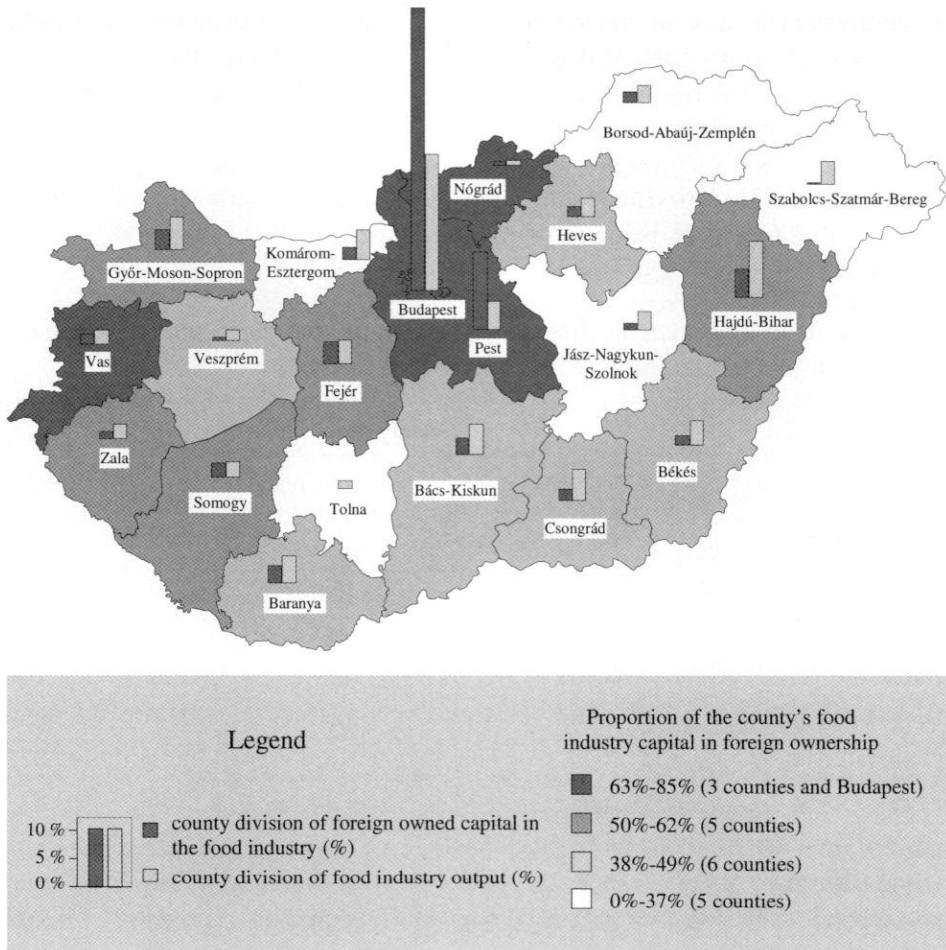
Figure 63. Geographical distribution of food industry FDI in Hungary in 1998.

The proportion of foreign capital also exceeded the national average in the counties of Vas (66.9 percent), Somogy (63.2 percent) and Nógrád (66.9 percent), whereas it was minimal in Tolna (4.3 percent) and Komárom-Esztergom (24.1 percent) and in the counties of Borsod-Abaúj-Zemplén (37.6 percent), Szabolcs-Szatmár-Bereg (10.9 percent) and Jász-Nagykun-Szolnok (28.1 percent) in Eastern Hungary.

This behaviour of foreign capital bore out the concerns expressed regarding a potential growth in regional inequalities. FDI did not change the unequal development patterns, nor did it improve the rural or employment functions of the food industry.[75] On the other hand, this direction should not be in any way sur-

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[75] The closure of entire factories and liquidation of certain processing facilities in the sugar and dairy industries were concrete manifestations of this phenomenon.

230

prising, since private capital committed to processing industries does not assume these functions anywhere else in the world. Rural development objectives are usually pursued through the politically deeply woven agricultural sector in Europe, as also in some other parts of the world.

9.1.2.3. Players Affected in the Agrifood Chain

The balance of the foreign investors' presence in the food industry will be analysed with respect to three directly influenced groups, following the categorisation on page 224. A *cost-benefit* type of comparison will be employed to verify the real or exaggerated anxiety of agricultural producers, domestically owned food processors and consumers.

Agricultural Raw Material Suppliers

Agricultural raw material producers apparently do have weak negotiating power in the face of foreign-owned food processors, partly on account of the overwhelming difference in financial and capital potential between them. A deeper investigation, however, unveils a refined set of relations.

(1) First, good quality raw materials are of crucial importance for food processing companies, being essential for their operation. In this respect, processors – regardless of their capital power – are "quasi-exposed" to the supply maintainable by the raw material producers. The two groups are therefore more equal in negotiating power than it may seem at the first sight.

(2) Secondly, the group of agricultural producers is very heterogeneous, and their relations to foreign-owned food processors are individually influenced by their economic performance and the quality of the raw material. Producers who offer good quality have firm negotiating positions. There is a constant, vigorous demand for their produce, and the foreign-owned processors frequently enhance their production with various incentives or bonuses. On the other hand, those producers who supply poor quality will obviously have much weaker negotiating power.

The differences in performance between agricultural producers are constantly increasing as a result of circular impacts, since consistently good quality is often a consequence of initial economic power. Some producers have stable financial status and solid agronomic expertise, and they can therefore afford more expensive agronomic techniques than other producers can. More sophisticated production technology requires a certain minimum farm size, but it will then grant higher yields and better quality. Negotiating power in dealing with food processors is a function of both quality and the quantity supplied. The

231

incentives and the mere marketability of the commodities will further strengthen the status of farms that produce good quality in an efficient way. At the same time, the financially unstable producers who supply poor quality continue to become weaker. In view of the heterogeneity of the suppliers, the balance of the relations between agricultural producers and foreign-owned food processors is a fairly complex matter, but it does mean that the emergence of foreign companies resulted in decaying negotiating power and weakening status for one part of the producers, while ensuring a consolidation of performance and secure markets for others.

The above explanation leads us to the conclusion that *the procurement strategy of foreign-owned food processors is based on rational economic logic, which evidently promotes the overall efficiency of agricultural raw material production.*

Another concern of the producers that was related to procurement channels was that the foreign-owned food processors would procure their raw materials through imports, for instance, rather than from farmers in the host country. Experience indicates that food processors in the international arena do not build their strategy on national emotions. Their activities, including the procurement of raw materials, are driven by strict economic and business considerations.

Political decisions are powerful factors, however, and they can change the operational environment. Food processors may reconsider their strategy and choose the best business option in the light of the new conditions. The power of political decisions is best illustrated by the example of industrial tomato production in Hungary. As a result of the removal of import duty, processors started to procure tomatoes from the EU, and now over 70 percent of the tomatoes used in the Hungarian food industry originate from abroad. Western European tomato producers are no more competitive than Hungarian ones, but they enjoy unequal benefits in the form of EU subsidies and are able to offer the processors in Hungary low-priced tomatoes. It is political decisions in agriculture or trade that tend to be influenced by national or emotional considerations, whereas the food processors themselves regard the new environment as an exogenous factor to which they must adapt by following a rational path of business logic.

The present import duties still protect the majority of the Hungarian agricultural commodities from competition from the European Union's subsidised products, but how will the status of Hungary's agricultural producers change as a consequence of accession to the EU? If the competition positions of Hungarian and Western European farmers were exclusively a function of their efficiency, the question could be easily answered by means of an economic analysis. However, agricultural production is deeply interwoven with national interests and compromises between various political tendencies, so that decisions are reached only after long, devious negotiating processes. Therefore only scenario analyses based on various sets of underlying conditions can be employed. Any modifica-

tion of the set of economic conditions by political decisions will drastically distort competitiveness and efficiency relations between agricultural producers, which should initially be based on natural endowments, access to production factors and the technology applied. It would be fair to compare Hungarian agricultural production with that of the European Union if it were not for the complicated EU and state budget relations and other political impacts. As it is, the task is virtually impossible, and in any case, such an analysis would only serve as one scenario for comparison purposes — a scenario representing a "pure economic environment". Researchers are usually forced to assume similar political environments in order to simulate the probable status of Hungarian and other Central and Eastern European agricultural producers within the European Union, or else to consider a number of different environments.[76]

Many impact analyses performed so far suggest that a large proportion of Hungarian farmers – given that their production is influenced by financial systems, subsidies and incentives that are equal to those found elsewhere in the European Union – would remain competitive on the domestic market and continue to supply raw material to both foreign and domestically owned processors within Hungary. In order to protect their domestic farmers and to set a limit on the growth in agricultural production in the acceding countries, western member countries can be expected eventually to find the fine amendments to the present mechanisms that are necessary for preventing Hungarian agricultural exports from growing disproportionately within the EU. The supplying of the Hungarian market, including domestically operating food processors, can nevertheless be set as a realistic future objective for the country's own agricultural producers.

In summary, it may be said that foreign-owned food processors have a series of positive spillover effects that benefit raw material producers: they provide vital producers with secure markets and a stable economic background, and are thereby able to improve the overall efficiency of agricultural production. Even the negative impacts are not necessarily negative or entirely so from the perspective of total agricultural production, as they include the elimination of inefficient producers and result in a reduction in the rural functions assigned to agriculture. *The positive impacts of foreign-owned food processors on Hungarian agricultural production overwhelmingly surpass the negative effects.*

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[76] Political impact analyses are conducted in almost every country's agricultural economics research institutes. These rely on econometric methods of various depths. Besides national research institutes, the OECD and the EU also have their own programmes for simulating the agricultural impacts of the Eastern expansion.

Foreign investors represent an obvious source of danger for domestically owned food processors, as their capital power, magnitude and international experience mean that their subsidiaries in Hungary have become fierce competitors.

Two major groups can be distinguished among the Hungarian-owned food processors: restructured and privatised formerly state-owned companies that were purchased by domestic investors, and newly established enterprises.

There is a risk factor which directly endangers the very survival of domestically owned processors. Foreign-owned companies tend to pursue the acquisition of domestically owned competitors, who become either an attractive target or a dangerous rival because of their spectacular economic performance, competitiveness or market power. In most cases production is preserved, however, and the company is rapidly consolidated and subordinated to the headquarters. In some processing industries, which are characterised by excessive redundant capacity, some acquired companies may be liquidated entirely.

In many industries dozens of new, domestically owned enterprises sprang up like mushrooms in the shade of the giant foreign-owned processors. Despite the impending sources of danger, these domestic firms have enjoyed the spillover effects and have thus usually become the "beneficiaries" of the dominant foreign ownership. Foreign companies introduced completely new managerial, marketing, information, logistic, distribution and financial methods into the food industry. The domestically owned companies obviously took advantage of these and various other educational channels to learn modern concepts. Their learning process was greatly accelerated, however, by close monitoring of their foreign competitors and following their example.

Another aspect of the spillover effects caused by foreign-owned food processors is their *selective effect*, in that the weak companies are rapidly eliminated by the tough competition that they generate, while the surviving domestically owned competitors are strengthened and prepared for competition on the large, homogeneous EU market. The benefit of this preparation period and intensive competition can be assessed in the light of a CEE comparison. Domestically owned food processors are temporarily saved from the fierce competition in those Central and Eastern European countries where the small number of foreign rivals, high import duties or other administrative measures have ensured a protective environment, but the dramatic liberalisation of trading and possible EU membership may be a sudden shock for them.

Although the dangers and risks for domestically owned companies caused by foreign-owned processors are ostensibly greater then the benefits, the secondary benefits from the spillover effects effectively counterbalance the disadvantages on the level of the entire food industry. The differences in corporate performance between the two major ownership categories will be considered in detail in section 9.3.

234

Although consumers are not part of the conventionally defined agrifood chain, it is reasonable to consider the benefits and disadvantages experienced by them here, as demand is the ultimate driving force for the chain.

The concerns of consumers about foreign capital partly proved to be relevant. Foreign investors built the costs of modernisation into their prices, and the price level of foodstuffs, especially that of excise products, rapidly increased. It should be noted that the predominantly foreign-owned wholesale and retail food sector has been responsible for a considerable proportion of the price growth, although no accurate calculations or data are available on the distribution of incomes and margins among the various components of the agrifood chain.

There is a much more concrete impact on the consumers than that of price level changes, namely the fact that foreign-owned companies have been striving for uniformity in Hungarian consumption patterns and integration of Hungary into the global food markets. Multinational enterprises seek homogenisation of consumption patterns, since this extracts the maximal benefit from the unit expenses of marketing, advertising and product development. Hungarian consumers fall victims to a strategy which causes old, traditional food brands to disappear and to be replaced with uniform global brands. This is best illustrated in Hungary by the rapid disappearance of the wide assortment of carbonated soft drinks established in the 1980s. The foreign companies reshaped consumption patterns to their advantage within just a few years.

Foreign food brands were foisted upon consumers in a similar, albeit not so totalitarian a way in the case of several other product groups. It is worth noting, however, that many foreign-owned companies in Central and Eastern Europe have recognised the popularity of traditional local brands in the confectionery, tobacco and beer industries, among others, and have taken advantage of the brand loyalty of consumers.

Consumers also enjoy some benefits from the presence of foreign food processors. The quality and range of food products and standards of packaging have perceptibly improved as a result of intensive investments.

9.1.3. Summarised Balance of Impacts

Research into privatisation and corporate performance in the transition countries has in general come to the conclusion that foreign capital improves the competitiveness of the acquired companies and consequently that of entire industries (Bevan et al. 1999, p. 15). The higher the weight of foreign capital, the greater the probability of intensive growth in competitiveness.

The negative and positive impacts reviewed in this chapter are summarised in Table 31. The Hungarian food processing industry underwent substantial

Table 31. Summary of the balance of impacts of foreign capital in the Hungarian economy and agrifood chain.

Sector	Negative impacts, potential risks	Positive impacts, results
Macro-level, industry-specific impacts		
National economy, state budget, food industry	♦ Reduced state budget revenues ♦ Hidden profit repatriation. ♦ Reduction in rural functions – laying off of labour force.	♦ Improvements in international competitiveness. ♦ Increased efficiency. ♦ Maintaining of food exports.
Agrifood chain		
Agricultural raw material producers	♦ Vulnerability, weak negotiating power. ♦ Raw material procurement from imports.	♦ Secure markets for agricultural raw materials. ♦ Spillover effects within the agri-food chain.
Domestically owned food processors	♦ Rivalry. ♦ Company acquisitions.	♦ Spillover effects (leadership in marketing, logistic, management and technology). ♦ Selective effects, preparations for the EU food markets.
Consumers	♦ Increased prices. ♦ Global brands force local ones off the market.	♦ Higher quality. ♦ Wider assortment of products.

changes in the 1990s. After the recession, food output started to grow in the second half of the decade, with foreign investors contributing considerably to the consolidation of the entire agrifood chain. They now control a significant portion of this chain through their positions in the food industry and in wholesale and retail trading.

The Hungarian food processing industry is an unquestionable beneficiary of foreign capital. There have been spectacular improvements in the financial positions and average technological levels of the food processing companies, and domestic food supplies and export markets have been consolidated. Although some of the figures stagnated or even slightly declined in 1998, the overall performance of the industry in the second half of the 1990s was characterised by a definite recovery. Values in dollars obtained using average annual exchange rates are presented in Table 32.

Table 32. Indicators of the Hungarian food industry between 1992 and 1998.

	1992	1993	1994	1995	1996	1997	1998
Sales revenues (billion USD)	6.58	6.14	7.27	7.85	7.85	7.59	7.42
Exports (billion USD)	1.01	0.83	1.05	1.40	1.52	1.65	1.55
Profit margin (percent of sales)	-2.31	0.24	0.73	0.70	1.55	2.77	2.72
Labour productivity (thousand USD/capita)	36.61	40.68	49.25	56.76	59.83	58.65	55.91

Source: own calculations based on data of AKII.

Modernisation has resulted in improved competitiveness in terms of international markets. This tendency has been aptly confirmed by the series of measures taken in the CEFTA countries to protect their processors against Hungarian food imports. Due to the smaller capital injections, their food industries have remained less competitive than the Hungarian counterparts (Raskó 2000, p. 96).

The secondary benefits, which are of no less significance, have included market security for agricultural producers and spillover effects within the industry, as already mentioned. It is true that continuous labour force reductions have cut down the workforce by one-third, or 71,000 employees, since 1989, but the wages of those remaining have increased rapidly. Average wages in the food processing industries, which are dominated by foreign capital, were two to four times higher than the national average in 1997.

The balance of impacts for FDI in the Hungarian food industry consists of both advantageous and disadvantageous factors, but the aggregate result has been reinforced competitiveness in international terms and consolidation of the position of the agrifood chain in the national economy.

9.2. Influence of Foreign Capital on Corporate Performance

After reviewing the impacts of food industry FDI on the national economy, rural areas and the agri-food chain, we turn our attention again to the narrower operational environment of the food processing industry itself.

We will now consider in section 9.2 the theoretical discussions and literature concerning the influence of ownership on corporate performance. The introduction and review of the literature will be followed by a concrete analysis of the role of foreign direct investment in the Hungarian food industry in section 9.3.

The topic of corporate performance has inspired an extensive literature, as the measurement and comparison of operational indicators formed on the basis of various corporate characteristics has been a favourite topic of research. The

summary of the literature provided here includes only those works that set the stage for the subsequent analysis or apply parallel analytical techniques to the main line of research considered in this dissertation.

Company performance in a given industry can range between wide limits, and a great deal of research has been devoted to the causes of this dispersion in both developed and transitional economies. Empirical studies using micro-level databases are grouped around three determinant factors: the competition environment, ownership structure and financial background (Bevan et al. 1999).

The following literature overview primarily focuses on attempts to investigate and test the impact of ownership structure on corporate performance.

9.2.1. Impact of Ownership Structure on Corporate Performance

9.2.1.1. Experiences in the Developed Countries

The economic theories of *property rights* and *public choices* provide an analytical framework for the topic of corporate performance.

In Lindblom's definition, as cited by Martin and Parker (1997, p. 10), "property is a set of rights to control assets: to refuse use of them to others, to hold them intact, or to use them up. Property rights are consequently grants of authority made to persons and organisations both public and private and acknowledged by other persons and organisations." The general approach of the concept asserts that both state and private ownership may imply operational disorders. Private ownership results in a better usage of production means, however, since ownership can be transferred through competitive capital markets. The main motivational indicator mentioned in the literature on property rights is profit. The right to gain profits is distinctly demarcated in the private sector, but is very unclear in the public sector, as it is scattered in a manner that makes it difficult to trace.

The theory of public choices approaches the issue through the behaviour of the public sector. Politicians and civil servants follow their personal interests as opposed to those of the public. With the objective of gaining political popularity or promoting their personal careers, they manipulate political trends, and this has certain impacts on corporate performance. The theory maintains that civil servants and politicians will deliberately lessen the transparency of public expenses and retain information. This allows them to lobby for projects that serve their interests. Politicians may burden state-owned companies with various additional goals which are eventually rooted in political objectives, such as that of employing additional labour.

The logic of both theories leads to the conclusion that *state-owned companies differ greatly from private ones in their behaviour and performance,* and suggests that *private ownership is more efficient than state ownership and results in better performance.*

238

Empirical studies in the developed countries follow the above approach and set out to contrast the results achieved by the two main ownership groups: private and state ownership. Early studies performed between the 1960s and the 1980s focused on branches such as public utilities in which the market environment has certain special characteristics, e.g. electric power supplies (Junker 1975), transportation (Davies 1971, Caves and Christensen 1980), health care services (Bishop 1980) and financial services (Lewin 1982).

The companies involved in the analyses included many natural or geographical monopolies and companies with regulated activities, and the efficiency calculations therefore resulted in mixed conclusions. The majority confirmed the positive impact of private ownership on corporate performance, but there were some that confirmed the efficiency of state or public ownership, or were unable to prove the superiority of either ownership group.

The analysis in the case of the processing industries verified the massive performance improvement effects of private ownership (Boardman and Vining 1989). From the 1980s onwards, more and more research has been concentrated on comparison of the performance of companies operating in a competitive environment. This was facilitated by the fact that a powerful wave of privatisation spread over the economies of the developed countries, enlarging the range of companies available for concrete analysis. One of the following two major approaches was usually employed (Frydman et al. 1999, p. 1153):

♦ comparison of the performance of the same companies before and after privatisation, and

♦ comparison of state-owned and private or privatised companies operating in the same environment during the same period.

The economic analyses of the developed countries regarded privatisation as a mechanism bringing about effective company restructuring and improved efficiency. Privatisation improves efficiency in two ways: (1) through the ownership interests of the private investors and (2) through the reduction of non-profitable activities.

Private ownership cannot be considered a uniform category, however, but rather it is a composite of several ownership categories, and its precise composition can also be a determinant of corporate performance.

♦ Some recent research findings focus on the role of *owner concentration*, maintaining that corporate control is more efficient in companies where shares are concentrated in a few hands (Caves 1990).

♦ Forms of private ownership emerging through privatisation can be divided into *inside and outside categories*.[77] Experience shows that

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[77] The categories of outside and inside ownership have proved to be of considerable significance for measuring corporate performance differences due to the wide variety of privatisation techniques employed in Central and Eastern Europe.

the seizing of ownership control by outside investors results in greater efficiency than management buy-outs or other forms of inside privatisation (Boycko et al. 1996).

9.2.1.2. Experiences in European Transitional Economies

In order to take advantage of the rules described for the developed countries, efforts have been made to improve corporate efficiency through privatisation in the post-socialist transition economies as well. This process provides a unique opportunity to analyse the impact of various ownership forms on corporate performance, since data are available on the same companies before and after privatisation, and private and state-owned companies are operating concurrently in the same economic environment (Frydman et al. 1999). There has therefore been a whole collection of studies addressing the issue of corporate performance in the CEE region.

Cox et al. (1998) analysed corporate attributes in a sample of 1,619 companies in three countries, Hungary, Poland and Slovenia, with the intention of examining exclusively the impacts of privatisation. They identified three groups of owners: mixed state-private, totally privatised, and newly established enterprises. Although no exact measurements of performance differences were made, the research led to interesting findings. Privatisation resulted in more efficient utilisation of human and other resources, and the operation of totally private enterprises was more profitable than that of the mixed (state-private) companies.

Holland and Pain (1998) came to the conclusion that the type of privatisation significantly affects both the influx of foreign direct investment and corporate performance. The colourful range of privatisation policies in the countries of Central and Eastern Europe arose from the application of various sets of political and economic priorities. One characteristic feature of the transition economies has been compensation coupon or voucher-based privatisation, in which all citizens, or some of them, were issued with coupons that entitled them to purchase shares in processing companies as part of the privatisation process. This voucher privatisation, albeit at varying intensities, occurred in nearly all the countries in the region, while the components of the mass privatisation shaped the programmes primarily in the Czech Republic, Slovakia, Bulgaria, Romania, Russia, Moldavia, Kazakhstan, Kirgisia and Mongolia (Claessens and Djankov 1999, p. 21).

Insider privatisation was fairly common practice in Central and Eastern Europe. This involved the sale, lease or transfer of the shares of a given company to its employees and/or management, as opposed to commercial privatisation, which implied an open or closed bidding process in which companies were sold to the investors who made the best offer for them and resulted in total or partial ownership by strategic or financial investors. Investors were customarily divided

according to geographical origin into foreign and domestic ones, and it was recognised that the range of new owners included investment funds and local authorities, and occasionally the state even retained shares in certain companies.

The above list is not by any means an exhaustive one, but it does demonstrate that privatisation in the Central and Eastern European countries has created a wide spectrum of new owners over the past ten years. Many studies of corporate performance in the region stepped over the two categories of state and private ownership and extended the investigations to a comparison of the various segments of private ownership. It is not surprising that the rich literature has been dominated by analyses performed by western researchers, who took advantage of the unique opportunity to segment private ownership and conduct refined impact analyses with real databases.

Bevan, Estrin and Schafer draw attention to the danger of an endogenity problem arising from the implementation of privatisation in the CEE region (Bevan et al. 1999, p. 24), in that employees or managers of certain companies succeeded in acquiring their companies by smart lobbying or by using the legitimate rights of preemption that existed in many countries. Since acquisitions by employees and management usually targeted the companies with the best market perspectives, other investors were able to purchase only the residual companies that supposedly had worse starting points. This implies the opposite causal relation from that originally suggested in most assumptions, as ownership structure had been assumed to serve as an exogenous factor affecting corporate performance, while in reality it could be treated as an endogenous factor that is itself influenced by corporate performance.

The endogenity problem may provide an explanation for why early research found so little empirical evidence for better corporate performance on the part of privatised companies in Central and Eastern Europe (Pinto et al. 1993). Although state ownership gave way to private ownership, no dramatic changes in the operation of the companies were implemented by the employees or managers who had now become their owners.

As privatisation accelerated, research interests turned to the impacts of various groups of private owners on corporate performance. Earle and Estrin carried out several projects in the second half of the 1990s using a database of privatised Russian companies. They came to the conclusion that out of the three private ownership categories, scarcely any impact of employee ownership could be observed, the impact of management was more prominent, and outside ownership had brought about the most significant improvement in corporate performance (Bevan et al. 1999, p. 23).

The retarding impact of employee ownership on corporate performance can be attributed to two factors: (1) Employee owners are extremely cautious risk takers, they are reluctant to make substantial changes in the company, and they have poor access to external financial sources such as bank loans. (2) Employees

are obviously reluctant to streamline the workforce at the company, which would propel the desired productivity growth.

Blasi and Shleifer (1996) found management ownership in Russian companies to be intent on averting risks, leading to a cautious corporate strategy that resulted in slow modernisation and development. These conclusions were also verified by other authors (Barberis et al. 1996).

Experience indicates that insider privatisation did not necessarily result in improved efficiency, whereas the positive impacts of outsider privatisation are confirmed in most instances. Walsh and Whelan (1999), analysing a database of 220 processing companies in four CEE countries over a number of years, found that outside investors significantly improved the companies' export potential. Frydman et al. (1999, p. 1154) concluded that insider privatisation did not result in a growth in efficiency in 200 privatised companies in the Czech Republic, Poland and Hungary, whereas outsider privatisation brought significant improvements in all four of the performance indicators that they analysed.

Frydman and his research group stressed the relevance of further segmentation of the group of outside investors, identifying the following categories: foreign, domestic financial, domestic strategic and private persons. Their findings regarding the influence of foreign investors were somewhat surprising, as they appeared to have a significant impact on revenues and employment, but insignificant influence on productivity and cost management (Frydman et al. 1999, pp. 1164-1165).[78]

These statements contradict the general and empirical results achieved in other research projects. Aghion and Blanchard (1998) found a superior influence of foreign investors in a comparative analysis of insider and outsider privatisation, and Claessens and Djankov (1999) concluded from their regression analysis of data on 706 Czech companies for a six-year period that foreign owners significantly improved profitability and labour productivity. The positive impact of foreign investors on corporate performance is also confirmed in numerous Hungarian studies.

One ownership category that is frequently used in research based on Central and Eastern Europe is *ab initio,* or newly established enterprises. Performance is often spectacular in this category and features constant growth, which is attributed by Bevan et al. (1999) to the rapidly changing composition of these new ventures. There is a constant, intense exchange of members going on in this group, as many companies are liquidated or go bankrupt and new ones emerge every year. Samples of *ab initio* companies tend to distort the performance results of the group, however, as only the vital or successful companies can be accepted for the sample in a given year, so that the averages for the indicators are not affected by the companies that fail.

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[78] It should be noted that, with only one exception, the impact of the other three owner groups was also insignificant in the latter two performance categories.

Besides ownership structure, ownership concentration is also considered an influential factor affecting corporate performance. Although the impact of ownership concentration is not consistent over all the developed countries, it is confirmed in almost every case in Central and Eastern Europe (Bevan et al. 1999, p. 25). Ownership concentration is usually a performance-improving factor, although it is crucially important which owner group exercises majority power. The results of Claessens and Djankov (1999, p. 19) indicate that foreign majority ownership unequivocally brings performance growth, while domestic majority ownership shows a mixed picture, growth being recorded in most instances but not in the case of all indicators or owner groups.

9.2.1.3. Hungarian Comparative Studies of Corporate Performance

Privatisation opened up opportunities for examining corporate performance among the various owner groups in Hungary, as elsewhere. Many early attempts at analysing the impact of foreign capital on the basis of empirical evidence failed to find any significant performance differences between the owner groups. Hamar (1995) attributed this to the serious recession in the early 1990s, from which foreign and domestically owned companies suffered equally.

The most extensive Hungarian comparative study of corporate performance in relation to owner groups is that of Major (1999), who analysed the total range of companies, categorising them into ten groups and examining the impact of ownership on corporate performance between 1988 and 1997. The results indicate that state, domestic private and foreign ownership did not have any consistent influence on corporate performance before 1994, and that although indicators for entirely private firms were better than those for state companies between 1988 and 1990, their position worsened in the early 1990s. The crisis hit all companies regardless of their ownership background, and the difference between state and private ownership became prominent again only between 1995 and 1997.

The tendencies in the above periods verify the fact that although the endogenity problem highlighted by Bevan et al. (1999) was an observable feature of the Hungarian privatisation, it did not have such a marked effect as in other countries, where compensation and insider privatisation were more powerful. Instead, Tóth (1999) discovered a time relation between initial performance and the privatisation of companies, in that those companies that performed better had greater chances of early privatisation, while weaker companies were privatised later. Csányi (1997) remarked that state ownership "stuck in the inefficient sphere" of the economy.

Tóth pointed out that foreign and domestic private ownership had become dominant in the Hungarian economy by 1996, so that the theory of recombinant ownership suggested by Stark (1994) was not relevant, at least not in the second half of the decade.

Researchers were able to measure a definite difference between state and private ownership by the end of the decade, and attributed this to the presence of foreign capital rather than to the general superiority of private ownership over state ownership.

Major's empirical results showed that corporate performance is significantly differentiated in terms of ownership forms only in 1994 and 1995, whereas Tóth (1999, p. 38) found that foreign ownership had a positive impact on value added, profitability and corporate growth potential throughout the period 1993-1996. The superiority of foreign-owned companies in terms of measures of efficiency is confirmed over the entire transition period in the computations of Halpern and Kőrösi (2000).

Apart from profit and efficiency indicators, foreign companies surpassed the domestically owned ones in export measures, too. The investigations of Éltető and Sass (1997) support the notion of a dominant contribution of foreign-owned companies to export sales and a centralisation of this contribution in a few companies.

9.2.2. Indicators of Corporate Performance

Various indicator categories have emerged in the international literature to *measure corporate performance*. Martin and Parker (1997, p. 53) distinguished the following major categories:

1. *Profitability*. Profit is internationally the most accessible and comparable measure in business. The interpretation of profit may become irrelevant in the public sector, however, due to its non-profit operations, social functions or other activities. Wide application of this category requires the utmost care in the private sector as well, since pricing policies or short and long-term objectives may differ greatly between individual companies. The market power of companies may also influence profits, so that real performance differences cannot be identified by a mere comparison of the profitability of monopolies with that of companies operating in a competitive environment.

2. *Productivity*. Productivity growth usually means that a particular company becomes more efficient.[79] Productivity is concerned with

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[79] It is extremely important to distinguish between efficiency and productivity, since the two terms are not identical. A given company or industry is not sufficiently efficient if it is capable of producing more output with the existing amount of input, in other words, it is situated below the curve of production opportunities. On the other hand, productivity is derived from the volume of end products manufactured, and measures how many units of output were produced using a given amount of input, regardless of whether maximum efficiency – the curve of production opportunities – has or has not been reached (Sharpe 1995). In this respect one company can be more efficient than another even though neither is *efficient* in the strict sense.

the input or inputs required for the manufacturing of the end product. The most frequently used indicator is labour productivity, which compares value added or total output with the labour force required to achieve this. Since this index involves one input, labour productivity is a *partial factor productivity* measure. It is *total factor productivity*, which includes all inputs utilised, that is usually quoted as a benchmark for corporate growth.[80]

3. *Production costs.* The category of production costs is cognate with profitability, but costs may give more accurate and detailed information on corporate performance both in the public and in the private sector than profits. There are several problems associated with measuring costs, however, including the construction of cost functions and the identification of appropriate ratio bases.

In their comparison of the attributes of 63 analyses of the corporate performance of state-owned and private companies in the United Kingdom, USA and other developed countries over the period from 1970 to 1995, Martin and Parker (1997, pp. 68-75) found that 20 percent of those employed profitability in their calculations, 30 percent productivity and 25 percent production costs. In many cases indicators in more than one category were calculated, and other indices such as market shares and financial indicators also occurred in the overview.

In order to measure corporate performance, researchers rely on data from balance sheets and profit and loss statements of individual companies, a circumstance which limits the scope of applicable indicators. Return indices are the most palpable indicators, leading Boardman and Vining (1989, p. 11) to use four profit categories in their much-cited comparison of the Fortune magazine's top 500 companies: return on assets (ROA), return on equity (ROE), return on sales (ROS) and net revenues. Frydman et al. (1999, p. 1158) considered profitability an unreliable indicator in Central and Eastern Europe, and preferred to use labour productivity and its components, i.e. net sales revenues, employment, the ratio of these two and cost levels per unit of sales revenue.[81]

Most researchers attempt to take advantage of both profit and productivity indicators, often together with other types. Claessens and Djankov (1999) employed only two indicators, profit margin and labour productivity, in their study of ownership structure and ownership concentration. Megginson et al. (1994) used various financial measures beside profit and productivity indicators, while Walsh and Whelan (1999) measured corporate performance in four CEE coun-

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[80] The literature on *total factor productivity* is very extensive, the development of the indicator being associated with such famous economists as Solow, Hicks and Tornquist.

[81] *Costs per unit of net sales revenue* is in fact still an indicator that can be postulated from profit through the equation $\frac{C}{R} = \frac{(1-P)}{R}$, where C denotes the costs, P the profits and R the revenues of the particular company.

tries in terms of the export activities of the companies. A similar approach was taken by Halpern and Kőrösi (1998), who measured the corporate performance of the expanding multitude of Hungarian companies between 1985 and 1994. On the other hand, Major (1999, pp. 66-68) employed a wide range of indicators to measure the performance of Hungarian companies, including three profitability indices, three productivity indices and six financial and liquidity indices.

9.3. Impact of Foreign Capital on the Performance of the Hungarian Food Industry

The aggregate performance indicators for the Hungarian food industry have improved since 1993. Foreign investors played an active role in reshaping the ownership structure of the food industry. By 1998 they had acquired over 60 percent of the aggregate company capital in the industry (see Table 8). *We set out here to determine the influence of foreign capital on the Hungarian food industry by examining the impact that corporate ownership has had on company performance.* This is a test of the causal relation *D* in Figure 7 on page 57, in other words a quantification of the impact of FDI on the performance of the food industry.

The opening question of the analysis arises out of the above research objective: *Are either foreign-owned or domestically owned food processors superior to the other group in terms of performance?* The *hypothesis is that* ownership does have an impact on company performance in the food industry and that *foreign affiliates have better performance indicators than their domestically owned rivals.*

This hypothesis is based on the finding that the comparative advantages of foreign investors are internalised in their production subsidiaries soon after the investments are made (Dunning 1997). This results in an overall improvement in performance and efficiency in foreign-owned companies, which – in the case of considerable foreign participation – would have a measurable impact on the performance of the entire food industry. The effect is expected to be extremely strong in Central and Eastern Europe, where the performance level of the domestically owned companies is initially low.

Rare examples can be found in the literature that feature empirical evidence or accounting-based analyses of the impact of multinational or other foreign subsidiaries on the Hungarian food processing industry. Most studies consider food processing as one of the industries in manufacturing comparisons.

Hamar (1995) also viewed food processing as one of the set of processing industries and attributed the rapid growth in the food industry to the participation of foreign investments. Furthermore, she documented a uniform cost structure in the industry.

246

In one of the most recent studies, Szabó (2000) introduced an interesting and novel approach. He traced the history of 38 large food processors, all of which had been transferred from state control to foreign ownership, between 1990 and 1998. The fact that the sample included only companies that had distinct equivalents in both years of observation eliminated several multinational enterprises from the investigations. This restricted size of the sample may be the explanation for the surprising fact that their aggregate growth in sales revenues and profit earnings remained below the average for the industry as a whole. On the other hand, the growth in equity and total assets in the sample surpassed the average for the industry, indicating rapid development and high-intensity investment. Also, the companies in the sample were among the best in terms of productivity growth, which is a result of their internal rationalisation and intensive labour lay-off (Szabó 2000, p. 47).

The direction adopted in the current analysis differs from that of the two studies mentioned above in terms of (1) the database employed, and (2) analytical approach:

(1) *The database includes* accounting information – excerpts from balance sheets and income statements – on *the complete anonymous set of Hungarian food processing companies* amounting to over 2,500 enterprises examined between 1995 and 1998.

(2) The analytical approach entails *dynamic measurement of differences in performance between foreign and domestically owned companies*. It is this that gives novelty to the current analysis.

9.3.1. Impact of Ownership on Corporate Performance Figures

9.3.1.1. Indicators of Corporate Performance and Data Set Employed

In the first part of the calculations, the performance of the companies is measured by sales revenues, profit earnings, export sales and investment activities. *Sales revenues* are an essential indicator of corporate performance, since they embody market power. Market power has proved to be significant in motivating the inflows of foreign capital by a number of studies (Caves 1996, pp. 84-87).

In the post-socialist economic environment, *profit earnings* have provided somewhat distorted information on the performance of food processing companies, but the profit performance of the companies improved in the second half of the 1990s, partly owing to a halving of corporate tax rates.[82]

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[82] Nevertheless, many domestically owned companies are presumed to "hide" their profits, while foreign-owned companies may tend to exercise hidden profit repatriation. The only available profit figures are the officially reported ones, and it is these that were used in the calculations.

Although experience indicates that foreign investors settle primarily for supplying the domestic market, traditional *export* performance also strengthened in the Hungarian food processing sector. The volume of *investments* is an indicator of the companies' future objectives and anticipations.

The impact of ownership on corporate performance is first identified by segmenting the companies. The total number of observations in 1998 amounted to 2,977, which narrowed to 2,961 after eliminating the companies with zero registered capital. Two major groups were identified according to the ownership structure:

1. predominantly foreign-owned and
2. predominantly domestically owned companies.

The segmentation was performed on the basis of the proportion of foreign *versus* domestic ownership in the registered capital of each company.

9.3.1.2. Results of the Company Segmentation

The corporate figures for the companies in the two groups, comprising both aggregate figures, and group averages, are shown in Table 33. The data in the table confirm the superiority of the foreign-owned companies in terms of size, the difference in sales revenues referring to the fact that foreign-owned companies are typically among the largest ones in the food industry.

The superiority originating from foreign ownership seems to be even more impressive in terms of average profits and export sales than in the case of sales revenues, while the average investments made by the foreign-owned companies were nine times greater than those of the domestic companies.

The data in Table 33 taken alone may well raise a doubt: since all the large companies are in foreign ownership, the real reason for the difference in performance may not be the type of ownership, but rather the size of companies. A two-step segmentation was performed to resolve this question, in which the initial grouping attribute was company size in terms of sales revenues, where the

Table 33. Aggregate figures for Hungarian food processing companies by predominant ownership in 1998.

	Sales revenues	Profits	Export sales	Value of investments
			(million USD)	
Total, predominantly foreign (N=398)	3,566.2	210.4	879.3	66.9
Total, predominantly domestic (N=2 563)	3,851.2	26.9	667.5	47.4
Average, predominantly foreign	8.960	0.529	2.209	0.168
Average, predominantly domestic	1.503	0.011	0.261	0.019

first group included all the companies whose revenues exceeded USD 0.47 million (HUF 100 million) and the second all the companies below that limit. Thereafter the segmentation followed the method employed previously. The objective of the double segmentation was to compare the foreign and domestically owned companies within their own size groups. The results of the analysis are shown in Tables 34/a and 34/b.

Slightly more than 40 percent of the foreign-owned companies fall into the group of large companies, and their power continues to be evident (Table 34/a), for although they make up less than one-fourth of the total number of large-sized companies, their combined sales revenues amount to nearly half of the group total. Consequently, there is more than four-fold difference in average sales revenues between the two ownership types in the group of large companies. The difference in average profits is even wider indicating that foreign-owned companies are much more profitable than domestically owned ones. The differences between the group averages for profits, exports and investments are all in excess of that in sales revenues.

Table 34. Corporate figures for Hungarian food processors by size and ownership type in 1998.

Table 34/a.	Sales revenues above USD 0.47 million[a]			
	Sales revenues	Profits	Export sales	Value of investments
	(in million USD)			
Total, predominantly foreign (N=167)	3,547.6	204.6	874.4	64.0
Total, predominantly domestic (N=718)	3,677.8	35.2	661.0	39.3
Average, predominantly foreign	21.243	1.225	5.236	0.383
Average, predominantly domestic	5.122	0.049	0.921	0.055
Table 34/b.	Sales revenues below USD 0.47 million[b]			
	Sales revenues	Profits	Export sales	Value of investments
	(in thousand USD)			
Total, predominantly foreign (N=231)	18,674.1	5,827.5	4,955.2	2,950.1
Total, predominantly domestic (N=1,845)	173,343.1	-8,254.1	6,494.6	8,088.1
Average, predominantly foreign	80.653	25.175	21.445	12.587
Average, predominantly domestic	94.172	-4.662	3.730	4.196

Note: [a,b] The boundary of the size categories was set at HUF 100 million in the original calculations.

The group of small companies provides some unexpected findings. In that the average sales revenues of both ownership groups are of roughly the same magnitude, the figure for the domestically owned companies in fact even being slightly higher than that for the foreign-owned group (Table 34/b). Due to the similar sizes of these companies, any difference in corporate performance can be attributed entirely to the differences in ownership structure. Further data again point to the superiority of foreign ownership, in that foreign subsidiaries earned considerable profits, compared with the losses made by the domestically owned companies, their exports were almost six-fold and the value of their investments three-fold by comparison with the average figures for the domestically owned processors.

Investment is an extremely important performance category in terms of future corporate growth, and the investments made by the foreign-owned companies surpass those made by the domestically owned ones in both company size groups. The difference is not surprising in the case of the large companies, where the strength of the large multinational enterprises in terms of capital is overwhelming, but the small and medium-sized enterprises could be the ones that are mobile, flexible and perceptive to emulate the modern techniques of their foreign-owned counterparts. These are believed to be the germ of a strong Hungarian-owned food processing segment in the future, and are expected to compete successfully against foreign subsidiaries. Since these small Hungarian enterprises cannot easily compete with the large foreign ones in terms of innovations, product differentiation or know-how, the only relevant path for corporate growth appears to be through physical investments. In this respect, it is sad to note that Hungarian-owned small-scale processors take such a low-key approach to investment opportunities.

9.3.2. Definition of the Corporate Performance Gap

A difference in corporate performance has been demonstrated to prevail between the foreign and domestically owned food processors in Hungary and confirmed by the corporate data used in the above analysis The analysis can therefore be continued one step further to incorporate the dynamic aspect. The initial question now takes the modified form: *Is the performance gap between foreign and domestically owned food processors widening or narrowing with time?*

The dynamic concept of the performance gap is illustrated on Figure 64, where the shaded area signifies the gap. Widening or narrowing can be revealed only through a careful study of dynamic indicators. Such calculations require comparable data covering many years. In the present case, data availability limited the period to four years, 1995 to 1998. Again, companies with zero registered capital were omitted from the data set.

250
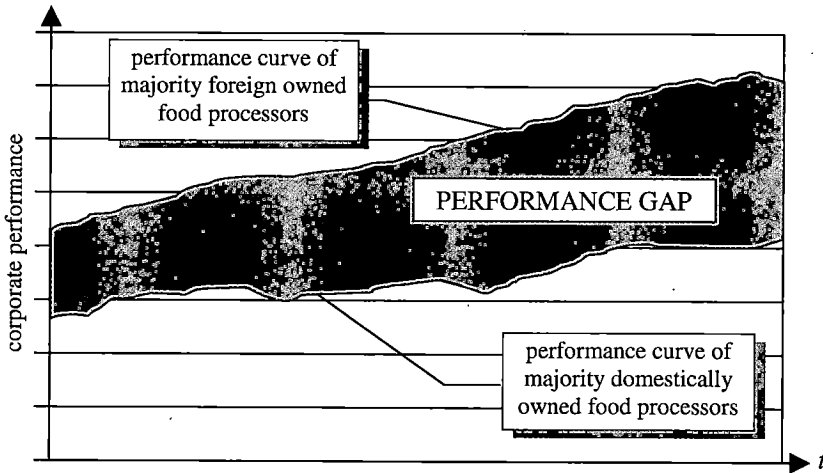
Figure 64. The concept of performance gap determined by the curves of majority-foreign owned and majority-domestically owned food processors.[83]

9.3.3. Comparison of Foreign and Domestically Owned Companies

9.3.3.1. Performance Indicators Used in the Comparison

In order to quantify changes in the performance gap, a wider group of indicators of corporate performance must be calculated containing four indicators of profitability, one of productivity and three other accounting indicators: [84]

Profit rate (profitability margin)[85]

[1]
$$ROS_i = \frac{P(bt)_i}{R_i}$$

Return on Equity[86]

[2]
$$ROE_i = \frac{P(bt)_i}{E_i}$$

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[83] The figure displays schematically the trend in the performance gap.

[84] The group of indicators was assembled based on the traditions of the corresponding international literature; for a review, see Martin and Parker (1997).

[85] The indicator is identical to the category of Return on Sales, ROS.

[86] The measure is not entirely identical to Return on Equity, ROE, since the figure for "own capital" is used in the denominator instead of equity.

Profit on Assets

[3]
$$p_i^a = \frac{P(bt)_i}{TA_i}$$

Profit per Capita

[4]
$$p_i^{emp} = \frac{P(bt)_i}{EMP_i}$$

Labour Productivity[87]

[5]
$$prod_i^{emp} = \frac{R_i}{EMP_i}$$

Own Capital Intensity

[6]
$$e_i = \frac{E_i}{TA_i}$$

Share of Export Sales

[7]
$$exp_i = \frac{EXP_i}{R_i}$$

Asset Efficiency

[8]
$$r_i^a = \frac{R_i}{TA_i}$$

where
$P(bt)_i$ is the ith company's profit before taxation,
R_i is the ith company's sales revenues,
EXP_i is the ith company's export sales,
E_i is the ith company's own capital,
TA_i is the ith company's total assets,
EMP_i is the ith company's labour force.

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[87] Labour productivity is usually calculated by means of the value added produced by the company, but when value added figures are unavailable, net sales/capita is an internationally accepted proxy. The indicator does not directly denote labour productivity, but it does express corresponding trends in this particular aspect of corporate performance (Frydman et al. 1999).

9.3.3.2. Results of the Dynamic Performance Gap Analysis

In accordance with the definition explained in Figure 64, the data in Table 35 provide a snapshot of the dynamic performance gap for t=1998. A significant disparity in performance is apparent between the foreign and domestically owned food processors, the labour productivity of the former being twice as great and their profit rate seven times as high.

The advantage of domestic ownership was evident in the case of one indicator, asset efficiency, but this points to illusive rather than real competitive advantages. The logical explanation is that many domestically owned enterprises operate with almost fully or fully depreciated assets. Hence, the lower value for the denominator results in higher measures of asset efficiency than in the case of foreign-owned companies with their typically more valuable or recently installed assets. The indicator of capital intensity gives a better understanding of the real power relations.

The dynamic approach to the performance gap is obviously more realistic than a static type of comparison, and the full implications of the figures in Table 35 would be revealed if they could be placed in the dynamic context of a longer period.

In order to illustrate the development of the gap in practice, Figure 65 shows curves for the average sales revenues of foreign and domestically owned food processors in Hungary. The figure confirms that the difference in average sales revenues between the two ownership groups has been growing.

Table 35. Relative corporate indicators for predominantly foreign-owned and predominantly domestically owned food processors in 1998.

Number	Indicator	Predominantly foreign	Predominantly domestic	Total food industry
	Number of companies (N)	398	2,563	2,961
[1]	Profit rate, ROS (%)	4.94	0.70	2.74
[2]	Return on equity, ROE (%)	12.56	2.8	8.59
[3]	Return on assets (%)	6.08	1.12	3.83
[4]	Profit per capita (USD/capita)	4,048.5	302.1	1,531.5
[5]	Labour productivity (thousand USD/capita)	81.91	43.19	55.89
[6]	Own capital intensity (%)	48.4	40.1	44.6
[7]	Share of export sales (%)	24.65	17.33	20.85
[8]	Sales relative to assets (%)	122.95	160.27	139.86

Source: own calculations based on data of AKII.
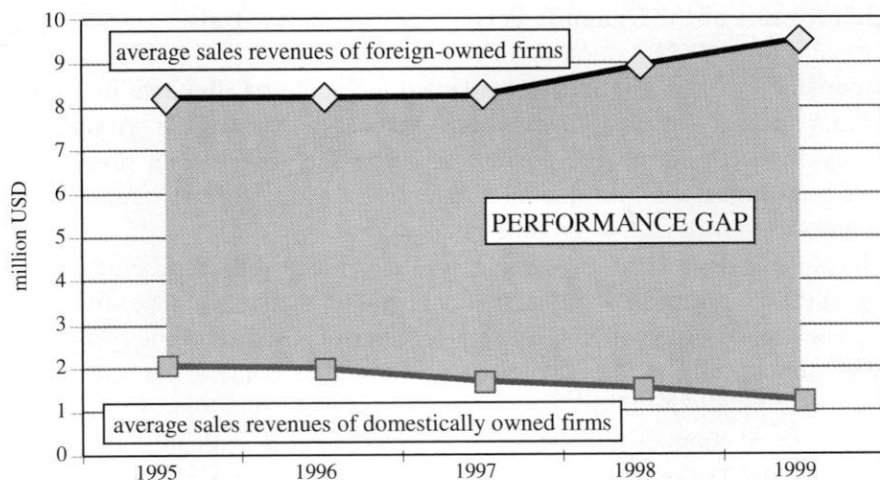
Figure 65. Average sales revenues of foreign-owned and domestically owned food processors in Hungary between 1995 and 1999.

Although such a chart of performance curves is illustrative, it has to be admitted that the mere comparison of annual values may imply a danger of inaccurate calculation of the gap. Since the indicators for both groups of companies change with time, a comparison of absolute values would really not capture the opening or closing of the gap.[88]

In order to resolve the issue, a similar methodology is applied to that published by Pilat (1996) at the OECD to measure international productivity gaps, in which the performance of the most productive country was fixed at unity (or 100 percent) and the productivity values of other countries were expressed as proportions of this. The productivity gap was then defined as the difference between the most productive country and the other ones. This approach allows reliable and accurate dynamic interpretations to be made, even if the denominator changes in the meantime or a new country becomes the most productive.

The data in Table 36 were calculated by applying a similar concept to the productivity gaps suggested by Pilat. In order to quantify the performance gap among the Hungarian food processors, the figure for the better group was fixed at unity. The denominator was provided by the performance of the foreign-

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[88] A simple arithmetic example will illustrate the problem. Let us imagine two economic players – enterprises or nations – whose performance figures are to be compared for three consecutive years. Let the values for the better performer be 10, 12 and 15, while those for the weaker performer are 2, 3, and 5, respectively. The absolute difference between them will be 8, 9 and 10, which would suggest a widening gap, but the performance gap given by the *PGAP* formula will be 0.8, 0.75 and 0.66, or 80 percent, 75 percent and 66 percent pointing to exactly the opposite trend, namely a narrowing performance gap.

owned companies in the majority of cases. The following formula expresses the performance gap (*PGAP*) for a particular indicator:

$$PGAP = 1 - \frac{\sum_{i=1}^{n} P_i^{w}}{\sum_{j=1}^{m} P_j^{b}}$$

where

P_i^{b} is the indicator for the ith company in the ownership group with better performance,

P_j^{w} is the indicator for the jth company in the ownership group with weaker performance.

The above formula for *PGAP* means that figures for the performance gap can take values between zero and unity or can be expressed in percentage form by multiplying them with 100. Thus, an arbitrary value of *PGAP*=0.72, for instance, can be interpreted in two ways: that the performance gap is 72 percent of the performance of the better group, or the performance figure of the weaker group is 28 percent of that of the better group. The latter represents an intermediate step in the calculation process, but due to its demonstrative power, it is also included among the results in Table 36. P^{W} is obtained by the following two formulae:

$$PGAP = 1 - P^{W} \ ,$$

and

$$P^{W} = 1 - \frac{\sum_{i=1}^{n} P_i^{w}}{\sum_{j=1}^{m} P_j^{b}} \ .$$

The values for *PGAP* and P^{W} should be interpreted in the light of how they change with time, in that descending values of P^{W} or ascending values of *PGAP* would indicate a widening of the performance gap and *vice versa*.

Although the time span of the analysis was limited to four years by access to data, the number of indicators calculated is sufficient to allow pertinent conclusions to be drawn. *The changes in the performance gap demonstrated by the eight corporate indicators reveal a dramatic shift in the nature of the Hungarian food processing industry. All the profitability, productivity and export indicators point to a distinct widening of the performance gap, with the domestically owned*

Table 36. Performance gap between foreign-owned and domestically owned food processors between 1995 and 1998.

Indicators/ Elements of performance gap	Formulae	1995		1996		1997		1998	
		Foreign	Domestic	Foreign	Domestic	Foreign	Domestic	Foreign	Domestic
		predominant company ownership							
Number of companies	n, m	399	2,153	397	2,289	400	2,468	398	2,563
Sales revenues/company (million USD)	$\dfrac{\sum_{i=1}^{n} R_i}{n}, \dfrac{\sum_{j=1}^{m} R_j}{m}$	8.23	2.08	8.17	2.01	8.27	1.73	8.94	1.50
Standardised level of weaker group			0.253		0.246		0.210		0.168
Performance gap	$PGAP$		0.747		0.754		0.790		0.832
[1] Profit rate (Profit to sales, %)	$\dfrac{\sum_{i=1}^{n} ROS_i, \sum_{j=1}^{m} ROS_j}{P^W}$	0.07	1.06	2.23	1.07	5.03	1.04	4.94	0.7
Standardised level of weaker group	P^W		0.065		0.478		0.206		0.142
Performance gap	$PGAP$		(0.935)		0.522		0.794		0.858
[2] Return on equity (%)	$\dfrac{\sum_{i=1}^{n} ROE_i, \sum_{j=1}^{m} ROE_j}{P^W}$	0.16	3.56	6.32	4.35	11.68	4.26	12.56	2.80
Standardised level of weaker group	P^W		0.045		0.689		0.364		0.223
Performance gap	$PGAP$		(0.955)		0.311		0.636		0.777
[3] Profit on assets (%)	$\dfrac{\sum_{i=1}^{n} p_i^a, \sum_{j=1}^{m} p_j^a}{P^W}$	0.08	1.60	2.94	1.66	6.22	1.68	6.08	1.12
Standardised level of weaker group	P^W		0.048		0.562		0.271		0.185
Performance gap	$PGAP$		(0.952)		0.438		0.729		0.815

Measure	Formula								
[4] Profit per capita, (in USD/capita)	$\sum_{i=1}^{n} p_i^{emp}, \sum_{j=1}^{m} p_j^{emp}$	51.7	508.4	1,820.4	543.9	4,160.6	496.8	4,048.5	302.1
Standardised level of weaker group	P^W	0.102			0.299		0.119		0.075
Performance gap	*PGAP*	*(0.898)*			*0.701*		*0.881*		*0.925*
[5] Labour productivity (in thousand USD/capita)	$\sum_{i=1}^{n} prod_i^{emp}, \sum_{j=1}^{m} prod_j^{emp}$	75.03	47.90	81.48	50.93	82.66	47.91	81.91	43.19
Standardised level of weaker group	P^W		0.638		0.625		0.580		0.527
Performance gap	*PGAP*		*0.362*		*0.375*		*0.420*		*0.473*
[6] Own capital intensity (%)	$\sum_{i=1}^{n} e_i, \sum_{j=1}^{m} e_j$	47.34	44.98	46.62	38.07	53.26	39.55	48.39	40.07
Standardised level of weaker group	P^W		0.950		0.816		0.743		0.828
Performance gap	*PGAP*		*0.050*		*0.184*		*0.257*		*0.172*
[7] Share of export sales (%)	$\sum_{i=1}^{n} exp_i, \sum_{j=1}^{m} exp_j$	18.28	17.12	22.56	17.35	25.36	18.92	24.66	17.33
Standardised level of weaker group	P^W		0.936		0.769		0.746		0.703
Performance gap	*PGAP*		*0.064*		*0.231*		*0.254*		*0.297*
[8] Asset efficiency (%)	$\sum_{i=1}^{n} r_i^a, \sum_{j=1}^{m} r_j^a$	110.5	150.9	131.8	155.0	123.6	162.2	123.0	160.3
Standardised level of weaker group	P^W	0.733		0.850		0.762		0.767	
Performance gap	*PGAP*	*(0.267)*		*(0.150)*		*(0.238)*		*(0.233)*	

Note: the values of *PGAP* in parenthesis indicate the superiority of domestically owned group.

companies constantly falling behind the foreign-owned processors. In terms of capital intensity, the situation has stagnated since 1996, the only advantage of the domestically owned companies being the stable superiority in asset efficiency.

It would be too early to become alarmed on the basis of a four-year trend in the performance gap, although future prospects do not promise any spectacular improvement for the domestically owned processors. The figures in Table 36 reveal a *notable disparity in investment activities* between the two ownership groups, which *may continue to accentuate the performance gap in the coming years.* This danger hangs over the future of both small and large domestically owned firms in the Hungarian food industry to an equal extent.

The results shown in Table 36 should also be interpreted with caution for another reason. Since the performance gap is calculated from group averages, the figures conceal heterogeneity in the performance of group members. Thus the multitude of food processors may well include laggards amongst the foreign-owned companies and rapidly developing domestically owned ones.

The domestically owned food processors face three main options as far as their future is concerned:

1. *Catching up*, the survival alternative. This is a function of the initial level of development but it also depends on the particular processing activity to a certain extent. Those domestic companies may enter the group which are narrowing the performance gap by applying state-of-the-art technology and modern business techniques. Development capital can hardly be expected to be available from their own resources, and it will thus need to be mobilised on the domestic or international capital market. Domestically owned companies may develop competitive advantages in two ways:
     ◆ product differentiation, attempting to meet uncommon or specific consumer needs,
     ◆ special market strategies in a geographical sense, exploring the white spots on the Hungarian market, or specialising in export markets.
2. *Falling behind.* Companies employing outdated equipment and management methods and restrained marketing strategies will inevitably be forced to drop behind. These companies will typically have a similar product mix to their large foreign competitors, but will lack resources for development and access to financing channels.
3. *The middle alternative.* This would involve cooperation or collaboration with large competitors, which is possible only for some companies with special status in given industries. Large competitors may need cooperating companies because of the market distribution

258

or for other regional reasons. The middle alternative is of very limited applicability, and its outcome is risky, since company acquisitions may soon put an end to the independence of the smaller partner in any strategic alliance.

9.4. Impacts of Ownership Structure in Individual Industries

The analysis of the impacts of foreign ownership ends by considering industry-specific tendencies. The proportion of the registered company capital in foreign ownership represents the ownership structure (*OSTR*). Thus, *OSTR* represents the division between foreign and domestic ownership and its value will be in the range from 0 to 1. The impact of this ownership structure can then be estimated in terms of six corporate performance indicators, sales revenues, profits, export sales, investments, labour productivity and asset efficiency, by means of a descriptive regression analysis:

$$PER_i^j = a_0 + a_1 OSTR_i + \varepsilon$$

where

PER_i^j is the jth corporate performance indicator in the ith industry,

$OSTR_i^j$ is the corporate ownership structure of the ith industry.

The analysis was run for all 12 industries for which the number of observations allowed such calculations. *Owing to the nature of the OSTR variable, a positive sign for a parameter indicates a larger impact – i.e. an advantage – for predominantly foreign-owned companies and a negative sign a greater impact – or advantage – for predominantly domestically owned companies.*

Based on the calculations presented so far in this chapter, the foreign-owned companies can be anticipated to be superior in the first five performance categories and the domestically owned companies more probably in the case of asset efficiency. The signs attached to the parameters of the *OSTR* variable in the cases of various indicators and industries, as shown in Table 37, bear out these anticipations, pointing to the overwhelming superiority of foreign-owned companies in all respects with the exception of asset efficiency.

Detailed explanations of the industry-specific disparities in the corporate indicators can be provided on the basis of the results of the regression analysis in Annex 17.[89] The influence of foreign ownership on *sales revenues* is significant

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[89] The results also reveal that the superiority in the case of several industries and indicators is not statistically significant. In certain instances a low R^2 is attributable to the fact that the relations measure the impact of one single variable, the ownership structure. The current research did not strive to expand the model, the purpose being simply to map the influence of the two major ownership categories.

259

Table 37. Impact of ownership structure on selected corporate indicators in some of the food processing industries.

Performance indicators	Meat	Poultry	Fruit and vegetable	Vegetable oil	Dairy	Milling	Animal feed	Bakery	Confectionery	Distilling	Beer	Soft drinks
Sales revenues	+	+	+	+	+	+	+	+	+	+	+	+
Profits	+	+	+	+	–	+	+	+	+	+	+	+
Exports	+	+	+	+	+	+	+	+	+	+	+	+
Value of investments	+	+	+	+	+	–	+	+	+	+	+	+
Labour productivity	+	–	+	+	+	+	–	–	+	+	+	+
Asset efficiency	–	–	–	–	–	–	–	–	–	–	–	–

Source: calculations presented in Annex 17 on page 312.

in all the industries with the exception of milling and baking, where foreign ownership was initially low.

The *profits* category shows a less pronounced impact of foreign ownership, with a really significant influence detectable only in the vegetable oil and animal feed industries and in the manufacturing of beverages. The results again confirm the fact that the foreign companies soon adapted to Hungarian conditions and did not necessarily reveal the full extent of their profits. Foreign ownership nevertheless implies an improvement in profits, the only exception being in the dairy industry. Concentration and the fierce competition for market shares most probably detracted from the profits of the foreign-owned companies, causing domestic ownership to result in higher profits than foreign ownership in some instances.

Export sales demonstrate the unequivocal superiority of the foreign-owned companies, which show more intense exporting activities in every industry, most significantly in the poultry, vegetable oil, dairy, grain processing, confectionery and brewing industries.

The result in the case of the *value of investments* also points to vigorous activity on the part of the foreign-owned companies. Among the individual industries, this impact is highlighted above all in the case of vegetable oils, animal feeds and beverages.

The explanatory power of ownership structure in the field of *labour productivity* and asset efficiency is scarcely significant. Foreign-owned companies tended to be more productive than their Hungarian rivals in the entire food sector, but principally in the dairy and beer industries. Exceptions were the poultry,

animal feed, and bakery industries, where domestic ownership was a factor that increased labour productivity.

The influence on asset efficiency is mostly insignificant, although the sign attached to this parameter indicates a positive impact of Hungarian ownership in every industry. The result is not at all surprising, and is in compliance with earlier calculations based on the entire set of Hungarian enterprises. Major (1999) reported the advantage of domestic ownership for the return on fixed assets, and Szanyi (1998) attributed it to the age and composition of the assets, factors which differ considerably between foreign and domestically owned companies. The results of the current calculations lead to the conclusion that the same pattern also prevails in the food industry (Table 36).

A regression analysis for the individual food processing industries verified that foreign ownership has an influence on corporate performance. This impact is insignificant in the majority of cases, but owing to the nature of the *OSTR* variable, the positive or negative sign associated with it inevitably signifies better performance by one or other of the ownership types. The calculations revealed the advantages of foreign ownership in the case of most branches of food processing, especially the vegetable oil, dairy and beverage industries. Hungarian-owned companies appear to be competitive, at least to some extent, in the grain and poultry processing industries.

9.5. Summary

The objective of Chapter 9 was to analyse the impacts of foreign direct investments in the Hungarian agrifood sector, and in particular in the food industry. The decade-long presence of foreign capital has facilitated the drawing up of a balance of impacts, including both positive and negative ones. *Foreign-owned companies enjoyed considerable tax exemptions in the second half of the 1990s, but this burden on the state budget will be of a transitory nature.*

Foreign owners typically accomplished corporate rationalisation and performance growth by phasing out the functions of the companies within rural society and laying off part of the workforce. *Profit repatriation is practised in both legal and clandestine forms. Foreign-owned companies have greatly improved the international competitiveness of the Hungarian food processing industry,* and they have generated a stable and lasting demand for agricultural produce and been able to supply consumers with domestically manufactured, good quality foodstuffs. *The balance of impacts is complex, but the final assessment* over the span of the entire agrifood sector *cannot ignore the advantageous secondary or spillover effects experienced by agricultural producers and domestically owned food processors.*

The present analysis of the food industry investigated *the performance of foreign-owned and domestically owned processors.* Following corporate restructur-

ing and privatisation, *a pronounced disparity was detected between these two groups in the second half of the 1990s*, the predominantly foreign-owned enterprises enjoying unequivocal superiority over the predominantly domestically owned ones in terms of most indicators of corporate operation and performance.

Dynamic analysis of the corporate performance gap revealed a tendency for this to widen with time, the Hungarian owned food processors being unable to reduce their disadvantage between 1995 and 1998. A dominance by foreign-owned companies also prevails at the level of individual industries, with the exception of the poultry industry and the entire grain processing chain.

The superior corporate figures of foreign-owned companies translate into a *constantly improving performance on the part of the Hungarian food industry as a whole. Thus the calculations suggest a definite overall positive impact of foreign capital.*

Hungarian ownership appears to have an overwhelming effect on asset efficiency, although this is in fact a sign of worn out fixed assets. Although this feature coupled with low investment activities casts an ominous shadow over *the future of Hungarian-owned food processing, catching up is in principle still a relevant option under the present conditions and given the existing framework.* The current opportunities will most probably diminish if and when Hungary gains membership of the EU.

It is the responsibility of domestically owned food processors to determine how much they wish to utilise and take advantage of the spillover effects of FDI. Economic policy may alleviate their size-based disadvantages by means of a policy aimed at supporting small and medium-sized enterprises and permanent requirements and incentives for efficiency. The banking sector and capital markets can provide a solid ground for more investments.

These could contribute to the successful development of domestically owned processors, but in order to catch up with the high performers, they will have to be committed to state-of-the-art technology, perceptive of modern management techniques and prepared to take risks in order to implement new investments. Development should take place on the markets for particular groups of products which are driven by stable or growing consumer demand, and where there is reasonable room for expanding processing capacities.

262

10. Conclusions

This summary of the theoretical and empirical findings of the dissertation opens with a brief introduction to the unique global context that prevailed in the 1990s. A concise discussion of the core idea behind FDI-concentration maps, including the findings of dynamic and comparative approaches, lays the foundation for introducing the concept of a *global FDI-concentration map*. The chapter ends with political and economic conclusions regarding the Hungarian and other Central and Eastern European food industries and the possible agrifood implications of these countries' future accession to the EU.

10.1. Global Context

The world economy is heading towards integration at an ever-intensifying pace. Globalisation has become a substantial force shaping it, and trade in capital outpaced trade in goods and services in the 1990s, introducing an entirely new era. The growth in international production has entailed a global concentration of capital, generated by an increasing pattern of two-way capital exchange in the form of M&As activities among the developed countries.

The food industry has also become a global industry, as this concentration of capital and two-way capital exchange have also been effective factors in the world's food markets. Global products have been sold on global markets, in a process propelled by the emergence and consolidation of transnational companies.

In order to establish a wider economic context, the recent role of Central and Eastern Europe in the international trade in capital was examined at the beginning of this dissertation. Unlike capital exchange among the developed countries, this trade is characterised by a one-way capital flow, with the food processing sectors in the region included among the net capital recipients. The reasons for this are illustrated in Figure 66.

The fundamental socio-economic reforms that took place in Central and Eastern Europe happened to coincide with the period of accelerating globalisation in the world economy. Food production experienced years of recession in the entire region during the post-socialist transition. The daily operations of companies were hit by severe problems such as market difficulties, removal of state subsidies and the shifting of banking relations onto a commercial basis. The crisis in food manufacturing was exacerbated by a general economic recession, inflation, the restructuring of the agricultural sector and a reform in the ownership of food processing companies. The recession resulted in an acute capital shortage in the entire agrifood sector. Processing technology became outdated and the marketing problems were manifested in the form of redundant capacity.
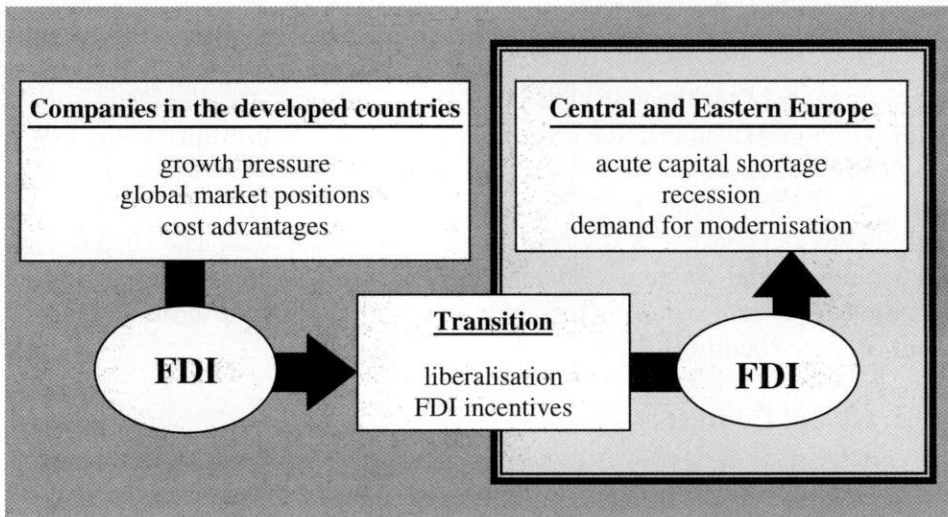
Figure 66. Reasons for one-way capital flows between the CEE region and the developed countries.

Simultaneously, companies in the developed countries were finding themselves in a situation of growth pressure, as their national food markets were becoming saturated. Food processors in the western countries have constantly had to improve their efficiency in addition to reinforcing their market positions.

Given the huge gaps in productivity and the level of technology and management techniques between the developed European countries and the post-socialist economies, any of these aspects of the prevailing economic conditions could have led to a one-way movement of capital between the two regions. It was the liberalisation in trade in goods, services and capital and the governmental incentives provided for FDI in the CEE region that finally opened the valve for a massive FDI influx (Figure 66).

10.2. Theoretical Results: The Position and Role of FDI in the SCP Paradigm

The one-way flow of capital was studied in this dissertation primarily from the viewpoint of the host economies, with the SCP paradigm for industrial organisation providing a framework for analysing the food processing industries. As far as the *theoretical contribution* is concerned, *the role and position of FDI within the causal relations of the SCP paradigm* were identified here. The mechanism in the mainstream or structuralist view is characterised by the basic [A] and [B] causal relations, which was supplemented here by the entry of an external element, FDI. The basic findings are associated with the inflow and impacts of FDI.

1. The absorption of foreign direct investments was shown to be determined to a significant extent by the market structure, as symbolised by the causal relation [C] in Figure 67. The existence of this direction of impact is fully supported by the empirical results presented in the dissertation. The economic interpretation is self-evident: the gaining of large, intact market positions is attractive for all new entrants into the market, i.e. for all new private owners, including foreign investors.
2. The impact of foreign ownership on the performance of companies and processing industries received confirmation, as signalled by the letter [D] in Figure 67. This causal relation is also effective indirectly, through complex impact mechanisms.
    2.1. First, foreign capital itself influences the market structure, in that the presence of financially strong foreign investors will alter market shares within an industry (relation [E]), while the usual causal stream will subsequently hold good. Hence, the causal chain can be expressed as:
    $$P = f([E];[A];[B])$$
    2.2. Second, foreign-owned companies affect market performance through the *Conduct* component of the SCP paradigm, as advertising expenditures, utilisation of technology and know-how of their parent companies determine their behaviour, which eventually governs their corporate performance.[90]
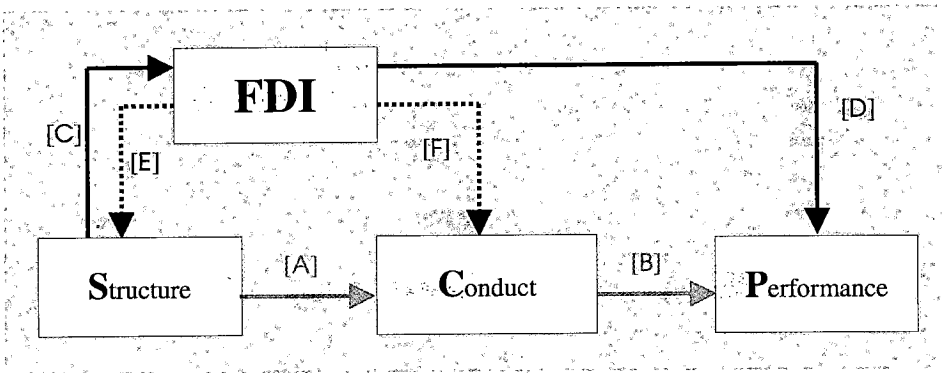
Figure 67. Position and role of FDI within the impact mechanism of the SCP paradigm.

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[90] Testing of the impact relation [F] was not set as an objective for the dissertation, owing to the unavailability of data and the non-quantifiable aspects of corporate conduct. The prevalence of this causal direction was therefore taken as proved *ab ovo* on the strength of earlier findings in the FDI literature (Caves 1996, pp. 90-97).

Using the labels of Figure 67, this impact relation gains the following specification:

$$P = g ([F];[B])$$

Although most of the causal relations were supported by empirical evidence obtained from the example of the Hungarian food industry, the similar economic environment implies extended applicability to other manufacturing industries. Nevertheless, it is relevant to narrow down the validity of the causal mechanism in the following way in the light of the results of this dissertation: *the position and role of FDI in the causal system lying behind the SCP paradigm apply (1) to a one-way capital flow among countries at different levels of development, and (2) to the industries of the host countries.*

10.3. Empirical Findings

Since the empirical investigation in the dissertation was targeted at the *quantification of FDI determinants and impacts*, it relied for its objectives on the traditions of the international literature concerned with foreign direct investments.

While many previous empirical studies have searched for FDI determinants in terms of countries, provinces, or manufacturing sectors, *the dissertation identifies the motives behind FDI at a new depth, investigating FDI determinants among the constituent industries in one particular industry by means of a cross-sectional analysis.*

Since the data show that industries differ in the ways in which they attract foreign investors, one objective of the regression model was to explain the uneven level of penetration of foreign direct investments into the various branches of the food industry by detecting the FDI determinants.

Market concentration (*CONC*) and profit rates (*P*) proved to be significant explanatory variables for FDI penetration. Profit rates lost their explanatory power by the middle of the 1990s, as profitability became negative in 1992 and remained so for a few years. The transitional recession, restructuring and privatisation that took place in the food industry, coupled with a decline in demand, had detrimental effects on company profitability. In the meantime, the motivating force of market concentration continued to be stable, so that this variable (*CONC*) retained a significant explanatory power over the entire decade.

The other variables remained insignificant in each model specification, i.e. the size of the market (*MS*) and export opportunities (*EXP*) apparently did not attract foreign investments. The insignificant explanatory power of the export variable proves that foreign capital in the food industry tends to make efforts to capture primarily domestic market positions rather than taking advantage of export possibilities.

The findings suggest that foreign investors consider the long-term aspects of profit, and the return on investments is in fact perceived in high market posi-

tions. Summing up the empirical results regarding FDI determinants, the investors' strong ambitions for market dominance suggest that *the market-seeking aspect was the principal driving force that motivated the investment of foreign capital in the Hungarian food processing industries.*

The FDI impact analysis was accomplished by a *segmentation of Hungarian food processors* based on their ownership structure and by *calculation of the performance gap. Both techniques verified the supremacy of foreign-owned food processors.*

Calculations of the static performance gap showed foreign-owned companies to be superior in the case of seven out of eight performance indicators. Domestically owned companies had the advantage only in asset efficiency, which is explained by the differences in age and mix of assets between the two groups.

The dynamic calculations disclosed a widening of the *performance gap* between 1995 and 1998, i.e. the disparity between foreign-owned and domestically owned food processors *is widening in the case of almost all the profitability, productivity and export indicators. In view of the more intensive investment activities of the foreign-owned food processors, a further widening of the performance gap may not be excluded in the future.*

10.4. Concept of the FDI-Concentration Maps

The most original achievement of the dissertation is the recognition of a relation between food industry FDI and market concentration, and it is on the basis of this that the concept of FDI-concentration maps was developed. The analysis of the Hungarian food industries provided empirical evidence for an interdependence between market structure and foreign direct investments. *FDI-concentration maps demonstrate the positions and array of the food processing industries in a given country at a given time, employing a system of coordinates determined by two attributes of the industries, concentration and the proportion of the total registered company capital that is in foreign ownership.*

10.4.1. Extending the Directions of the Maps

The analytical framework of the FDI-concentration map – initially developed for the Hungarian food industry – was extended into two directions:

1. The <u>dynamic approach</u> involved the construction of industry life-curves, tracing the route that a particular food processing industry has followed in the post-socialist transition up to the last year of observation.

2. The <u>comparative approach</u> extended the application of FDI-concentration maps geographically by using it for a comparative analysis of food processing sectors within the Central and Eastern European region.

10.4.1.1. General Trends in Food Industry Life-Curves in the CEE Countries

Life-curves were used to demonstrate the paths taken by given food industries on FDI-concentration maps, by plotting the yearly positions of these industries over a certain period on the same chart. The discussion of the dynamic approach began by identifying the forces that move industries on the map from one year to the next. The main forces proved to be economic policy measures, privatisation policy and the strategies and operations of market players in the given industry. *The life-curves of the Hungarian food processing industries share certain peculiar similarities, and most of them can be classified into four typical routes.*

As for the CEE food industries, there are two distinct types of path into which most of them can be classified (Figure 68):

A) Type A encompasses industries that have dominant firm or oligopolistic market structures. Foreign investors have been strongly motivated to buy the market leaders and large companies, pushing these industries along the upper path designated as A. The tobacco, beer and confectionery industries are the most typical examples of type A in Central and Eastern Europe. They used to contain one large processing company or a small number of such companies, and this structure was not changed even by privatisation.

B) The industries in type B also used to be fairly well concentrated, often having one trust, umbrella company or association which the paternalistic state had established by administratively merging most of the processing units operating in the same market or with the same group of products. The first-stage processing industries in many CEE countries were organised in this way for easier control and planning, but during the economic reforms in the 1990s the giant companies were split into individual processing units and sold separately within a "decentralised privatisation" scheme. Market concentration declined steeply as a result, but as FDI started to flow in, these industries were characterised by a firm reconcentration and consolidation process and moved towards the right on the map. This explains the U-shape characteristic of type B in Figure 68: Industries in different countries have proceeded at a different pace and reached different positions on the U-curve, but the pattern that they have followed remains similar and characteristic. Type B usually includes the most significant first-stage processing industries, such as dairy, meat, fish, milling or animal feeds.
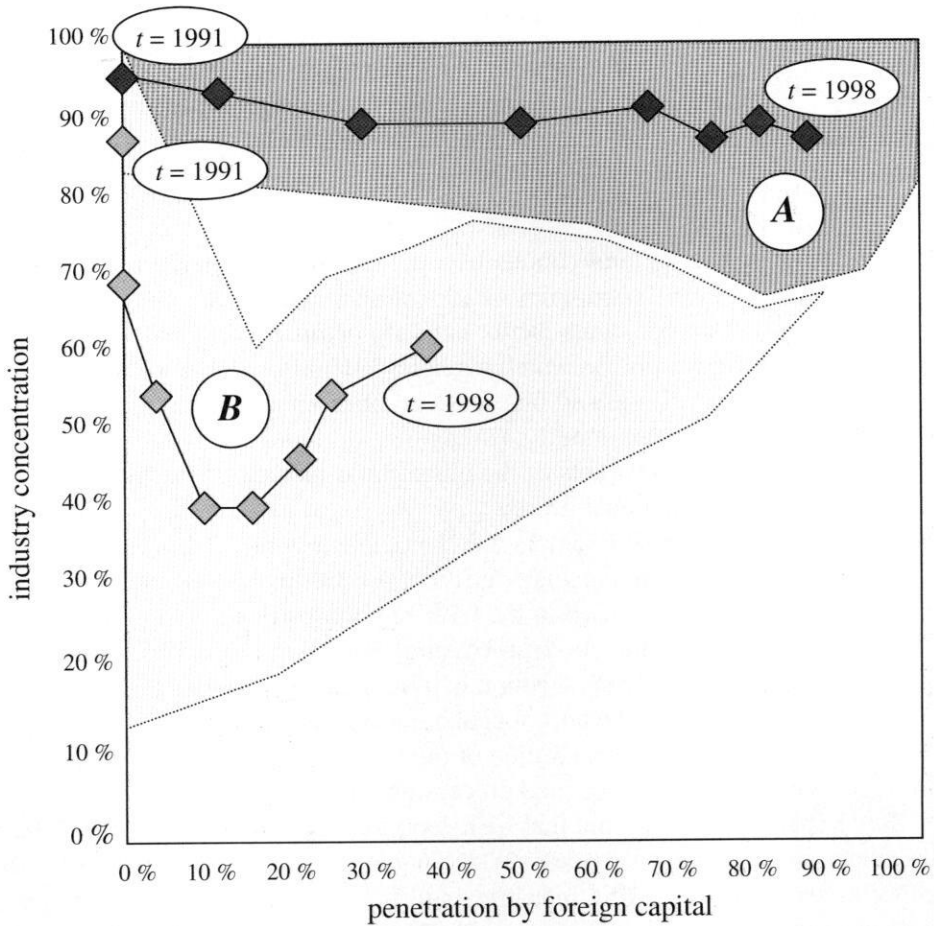
Figure 68. The two major types of industry life-curve for the food processing industries of the CEE countries.

The history of the food industries in the 1990s and the above main types of life-curves can shed some light on the process by which the food industries in all the Central and Eastern European countries have moved to reach a diagonal array, as observed on the national maps in this dissertation.

10.4.1.2. Findings from the Comparative Extension of FDI-Concentration Maps

The discussion on the comparative approach also started with a detailed description of the forces that determine the distribution of industries on national FDI-concentration maps. The forces were divided into internal and external factors:

1. Internal factors embrace immanent characteristics that prevail in the corresponding industries internationally regardless of the countries they are located in.
2. The external factors were further divided into three stages:
   (1) Food industry globalisation and its accompanying phenomena are the most important of the determinants exercising an effect worldwide.
   (2) National trade and competition policies, market size, transaction costs and economies of scale deserve emphasis among the general determinants at the national or macro-regional level. Government policy, which regulates FDI inflows and outflows, local competition and other special phenomena in the national economies, can modify, strengthen or hamper international trends in sub-markets of the global food markets at the macro-regional or national level.
   (3) The CEE-specific factors are characteristic only of the economies of the post-socialist transition. A series of such special factors can be identified in the CEE region: restructuring and privatisation of the food processing enterprises, economic and trade liberalisation, economic risk and a decrease of food demand during the post-socialist transition. All of these have an influence on the penetration of foreign direct investment and on concentration in the food processing industries.

It is imperative to point out that CEE food markets cannot be detached from the context of international rules: i.e. the companies operating in the globally concentrated food processing industries will permeate into the respective markets in Central and Eastern Europe with a high degree of probability. On the other hand, several of these popular industries were initially concentrated in the CEE host economies at the very beginning of the transition period anyway. The horizontal investigation into selected food processing segments, comparing the positions of the corresponding industries on the national FDI-concentration maps, revealed that foreign investors expressed serious interest and activity even in the case of several industries that were not concentrated globally, provided that they were concentrated locally.[91]

The comparative analysis performed here involved the food processing industries of five countries, Hungary, Poland, Estonia, Latvia and Lithuania. The findings can be summarised in the following points:

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[91] This was evident in the case of meat processing, milling and bakeries in the Baltic countries.

1. *A close correlation between market concentration and foreign di-rect investments can be detected in the food processing industry of each of these countries*, so that the two factors make up a complex impact mechanism. On the one hand, the concentrated food indus-tries attracted foreign investments, while on the other hand, the companies themselves consolidated the market structure, once for-eign investors had acquired them.

2. *The food processing industries of each country can be grouped into four distinct clusters*, named after their group characteristics on the global FDI-concentration map (Figure 69).

   [1] Concentrated industries, which have absorbed high foreign direct investment, constituting the *global cluster [1]*.

   [2] A group of industries of medium concentration with medium foreign investment participation, named the *middle cluster [2]* due to their intermediate location on the trend line.

   [3] Industries characterised by an atomised market structure and minimal foreign capital involvement, making up the *local clus-ter [3]*.

   [4] A *transition cluster [4]*, which encompasses industries with discrepant positions, i.e. concentrated industries which have absorbed very little foreign direct investment. The notion of transition refers to the special post-socialist features of this group, and at the same time illustrates the fact that most of the industries are expected to leave the cluster after a time, so that their position is only temporary, or transitional.

   It is important to note that it is the location of clusters relative to each other on each national FDI-concentration map that really mat-ters in the above classification, while the exact and absolute loca-tions of the clusters – slightly varying country by country – are of secondary importance in this respect.

3. The trend lines for the Baltic countries are located above those for Hungary and Poland, on account of their manifestly smaller food markets and food processing industries.

4. Although the food processing industries of Poland and Hungary follow the same trend, there is one substantial difference between the FDI-concentration maps for the two countries. *The Hungarian food industries tend to gather in the global cluster [1], whereas the Polish food industries typically congregate in the direction of the local cluster [3]*. Reasons can be found both in their different mar-ket sizes and in the discrepant privatisation strategies.

5. *Quite a few industries in the Baltic countries and Poland occupied positions in the area of the transition cluster [4],* which is ascribed to the effects of particular administrative, industry-specific or policy measures, and to a lesser extent to the incompleteness of privatisation.

Based on the findings of the comparative analysis of the FDI-concentration maps, the following conclusions can be drawn for the food processing sectors of the CEE region:

1) Foreign direct investments targeting the food industry in the region are predominantly of the "market-seeker", or rather "market dominance-seeker" kind.

2) An important group of determinants of the nature of the FDI-concentration maps is concerned with the size of the host countries and the magnitudes of their food processing industries.

3) Food industry privatisation constitutes a cardinal determinant in the formation of national FDI-concentration maps.

The political and economic lessons to be drawn from this analysis with regard to the Central and Eastern European food processing industries are summarised in section 10.6.

10.4.2. Global Implications of the FDI-Concentration Maps

The determinants that were listed at the beginning of the previous section shape the array of industries on the national FDI-concentration maps and lead to the recognition of global economic rules. The single most important *worldwide determinant is food industry globalisation*, since it concurrently engenders

(1) a concentration of the local food markets through the effects of global concentration, and

(2) a growth in the influence of foreign capital through the intensification of international production.

The two phenomena are tightly interrelated, and they exert their impacts concurrently, being propelled by each other. The global growth of food markets requires companies to pursue an international strategy and engage in active participation abroad, while international production will expand with the growth of foreign direct investment, further strengthening globalisation of the food markets. Thus the causal chain will return to its starting point, i.e. the impact mechanism operates in a circular manner.

The concurrent growth of international production and increase in the concentration of food processing and sales may be seen to prevail with different intensities in the individual food processing industries. The regularities and common patterns discernible in the globalising food markets suggest that the world's food processing industries can be typified by means of a global FDI-

272

concentration map.[92] Some industries grow to "global proportions", while others typically focus on local markets. There may also be a transitional or middle group of industries located between the two extremes on the map of global concentration and international production. The main trend line on the global map
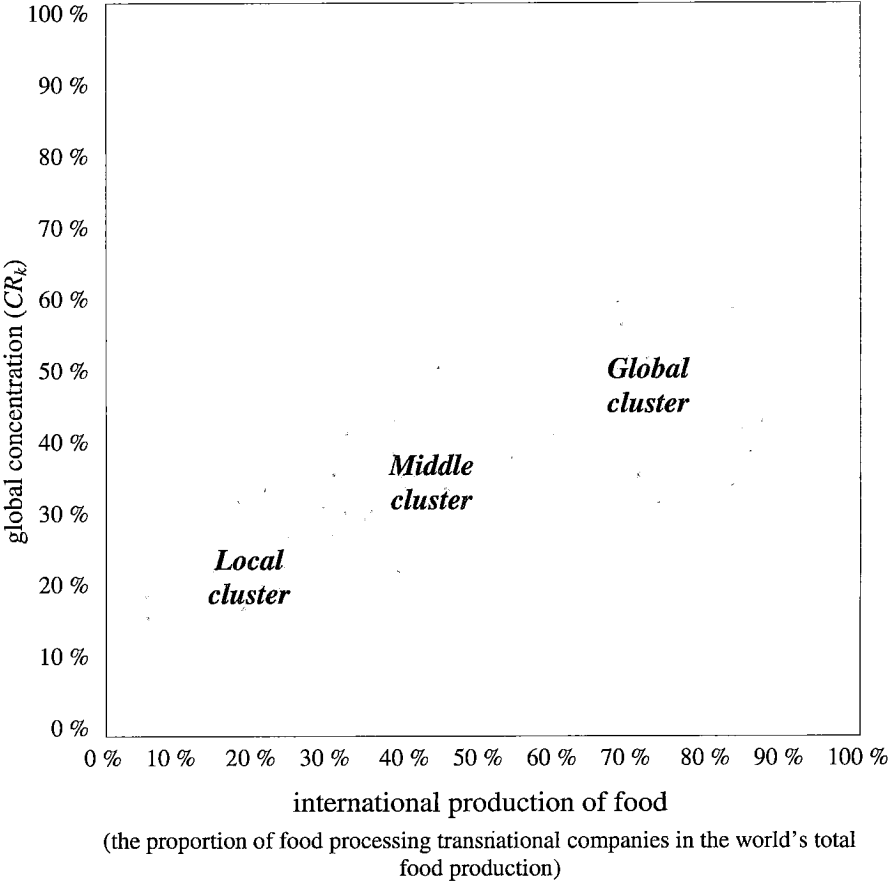
Figure 69. The clusters of food processing industries on the global FDI-concentration map.

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[92] The construction of a global food industry FDI-concentration map, as shown in Figure 69, is hampered by several impediments. On the one hand, no appropriate figures are available on international production, or on the proportion of the world's total production in the hands of transnational companies, while on the other hand, the diversifying inter-industry processing activities of multinational enterprises make calculations of industry-specific concentration on a global scale extremely complicated. Empirical verification of the relationship between global market concentration and international production in the world's food processing industries appears to present an extraordinarily serious challenge.

can with reasonable certainty be anticipated to be located lower down and to be less steep than the ones in the national FDI-concentration maps for the CEE region (Figure 69).[93]

The globalisation of food markets proceeds unequally in the cases of certain products and product groups, since individual food markets or food processing industries possess inherent characteristics that accelerate or hinder their globalisation. These discrepancies may stem from technological or demand-based differences, such as economies of scale or consumption patterns.

In order to comprehend the current nature of the global FDI-concentration map, we should start out from *the pre-globalisation period in the recent history of food processing*, when *all the food industries were initially located in the local cluster. Through globalisation, a polarised rearrangement began in which certain industries moved towards the terrain of a global cluster while others remained in the area of the local cluster.* Due to the different rates of globalisation, the food industries have made up a looser group, especially over the past two or three decades, stretching and expanding their positions from the local cluster along the trend area. It is most likely that the major direction of movement for most food industries will be towards the global cluster, provided that globalisation continues in the same way as it has in the past decades. The process raises an important question: *what are the ultimate driving forces that determine such a reformation of industry positions on the global FDI-concentration map?* The answers are to be sought in the inherent attributes of the food processing industries:

1. *Stage of processing – primary or secondary.* First-stage processing industries are directly connected with typically local raw material producers. The risk and danger factors of being exposed to raw material produced by the politically influenced agricultural sector definitely hinder the growth of international production. Second-stage processing industries are flexible and internationally more "mobile", as they are less dependent on or tied to local agricultural raw materials. Therefore, these companies show a greater propensity for international production and expansion. The typical first-stage processing industries, such as dairy, meat processing and grain processing, are located in the area of the local cluster, while the second-stage processing industries, including confectionery and beverages, are situated in the domain of the global cluster.

2. *Innovation, product development, R&D and branding.* The amount of intellectual property and capital embodied in the products has rapidly increased in many food processing industries. Intensive in-

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[93] The location of the trend line is obviously determined also by the coverage k of a global CR_k market concentration indicator.

novation supports the production of highly processed foodstuffs. Branding and the development of global consumption patterns are also of the utmost importance in the same group of industries. The high costs of innovation and research and development activities imply a necessity for high returns, for which companies are forced to seek M&A opportunities in order to exploit synergy advantages in the international arena. Consequently, these product groups are driven from the local cluster in the direction of the global cluster.

3. *Excise character.* Certain food processing industries enjoy a stable or even growing total demand on the world market, or else they represent much more favourable profit prospects than average for the food industry. A group of these products can easily be associated with the excise tax regulations of national governments. Owing to their market and profit perspectives, international production is excessive in these industries, and therefore they are located in the areas of the middle and global clusters. Spices, coffee, tobacco and alcoholic beverages typically belong to this group of products.

In summary, *the alignment of food processing industries on the global FDI-concentration map is driven by globalisation and the inherent characteristics of the particular industries.*

10.4.3. Further Applications

The real significance of *the global FDI-concentration map* lies in its wide potential applicability. It *can be a notable tool for measuring and demonstrating the stage of globalisation in any industry* in the economy *and*, by employing the dynamic approach, it *can facilitate a quantification and comparison of the speed of globalisation in any industry.* A number of manufacturing industries and service fields are globalising rapidly, prominent examples being the automobile, computer and telecommunications industries. The exploitation of economies of scale, homogeneous products and homogenising global demand and easy transfer of accumulated intellectual capital and knowledge are certainly among the determinants that have impelled the globalisation of some industries or services. Others, such as furniture production, housing or public utilities are to various extents tied to the locations where their products are manufactured and consumed, and hence are globalising only to a moderate extent. These industries may therefore be considered local in the terminology used on the global FDI-concentration map.

In a sense, the food industry may be looked on as a model for the whole heterogeneous sphere of manufacturing and service industries, since it consists of sub-industries ranging over the entire continuum from local to global characteristics. They provide a wide spectrum of clearly distinguishable, yet compact

markets of relatively comparable sizes and patterns. These facts have made food manufacturing a fascinating area for investigations concerning globalising industries. *The FDI-concentration map, a concept embodying the ultimate accomplishment of this dissertation, proved to be a relevant tool for analysing and understanding the reasons that make individual markets or groups of products –* while all part of a higher category, the food industry – *globalise at such largely disparate rates.*

10.5. Conclusions for the Hungarian Food Industry

This research served to reveal *the motivational factors that drove foreign direct investments in Hungary and in particular in its food industry.* The most important driving forces for foreign investments were the following:

a) *rapid corporate restructuring,*
b) *commercially based privatisation of the food industry,*
c) *rapid legal reforms and a predictable economic, legal and political environment,*
d) *abundantly available and inexpensive production factors: agricultural raw material, labour, existing food processing capacity,*
e) *tax exemptions.*

The motivational factors exposed here illustrate the power of attraction for FDI in two aspects, or two contrasting environments:

1. in the international field of the Central and Eastern European food sectors, and
2. in the group of all manufacturing industries within the Hungarian economy.

In my own personal viewpoint, *a form of food industry privatisation which favoured domestic ownership would have been beneficial and expedient,* if:

◆ restructuring of the food industry had been preceded by a restructuring of agriculture,
◆ opportunities had opened up for solving the immense capital shortage in the food processing sector by making use of internal public or state budget sources or the domestic capital markets,
◆ domestic ownership had involved a real injection of capital into the food industry as opposed to "fictive capital",
◆ alternative channels had been established for learning modern technology, know-how, management, marketing and logistic techniques,
◆ a quite windless period had been available for the long-term development of the food industry and it had not been just about to face an enormous international challenge, the internal food markets and fierce competition of the European Union.

276

Since none of the above conditions was met, *the single relevant development alternative for the Hungarian food industry* under the given set of historical and socio-economic conditions *was the involvement of external sources of the necessary capital.*

A retrospective appraisal confirms that in the common dilemma facing the food processing sectors in Central and Eastern Europe, *the Hungarian food industry privatisation policy chose the right option of "having strong but foreign-owned or weak but domestically owned food processing industries".* It is uncertain, however, to what extent the commercially based food industry privatisation was the result of a thorough and conscious policy. In other words, was the privatisation approach influenced by the interests of food processing and the agrifood sector, or was it driven by state budgetary interests and a series of ad hoc decisions? Although the real driving forces and government motives are disputable, the final outcome is beyond doubt: the privatisation of the Hungarian food industry has been successful by international standards, a statement which is powerfully supported by the findings in this dissertation.

The research also addressed the role of foreign owners in the performance of the Hungarian food industry. The comparison of performance indicators for predominantly foreign-owned and predominantly domestically owned food processors verifies the economic superiority of foreign ownership. Those Hungarian-owned food processors, which have been able to withstand competition from foreign companies and have been able to narrow the performance gap, will be well prepared for the challenge of the EU's internal food market in the future.

10.6. Conclusions for the Central and Eastern European Food Industries

The comparison of the situations in Poland, Hungary, Estonia, Latvia and Lithuania supports the observation that the concept of privatisation and its implementation were direct determinants of the inflows of foreign direct investment. The contrasts between these countries confirm that the other frequently employed alternative for food industry privatisation, which favours the agricultural producers or domestic private persons, does not result in a strong food industry or an efficient or solid set-up for the agrifood chain, while commercially based food industry privatisation, which attracts strategic domestic and foreign investors, reinforces the entire agrifood sector. *The dilemma of deciding between a strong but primarily foreign-owned or weak but domestically owned food industry is a strategic issue that has to be resolved in all the Central and Eastern European countries.*

An important lesson for the CEE region can be drawn from the example of the Hungarian food industry: *the foreign-owned food processing companies have relied on domestic raw materials.* This does not mean an unconditional commit-

ment, of course, since they offer a secure demand only for the best and most competitive agricultural producers, but they do indirectly impel agricultural producers towards improvements in efficiency and collective action. The final balance of benefits and costs has been positive in terms of the consolidation of vertical relations, and the presence of strong foreign companies has had a favourable influence on the future of agriculture.

Foreign ownership has also had a positive impact on the corporate performance of food processors. This is attributable partly to the improved technology used by foreign companies and partly to the rationalisation of processing capacity and the laying off of labour. Experience indicates that financial strength is only one reason for the serious performance gap between foreign and domestic-owned food processors. Besides, there is a significant psychological effect that prevents domestically owned companies from exploiting the growth and modernisation opportunities based on corporate rationalisation: i.e., due to a certain local, municipal or regional loyalty, and being involved in an interlaced local network of threads of interests, they are reluctant to shed labour or implement changes that may directly hit the economy of their surrounding region.

One of the most important lessons of this dissertation for the Central and Eastern European countries is the fact that *the domestic owner groups who were granted shares of the processing companies by administrative means or on preferential terms do not wish, or are not able* – for financial reasons – *to maintain their owner rights in the long run.* This statement applies primarily to agricultural raw material producers, but also to some extent to private persons and company employees who received these shares as a form of compensation. There are two options for national governments with regard to the ownership structure of the food industry in the future:

♦ They can continue to assist the financially weak owners who were granted shares in the food companies in the initial privatisation. This will ensure that the ownership structure of the food industry is conserved and postpone resolution of the problems of redundant capacity and obsolete technology.

♦ They can let the capital market work freely and allow the food industry to go through a process of painful but desirable self-purification, including the elimination of redundant capacity, bankruptcies and the concurrent development of vital and efficient companies and total modernisation.

In principle, the rapid development of local capital markets may facilitate participation by domestic owners. Domestic corporate investors and management have had relatively good chances of becoming strong company owners in the food industry, and they may also have access to external capital for the development of the companies. The capital supply and the creditability of other categories of domestic owners, such as agricultural producers, private persons and

employees, are limited, and their persistence as owners will not result in fast prosperity for the companies under the current economic conditions. Developments in the CEE banking sector and the profitability of the food industry together suggest that only restricted modernisation of food manufacturing has been possible on the basis of internal sources. The most realistic path for food industry modernisation is therefore free evolution of the ownership and market structure with the involvement of external capital.

The opportunity to absorb foreign direct investment and utilise the financial strength and intellectual capital of foreign investors in order to improve the competitiveness of the national food processing sector represents a notable development potential for the CEE countries, and it would be illogical to ignore this opportunity. Apart from the direct FDI incentives, the indirect factor of the economic environment can also serve as a catalyst, in which context the entire economic policy of the host country is an important determinant.

10.7. Conclusions Concerning the EU Membership of CEE Countries

The improvement of competitiveness will be of crucial importance both to the countries that aspire for EU membership and to those that are likely for the moment to remain outside the union, as the food processing sectors of the future member countries will be put to the test by the fierce internal competition that exists in the vast markets of the EU, whereas the countries outside will continue to face international competition from the EU.

Improving the competitiveness of the food industries is a strategic issue for the Central and Eastern European countries. The findings of this dissertation point to foreign investors as "unexpected allies" who share the same interests and are working towards the same goal. Although their participation is directly inspired by their own corporate strategy and interests, their activities largely contribute to the modernisation of the food processing sector in the CEE countries. The eventual decision will lie in the hands of the host governments, since the present results show that most of the FDI determinants can be influenced.

The presence and amount of foreign direct investment has important implications with respect to the future of food processors in the acceding countries. The production subsidiaries of foreign parent companies that already have stable and well-established positions on the EU markets will have good chances of withstanding the intensive competition, while the survival of locally owned food processors will be determined by the prevailing conditions, the competitive companies being able to survive and perhaps even grow. On the other hand, government policies, which postpone the elimination of redundant capacity and promote inefficient processors, will cause serious adjustment crises in a number of industries later. In the worst case, local food production may be partly or entirely replaced by the EU's internal trading, i.e. "internal imports", upon accession.

In order to obtain a proper assessment of the impacts of accession, two facts should be noted:

♦ The export subsidies that the EU's foodstuffs enjoy at present will be removed in the internal flows of goods; in other words, food processors in the EU will have to sell their products on the markets of the newly joining eastern countries at internal prices. This factor will alleviate the shock for the CEE food processing industries.

♦ On the other hand, the new member countries will be forced to open up their markets entirely and remove all import duties and regulations. This process is already at an advanced stage now, before accession, and the gradual removal of import tariffs constitutes one component of the association agreement and accession agenda for each country.

The domestic food processing industries of the CEE countries will rely on the consumers, and indirectly on food wholesalers and retailers. The pattern followed in the most recent new EU member countries, Austria, Finland and Sweden, proves that the existence of domestic food processing is a function of *domestic consumer loyalty*. Before accession, marketing campaigns were launched in all the three countries to accentuate further the initially strong consumer loyalty to domestically manufactured foodstuffs. The press and the (domestically owned) food wholesale and retail companies played a prominent role in these campaigns. Although the price levels of the CEE countries differ greatly from those of the most recent members to join the EU, the strategy of emulating the western and northern examples and *establishing a strong sense of consumer loyalty towards domestically produced food items may also be an important factor in the survival of the Central and Eastern European food economies.*

In principle, a domestically owned agrifood chain in which the individual segments were closely interrelated through cross-ownership relations could have been established as an ideal solution for the CEE agrifood sectors. Domestic ownership would, in fact, be very beneficial for agricultural raw material producers, at least in the first-stage processing industries. The structure of corporate ownership is well known and has proved feasible in a number of Western and Northern European agrifood supply chains, but there is no time to implement such a model in the present situation of the CEE countries.

The recognition of this leads us to the conclusion that if the countries wish to protect their agrifood chains and preserve their agricultural and food production within the European Union, less importance will have to be attached to emotional and national considerations than to potential economic benefits as far as the origins of the major owners in the food industry are concerned.

From an economic perspective, the attracting of food industry FDI and the presence of foreign companies in food manufacturing may be seen as a means,

or even a precondition, for resolving the problem of achieving the most rapid modernisation and most permanent development possible in the food economies of Central and Eastern Europe before accession to the European Union. This train of thought boils down to the final conclusion that *foreign direct investments flowing into the food sectors of the Central and Eastern European countries will result in mutual benefits for both the investors and the host economies.*

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Annex 1. NACE Rev 1 classification of food processing activities.

Denomination, NACE Divisions/Groups/Classes	Codes		
Manufacture of food and beverages		15	
Manufacture of meat and meat products	151		
Meat processing and preserving			1511
Poultry processing and preserving			1512
Manufacture of meat and poultry products			1513
Manufacture of fish products	152		
Fruit and vegetable processing and preserving	153		
Potato processing			1531
Manufacture of fruit and vegetable juices			1532
Other fruit and vegetable processing			1533
Manufacture of vegetable and animal fats	154		
Manufacture of oil			1541
Manufacture of refined oil			1542
Margarine			1543
Dairy processing	155		
Dairy processing			1551
Manufacture of ice cream			1552
Milling and starches	156		
Manufacture of milling products			1561
Starch			1562
Manufacture of feed	157		
Feed production			1571
Pet food production			1572
Manufacture of other foodstuffs	158		
Bread production			1581
Biscuit production			1582
Sugar			1583
Confectionery			1584
Pasta			1585
Tea, coffee			1586
Spices			1587
Homogenised and diabetic foodstuffs			1588
Other not specified			1589
Manufacture of beverages	159		
Distilled alcohol			1591
Etil alcohol			1592
Wine making			1593
Fruit wine			1594
Other non-distilled beverages			1595
Manufacture of beer			1596
Malt production			1597
Soft drinks			1598
Tobacco production		16	

Source: NACE Rev. 1

Annex 2. The 30 largest food processors in the world in 1998.

Company	Headquarter	Total sales (billion USD)	Estimate sales of food and beverages (billion USD)	Share of food industry sales in total sales (%)
1. Nestlé	Switzerland	49.7	47.2	95
2. Philip Morris	USA	74.4	32.7	44
3. Unilever	Netherlands/ UK	44.9	22.5	50
4. PepsiCo	USA	22.3	22.3	100
5. Diageo	UK	19.9	19.9	100
6. Coca Cola Co.	USA	18.8	18.8	100
7. ConAgra	USA	23.8	13.4	56
8. Danone	France	14.4	12.2	85
9. Sara Lee Corp.	USA	20.0	12.0	60
10. Mars	USA	15.0	12.0	80
11. IBP Inc.	USA	12.8	11.6	91
12. Asahi Breweries	Japan	11.9	11.1	93
13. Kirin Brewery	Japan	11.3	11.0	97
14. Anheuser-Busch Cos. Inc.	USA	11.2	10.7	96
15. H-J- Heinz Comp.	USA	9.2	9.2	100
16. RJR Nabisco Inc.	USA	17.0	8.7	51
17. Suntory	Japan	9.6	8.6	90
18. Bestfoods	USA	8.4	8.4	100
19. Snow Brand Milk Products	Japan	9.4	7.8	83
20. Tyson Foods	USA	7.4	7.4	100
21. Dairy Farmers of America	USA	7.3	7.3	100
22. Heineken N.V.	Netherlands	7.0	7.0	100
23. General Mills Inc.	USA	6.8	6.8	100
24. Cadbury Schweppes	UK	6.8	6.8	100
25. Kellogg Company	USA	6.8	6.8	100
26. Campbell Soup Comp.	USA	6.7	6.7	100
27. Nippon Meat Packers	Japan	6.5	6.5	100
28. Bunge International	Brasilia	13.0	5.9	45
29. Tate&Lyle	UK	7.6	5.7	75
30. Parmalat	Italy	5.7	5.7	100

Source: RABOBANK International (1999) The World Food Markets, Utrecht; cited by Szabó (2000).

Annex 3. FDI inward stock in Central and Eastern Europe by geographic origin (in percent).

Region of origin Host country	Central and Eastern Europe	European Union	Other developed[a]	Developing countries and other	Total
Belorus (1998)	11	65	20	4	100
Bulgaria (1998)	2	63	11	24	100
Czech R. (1997)	2	81	9	8	100
Estonia (1998)	2	77	10	11	100
Croatia (1998)	3	41	48	8	100
Poland (1997)	1	77	15	7	100
Latvia (1998)	13	53	15	19	100
Lithuania (1998)	3	57	16	24	100
Hungary (1997)	1	59	20	20	100
Moldavia (1998)	32	23	25	20	100
Russia (1998)	0	22	34	44	100
Romania (1998)	4	60	9	27	100
Slovakia (1998)	10	71	11	8	100
Slovenia (1997)	15	75	9	1	100
Ukraine (1998)	7	25	24	44	100

Source: UNCTAD (1999, p. 434). [a] Combined figure of Japan, Switzerland and USA.

Annex 4. Sectoral distribution of FDI inward stock in Central and Eastern Europe (in percent).

Sector Host country	Primer sector	Secondary sector	Tertiary sector	Other, non- specified	Total
Belorus (1998)	54	46	0	0	100
Bulgaria (1998)	0	54	43	3	100
Czech R. (1997)	1	45	43	11	100
Estonia (1998)	2	30	66	2	100
Croatia (1998)	0	60	18	22	100
Poland (1997)	1	45	44	10	100
Latvia (1998)	1	18	79	2	100
Lithuania (1998)	0	25	67	8	100
Hungary (1997)	2	39	59	0	100
Moldavia (1998)	0	33	56	11	100
Russia (1998)	13	35	40	12	100
Romania (1998)	11	46	31	12	100
Slovakia (1998)	1	47	51	1	100
Slovenia (1997)	0	38	53	9	100
Ukraine (1998)	4	43	40	13	100

Source: UNCTAD (1999, p. 435).

CR₄ – concentration rate

CR_4 – concentration rate

100% 90% 80% 70% 60% 50% 40% 30% 20% 10% 0%

0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%

proportion of registered company capital in foreign ownership

1998 1997 1996 1995 1994 1993 1991 1990 1992

Annex 6. Life-curve for the Hungarian poultry industry between 1990 and 1998.

CR_4 – concentration rate

100% 90% 80% 70% 60% 50% 40% 30% 20% 10% 0%

0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%

proportion of registered company capital in foreign ownership

1997 1998 1996 1995 1994 1993 1992 1991 1990

Annex 5. Life-curve for the Hungarian meat industry between 1990 and 1998.
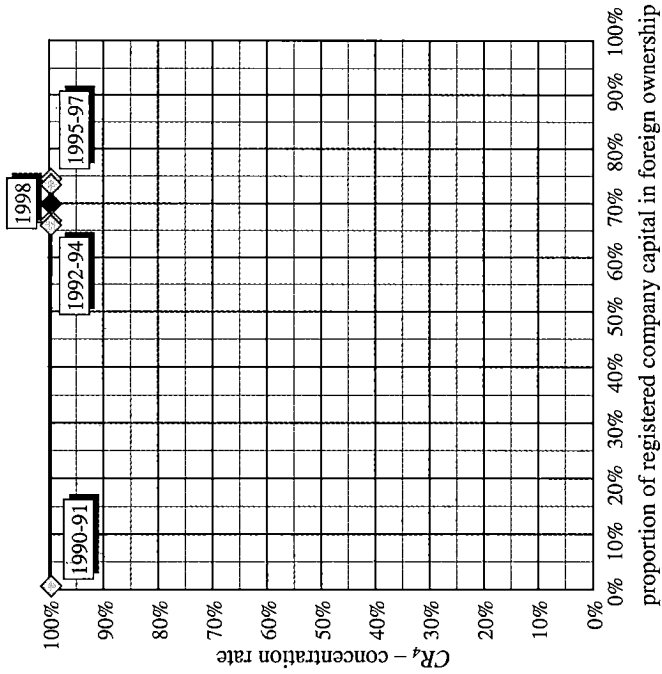
Annex 7. Life-curve for the Hungarian starch industry between 1990 and 1998.
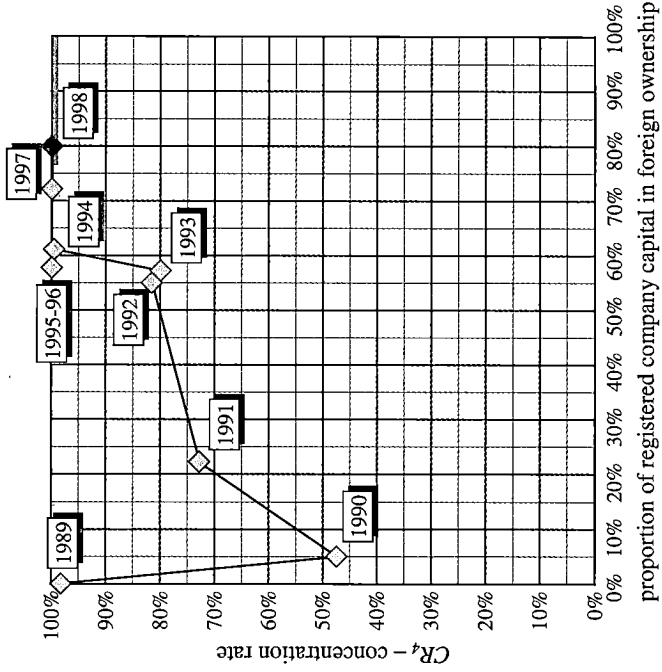
Annex 8. Life-curve for the Hungarian sugar industry between 1989 and 1998.

306

Annex 10. Life-curve for the Hungarian soft drink industry between 1989 and 1998.

Annex 9. Life-curve for the Hungarian confectionery industry between 1989 and 1998.

307

Annex 11. Top 30 food processing foreign investors in Poland in 1999.

Rank		Investor	Value of investment (million USD)	Country of origin	Activity/ industry
Food processing	Total list				
1	14	Reemtsma cigarettenfabriken	417.1	Germany	tobacco
2	16	Philip Morris	372	USA	tobacco
3	17	Coca Cola Beverages	360	UK	soft drinks
4	19	Harbin BV	325.9	Netherlands	beer
5	21	Nestle S.A.	309	Switzerland	confectionery/other
6	32	PepsiCo	203	USA	soft drinks/other
7	39	Heineken	180.7	Netherlands	beer
8	42	Mars Inc.	163	USA	confectionery/feed
9	49	Unilever	105	UK/ Netherlands	margarine/fish/ dairy/confectionery
10	57	Cadbury's Schweppes	126.5	UK	confectionery
11	58	Seita	120	France	tobacco
12	74	British American Tobacco	88	USA/UK	tobacco
13	78	Schooner Capital Corp.	40	USA	vegetable oil
14	79	Ferrero Holding	80	Italy	confectionery
15	80	BSN Gervais Danone	80	France	dairy
16	89	R.J. Reynolds Tobacco	70	USA	tobacco
17	90	Carlsberg	69.7	Denmark	beer
18	106	Cargill Inc.	60	USA	feed
19	114	McCain Foods	54	Canada	potato
20	115	EBS Montedison	53.8	Italy	vegetable oil
21	118	Bestfoods	52.1	USA	potato/other
22	126	Wrigley Jr. Co.	49	USA	chewing gum
23	127	Provimi Holding BV	48	Netherlands	feed
24	138	Schoeller	43	Germany	ice cream
25	140	Tchibo	42	Germany	coffee
26	143	British Sugar	41	UK	sugar
27	145	Pfeiffer und Langen	40.6	Germany	sugar
28	146	Brewpole Ltd.	40.1	Australia	beer
29	148	Diepensteyn NV	40	Belgium	beer
30	165	Campofrio Alimentacion	35	Spain	meat

Source: PAIZ (1999b).

Annex 12. Top food processing foreign investors in the Baltic countries in 1997 and 1998.

Foreign investor	Country of origin	Baltic subsidiary	Industry	Value (million USD)
Estonia				
Coca-Cola Getranke	Austria	Estonian Coca-Cola Drinks	soft drinks	18.7
Baltic Beverages Holding	Finland/Sweden	Saku Brewery Ltd.	brewery	5.4
Gustav Paulig AB	Finland	Paulig Baltic Ltd.	coffee, spices	5.2
Procordia Foods AB	Sweden	Pöltsamaa Felix Ltd.	fruit and vegetable	5.1
Cultor Oy/Cerealia AS	Finland/Sweden	Leibur Ltd.	bakery	4.7
Seven Up Netherlands	Netherlands	PepsiCo Estonia Ltd.	trade/soft drinks	3.5
Valio Oy	Finland	Tapila Ltd.	dairy	2.6
Latvia				
Coca Cola Getranke	Austria	Coca Cola Dzērieni, SIA	trade/soft drinks	16
Cultor Oy	Finland	Hanzas maiznīca/Rēzeknes maiznieks	bakery	11.2
Baltic Beverages Holding	Finland/Sweden	Aldaris Brewery	brewery	11
House of Prince	Denmark	Rīgas tabakas fabrika	tobacco	10
Cerealia AB/Melia Oy	Sweden/Finland	Rīgas Dzirnavnieks	milling	8.9
AB Chipsi Oy	Finland	Latfood, A/S	snacks	5.2
Norbiton Assets Inc.	USA	Gutta, A/S	soft drinks	3.3
Rakvere Lihakombinaat	Estonia	Rīgas Miesnieks	meat	2.8
ABC – CONTI GmbH	Austria	DRUVA	bakery	1.5
Cultor Oy	Finland	Baltic Feed SIA	feed	1.2
Lithuania				
Philip Morris International	USA	Philip Morris Lietuva	tobacco	62
Carlsberg	Denmark	Švyturys	brewery	45
Danisco sugar A/S	Denmark	sugar factories	sugar	33.8
The Coca Cola Co.	USA	Coca Cola Bottlers Lietuva	trade	31.5
Baltic Beverages Holding	Sweden/Finland	Kalnapilis and Utena	brewery	24
Kraft Food International	USA	Kraft Jacobs Suchard Lietuva	confectionery	23.5
EFFEM Inc.	USA	Masterfoods Lietuva	feed	15

Sources: Estonia: Estonian Food Processing Industry, Eke-Ariko (1998 p. 11); Latvia: Latvian Development Agency (http:\\www.lda.gov.lv, ref. October 2000); Lithuania: Country Information, Lithuanian Development Agency, 1999, Vol. 2. September-December, p. 8.

Annex 13. Agglomeration order and coefficients of cluster analysis – Poland.

Code of cluster	specification	Level of combining	Codes of combined clusters		Coefficients
1	Meat	1	1	3	0.0013
2	Dairy	2	8	9	0.0025
3	Sugar	3	1	2	0.0043
4	Fish	4	4	7	0.0058
5	Fruit and vegetable	5	5	16	0.0075
6	Vegetable oil	6	10	17	0.0102
7	Wine	7	5	15	0.0190
8	Bakery	8	1	8	0.0252
9	Milling	9	6	13	0.0321
10	Distilling	10	4	10	0.0361
11	Beer	11	12	14	0.0474
12	Soft drink	12	6	11	0.0600
13	Tobacco	13	5	12	0.0866
14	Potato	14	1	4	0.0988
15	Confectionery	15	1	5	0.1765
16	Feed	16	1	6	0.5106
17	Poultry				

The column groups: Industry (Code of cluster, specification), Level of combining, Agglomeration order (Codes of combined clusters, Coefficients).

Annex 14. Agglomeration order and coefficients of cluster analysis – Estonia.

Code of cluster	specification	Level of combining	Codes of combined clusters		Coefficients
1	Meat	1	5	11	0.0060
2	Dairy	2	3	8	0.0069
3	Fish	3	10	12	0.0071
4	Fruit and vegetable	4	4	10	0.0105
5	Vegetable oil	5	3	6	0.0187
6	Feed	6	5	9	0.0202
7	Bakery	7	2	3	0.0330
8	Milling	8	1	7	0.0716
9	Distilling	9	2	5	0.1739
10	Brewery	10	1	4	0.2086
11	Confectionery	11	1	2	0.5998
12	Soft drinks				

Annex 15. Agglomeration order and coefficients of cluster analysis – Latvia.

Industry		Level of combining	Agglomeration order		
Code of cluster	specification		Codes of combined clusters		Coefficients
1	Meat	1	4	14	0.0282
2	Sugar	2	6	7	0.0390
3	Dairy	3	5	6	0.0843
4	Fish	4	8	13	0.1104
5	Fruit and vegetable	5	10	15	0.1208
6	Vegetable oil	6	3	4	0.1235
7	Starch	7	8	9	0.1385
8	Bakery	8	5	12	0.1796
9	Milling	9	1	3	0.2208
10	Distilling	10	2	10	0.2695
11	Beer	11	8	11	0.2729
12	Tobacco	12	1	8	0.4287
13	Soft drinks	13	1	2	0.4868
14	Feed	14	1	5	0.6753
15	Confectionery				

Annex 16. Agglomeration order and coefficients of cluster analysis – Lithuania.

Industry		Level of combining	Agglomeration order		
Code of cluster	specification		Codes of combined clusters		Coefficients
1	Meat	1	4	6	0.0009
2	Sugar	2	4	7	0.0051
3	Dairy	3	11	12	0.0096
4	Milling	4	9	13	0.0101
5	Fruit and vegetable	5	1	4	0.0119
6	Fish	6	1	11	0.0295
7	Bakery	7	3	5	0.0427
8	Distilling	8	1	3	0.0671
9	Beer	9	2	9	0.0774
10	Tobacco	10	2	10	0.1044
11	Soft drinks	11	1	8	0.3619
12	Feed	12	1	2	0.6805
13	Confectionery				

Annex 17. Summary results of the descriptive regression – the impact of ownership structure on corporate performance in the Hungarian food industry.

	meat	poultry	fruit and vegetable	vegetable oil	dairy	milling	feed	bakery	confectionery	distilling	beer	soft drinks
Sales revenues												
constant	0.6947	1.4713	0.4854	0.0018	1.3360	0.7192	0.6811	0.1132	0.0794	0.1496	-0.0110	0.0340
OSTR	2.8660	11.8438	1.2173	7.8600	3.7918	0.1560	2.9530	0.3281	2.8666	2.8291	7.0963	4.5054
R^2	0.063	0.127	0.083	0.131	0.132	0.001	0.126	0.032	0.139	0.285	0.414	0.237
Profit												
constant	0.1939	1.2609	0.0045	-0.0061	1.1464	0.0394	0.0238	0.0017	-0.0519	0.0126	-0.0831	-0.1888
OSTR	5.1056	5.2609	0.0407	0.9730	-1.2735	0.5737	0.3943	0.0215	4.6303	1.1273	8.8279	6.6215
R^2	0.044	0.015	0.007	0.121	0.005	0.001	0.196	0.018	0.059	0.414	0.128	0.102
Export												
constant	0.1502	0.4684	0.1948	-0.0136	0.0702	0.0394	0.0212	0.0004	-0.0037	0.0234	-0.0029	0.0277
OSTR	1.1358	5.3645	0.7117	2.7982	0.5758	0.5737	0.5433	0.0723	0.8066	0.1842	0.5623	0.4044
R^2	0.057	0.133	0.079	0.126	0.135	0.104	0.178	0.053	0.149	0.045	0.267	0.099
Value of investments												
constant	0.0052	0.0116	0.0098	0.0017	0.0125	0.0057	0.0008	0.0009	0.0036	-0.0012	0.0003	-0.0031
OSTR	0.0242	0.0717	0.0135	0.0204	0.0779	-0.0046	0.1260	0.0205	0.0096	0.3082	0.0953	0.2169
R^2	0.047	0.073	0.015	0.166	0.072	0.003	0.351	0.030	0.033	0.390	0.207	0.124
Labour productivity												
constant	14970.8	16637.3	11486.0	10140.3	13341.4	11081.4	25297.0	5395.5	4967.7	7578.3	2282.7	6650.1
OSTR	4327.3	-5547.7	11293.7	14948.4	20127.2	58095.1	-2025.7	-712.4	6189.4	26156.0	26783.0	7006.4
R^2	0.002	0.003	0.030	0.035	0.119	0.098	0.000	0.000	0.064	0.037	0.192	0.073
Asset efficiency												
constant	5.1	4.8	1.9	2.4	3.4	2.1	3.4	3.3	2.5	1.3	1.5	2.5
OSTR	-3.8	-4.2	-0.3	-1.1	-1.4	-0.9	-2.2	-0.5	-0.8	-0.7	-1.0	-1.4
R^2	0.054	0.019	0.003	0.008	0.062	0.024	0.038	0.001	0.012	0.007	0.018	0.053

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