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SUMMARY OF THESES

by

Zsófia Jámbor

Theory and application of meso-level competitiveness through the example of the Hungarian dairy industry

PhD dissertation

Supervisors:

Dr. Gelei Andrea, PhD
Professor

Dr. Dobos Imre, DSc
Professor

Budapest, 2020

Institute of Business Economics
Department of Logistics and Supply Chain Management

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Contents

I. Research background and rationale for the topic

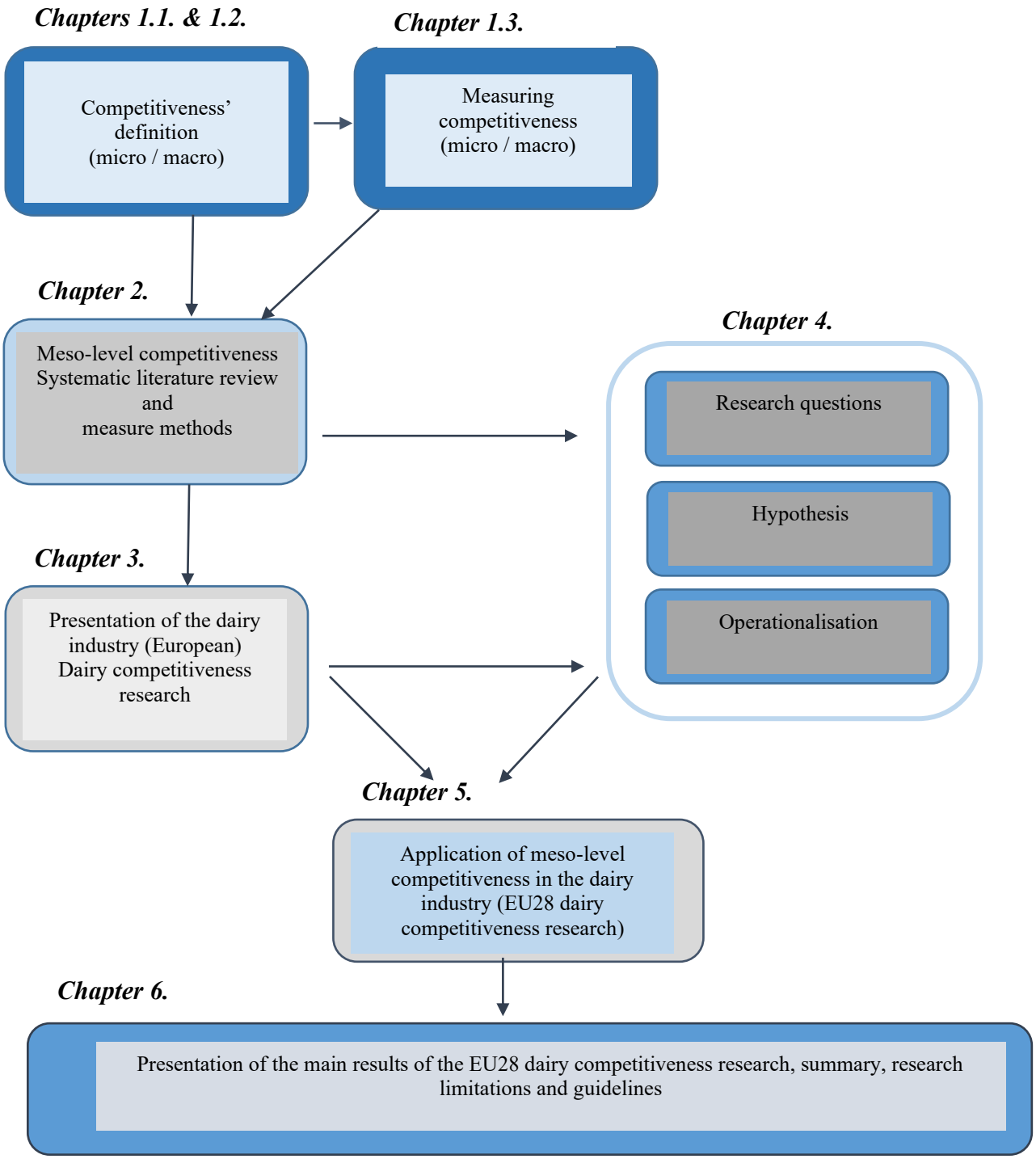
The focus of my research is the study of competitiveness. Within this broad and rich literature area, I aim to systematize meso-level competitiveness in the literature and to apply it within a selected industry to the dairy industry.

At what levels can competitiveness be interpreted? How to measure competitiveness? What makes someone or something successful, or why does it fail? How to increase competitiveness at a given level? In recent decades, a number of governments, national and international organizations, researchers have tried to answer the above questions, and a number of scientific dissertations and debates can be searched and read, so the available literature is very rich, there are many definitions, approaches and interpretations. Due to the abundance of available scientific work, several researchers refer to the competitiveness literature as "fuzzy" (Markusen, 1999; Lall, 2001; Hall, 2007; Buzzigoli and Viviani, 2009), which stems from the complexity of the phenomenon.

In my dissertation, focusing on a part of this multifaceted concept, I undertake to define industry measurement, its measurement possibilities, and their empirical application and investigation. As an industry chosen for the empirical study of industrial competitiveness, I focus on defining and examining the competitiveness of the dairy industry, seeking answers to the following questions. How is the competitiveness of the dairy industry developing in the Member States of the European Union? What factors affect the competitiveness of the dairy industry in the Member States of the European Union?

Because of the complex phenomenon of competitiveness, I consider it important to begin our thinking by examining the broader literature, which begins with an analysis of the literature on the two extreme levels, micro- and macro-level competitiveness. The two levels of competitiveness came to the attention of economics and economics at the earliest, these are the basis, so I consider it essential to examine them. I can place the theory of meso-level competitiveness in this broader conceptual system and define the meso-level competitiveness interpreted by the dissertation on the basis of the processed literature.
The logical structure of the dissertation is shown in the figure below (Figure 1).

Figure 1. – The logical structure of the dissertation



Source: own construction, 2020

The first part of the dissertation discusses the theoretical background of competitiveness, the approach of economics and business administration. Next, I present the definition of two different basic test levels of competitiveness (micro and macro levels), their development path, and possible measurement methods. I deal in detail with the theory of meso-level

competitiveness that focuses on my dissertation. Following a more general literature analysis (which also covers interpretations within the meso-level), a systematic literature analysis of industry competitiveness follows PRISMA methodology. This literature analysis is based on articles and studies in both domestic and international literature, using studies in the databases of Web of Science and Matarka, and then I formulate the definition of meso-level competitiveness used in the dissertation. I then turn to the application for which I present a selected industry, the dairy industry. Here, I turn to consumer habits and the regulatory environment, as well as previous competitiveness research in the dairy industry. After delving into the dairy industry, using the created definition of industry competitiveness, I formulated the specific research questions of the dissertation, as well as its hypotheses and sub-hypotheses, as well as the applied methodology and research limitations. This is followed by the presentation of the results of the empirical research based on the research plan outlined earlier, and then I summarize the most important results of the dissertation and outline possible research directions for the future.

II. Theoretical overview

Before defining meso-level competitiveness, which is the focus of my research, I had to complete a number of tasks to create a theoretical framework. As a starting point, I started from micro- and macroeconomic definitions from an economic and management science approach, and then I reviewed the meso-level, industry competitiveness with a systematic literature analysis. I also collected the measurement methods, so at the micro level: financial and accounting indicators, market analysis indicators, corporate competitiveness indices, groups; at the macro level: groups of trade rates, international trade indices, complex competitiveness indices. This chapter provides a brief summary of this, but for reasons of length, I will not go into more detail on measurement methods.

At the micro level, competitiveness and the competitiveness of products or services are closely linked, and competition, ability to compete and gaining positions relative to competitors appear in all definitions. Each of the micro-level definitions of competitiveness presented in the dissertation indicates an ability, namely the ability to produce products and services that are more attractive than its competitors at the company level, which means success.
Based on the presented definitions, I use the following definition as a relevant term for my dissertation: *"means the ability to gain a position in the market competition or to stand up to each other's competitors"* (Török, 1999: p. 74).

When interpreting macro-level competitiveness, we define the ability of a national economy, in which case the performance of the national economy, the success of competition in international competition (or vice versa) appears, and which enables its citizens to increase their welfare in a sustainable way and use resources as efficiently as possible. Based on these, for the purposes of my dissertation, I use the definition of Chikán and Czakó (2005: p. 15) as an interpretation of macro-level, competitiveness in the national economy. According to this, *"the ability of a national economy to create, use and sell products and services in the context of global competition while increasing the returns of its own factors of production and, at the same time, the well-being of its citizens in a sustainable manner. The condition for this competitiveness is to promote resource productivity growth by continuously maintaining*

conditions that increase the efficiency of companies and other institutions". In the definition, the emphasis is on ensuring the well-being of citizens and the efficient use of resources, in addition to the internationalization of the products and services produced.

The conceptual system of meso-level competitiveness, similar to the national level competitiveness, is a concept disputed in the literature, its boundaries are blurred and often difficult to interpret. Depending on whether you approach it from a company level or a national level, its interpretation may vary. There are two major directions, one is to define it at the industry level and the other is to interpret it at the regional level. These are not mutually exclusive, but rather have side-by-side or even complementary features. The following table lists regional and industry competitiveness definitions within meso-level competitiveness (Table 1).

Table 1. Regional and industrial competitiveness definitions

Author(s), source	**Year**	**Regional / industrial**	**Main message**
Huovari et al.	2002	Regional	• encourage, support and attract various economic activities • citizens achieve relative prosperity
Lengyel, I.	2003	Regional	• to achieve a relatively high income and a relatively high level of employment
Meyer-Stamer	2008	Regional	• the ability of a locality or region • to achieve high and growing incomes • and to improve the livelihoods of those living in the region
Dijkstra et al.	2011	Regional	• to provide an attractive and sustainable environment for businesses • to provide an attractive and sustainable environment for those living in the region
Czakó, E.	2005	Industrial	• should be interpreted in relation to foreign industries • the industries of the most important sales markets of the domestic industry, and the industries of the leading countries in world trade
Bhawsar and Chattopadhyay	2015	Industrial	• a set of interregional or internationally competitive companies in which the companies bring a profitable return on investment
Czarny and Zmuda	2018	Industrial	• the overall success of companies means the development of competitive industries and sectors

Source: own construction, 2019

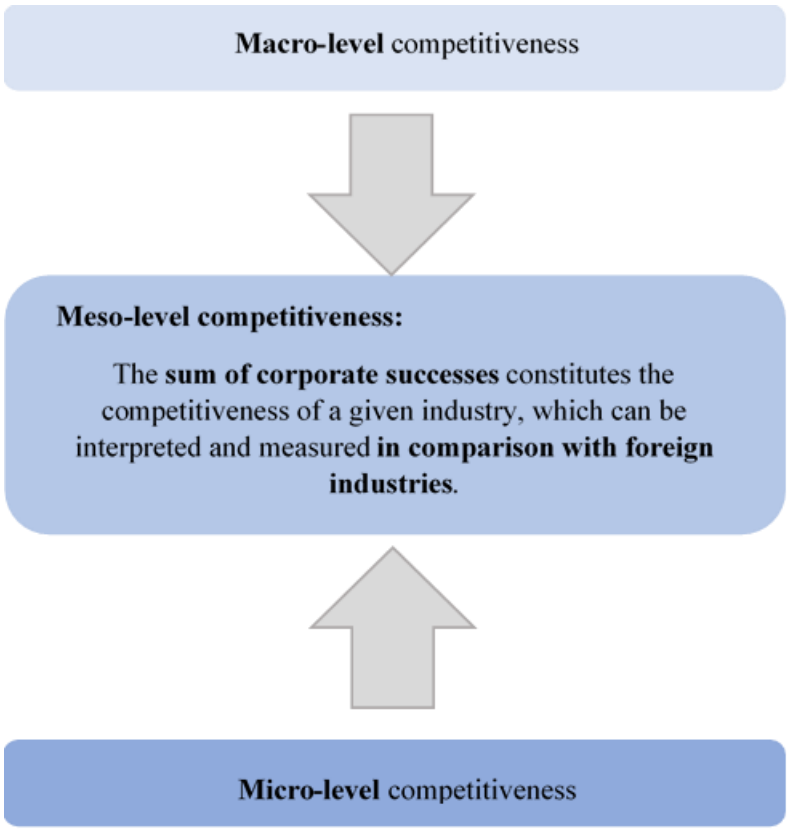
Based on the domestic and international literature presented and analyzed above, I define the meso-level competitiveness in the focus of my dissertation as follows:
We call meso-level competitiveness the totality of the successes of domestic companies operating in a given industry (sector, sector), the extent of which can be determined in the international comparison of the given industry (sector, sector), so in the comparison of domestic industry (sector, sector) with foreign industry (sector) to establish

To explain this definition, I refer back to the work of Nelson (1992) and Capello (2005), i.e., by meso-level competitiveness, I mean and examine industry (sectoral, sectoral) competitiveness. For interpretation at the meso level, I consider it essential to emphasize the direction of the shift from the micro and macro levels. In the case of competitiveness, defined in the first half of the definition as the totality of the successes of companies operating in a given industry, I mean the upward shift from the micro level based on the wording of Czarny and Zmuda (2018). According to this, micro-level competitiveness can only be interpreted at the company level, in the case of summing up experiences, achievements, successes and failures, we are already talking about the industry level. In the case of the interpretation of micro-level competitiveness, the focus is on product-level competitiveness based on the comparison with the product (service) produced by the competitors.
Using Czakó's (2005) formulation of industry competitiveness, I interpret its breakdown from the macro level as meso-level competitiveness, since the basis of comparison is the comparison and interpretation of domestic and foreign industries. Thus, although the basis of comparison is even a comparison of a country that would refer to a macro level, it does not mean a macro level in my interpretation. This is only a comparison for a given industry, which does not measure and interpret the competitiveness of a given country as a whole. According to my interpretation, the macro level includes the interpretation and measurement of country-level competitiveness, which is not limited to a single industry (sector, sector), but examines the country as a whole, the nation and the achievement of national economic performance (for example: GDP, employment, labour productivity). in addition, it offers growth opportunities for the citizens of a given country (Aiginger et al., 2013).

And if we look at the industry, sectoral and sectoral formulation of the definition, at the meso level it is possible to compare domestically produced product groups with foreign product groups, which product groups also mean the competitiveness of a sector, sub-sector or branch.

The above line of reasoning and the derivation of the meso-level competitiveness definition are intended to be illustrated in the following figure, Figure 2.

Figure 2. - Derivation of a meso-level competitiveness definition



Source: own construction, 2019

III. Research method

From the literature analysis, I have collected the following findings, from which my research questions follow, and they will be answered by the established hypotheses:

- industry competitiveness in the literature is limited in the field of agricultural economics (e.g. Albaladejo, 2010; Beno, 2017; Cimpoies, 2013; Ignjatijevic et al., 2013; Savic et al., 2012) and within this to the dairy industry (e.g. Bojnec and Fertő, 2008a, 2014; Drescher and Maurer, 1999; Dillon et al., 2008; Tacken et al., 2009; Jansik et al., 2014), the number of industry competitiveness researches is more typical for other industries and sectors of industrial production. or service sector competitiveness (e.g., mining Lyshenko et al., 2018; wood processing Sujová et al., 2015; manufacturing Olczyk and Kordalska, 2018; pharmaceutical industry Cai et al., 2018; textile industry Bilalis et al., 2006).
- the number of currently recent (ie the last few years also belong to the period covered by the analysis) and long-term (15-20 years) industry competitiveness analyzes is rare (eg: Balogh, JM 2016, Jámbor et al., 2018), typical of performing analyzes for a few years (3-10 years) (e.g., Lyashenko et al., 2018; Beno 2017). Regarding the competitiveness of the dairy industry, I did not find an analysis of the competitiveness of the dairy industry examined within the EU within the last 5 years, the latest data examine the competitiveness of the European dairy industry until 2011 (Bojnec and Fertő, 2014).
- the number of studies in a larger, economically, socially closely related area (eg ASEAN Member States, Loo, 2018; for the European Union, Bojnec and Fertő, 2014) is rare. It is more common to perform analyzes focusing on the specific industry of a country or the industry of a smaller region (eg Visegrad countries, Beno, 2017).
- The number of analyzes examining the relationship between the degree of factor supply and competitiveness in the dairy industry is small (Dillon et al., 2008).

Based on the above, in line with the literature, 2 research questions are identified as follows:

Q1: How is the competitiveness of the dairy industry developing in the Member States of the European Union?

Based on the definition given above, the hypothesis and its two sub-hypotheses seek to answer the question of whether the competitiveness of a domestic dairy industry lags behind

that of a foreign dairy industry in an international comparison. Based on the definition, the hypothesis and its two sub-hypotheses seek to answer the question of whether the competitiveness of a domestic dairy industry lags behind that of a foreign dairy industry in an international comparison. For this purpose (fixing or narrowing the scope of the foreign dairy industry to be examined) I compare the dairy industry competitiveness of the European Union member states with the domestic dairy industry competitiveness.

H1: The competitiveness of the domestic dairy industry lags behind that of the EU Member States.

- *H1a: The competitiveness of the domestic dairy industry lags behind that of the EU15 Member States.*
- *H1b: The competitiveness of the domestic dairy industry lags behind the competitiveness of the dairy industry of the Central and Eastern European Member States.*

Accepting the method published in the literature, I perform the analysis by calculating the index of the Revealed Comparative Advantages (RCA index, Balassa, 1965) and the indices presented in subsections 1.3.2 and 4.2 of the dissertation for industry, including the dairy industry.

Another important question is to what extent a given acquired competitive position changes during the study period, i.e. the issue of stability is examined (Hinloopen and van Marrewijk, 2001; Fertő, 2003; Utkulu and Seymen, 2004; Seyoum, 2007). Hypothesis H2, as well as the related 2 sub-hypotheses, examine whether the competitive positions acquired by the domestic dairy industry, compared to the competitive positions acquired by the foreign dairy industry, were durable and constant in the examined period. The acquired competitive positions are basically worth examining here for product groups during a given period, in order to be able to monitor the change or even the stability of the competitive positions formed in a given sector during the examined period.

H2: The competitive position gained by Member States in the EU dairy industry was stable during the period under review, ie between 1999 and 2018.

- *H2a: The acquired competitive positions of the domestic dairy industry were more stable compared to the acquired competitive positions of the dairy industry in the EU15 Member States between 1999 and 2018.*

• *H2b: The acquired competitive positions of the domestic dairy industry were more stable compared to the acquired competitive positions of the dairy industry in the Central and Eastern European Member States between 1999 and 2018.*

I test the hypothesis on the basis of two types of stability tests (base year and diet probability matrix methods) based on the work of Hoekman and Djankov (1997), Hinloopen and van Marrewijk (2001), and Fertő (2003).

Q2: What factors affect the competitiveness of the dairy industry in the Member States of the European Union?

In connection with the second research question, with Hypothesis H3, I assume that milk production with higher milk yields also results in a dairy industry with more competitive dairy products. Testing the hypothesis may provide an answer to the question of whether the dairy industry with a high milk yield means indeed also a dairy industry with a higher competitiveness in the European Union.

H3: Higher milk yields result in higher dairy competitiveness in EU Member States.

To test the hypothesis, I compare the milk yield data of the Eurostat database for the EU Member States with the indices of the comparative advantage of each dairy product group.

My fourth hypothesis and its related sub-hypotheses examine the extent to which the supply of classical factors of production (land, labour, capital) influences the development of competitiveness in the dairy industry of the European Union. The hypothesis is based on the assumption that the competitiveness of the industry in countries with better factors of production is also higher in milk production and for different groups of dairy products. As Couillard and Turkina (2015) found in their research, agriculture in general is highly dependent on factor supply, so it can be concluded that higher factor supply increases the competitiveness of agriculture.

H4: EU Member States with higher factor supply have higher competitiveness in the dairy industry.

• *H4a: Higher supply of land, labour and capital all results in higher competitiveness of the dairy industry.*

• *H4b: The level of agricultural support increases the competitiveness of the dairy industry.*

To test the fourth hypothesis, I identify the factors determining the comparative advantages of the dairy industry in the European Union by estimating the following regression model (the more detailed content of each variable can be found in Table 2):

$$\ln RCA_{it} = \alpha_0 + \alpha_1 \ln TEJHOZ_{it} + \alpha_2 \ln FOLD_{it} + \alpha_3 \ln TEHLET_{it} + \alpha_4 \ln MUNKA_{it} + \alpha_5 \ln MGRESZ_{it} + \alpha_6 \ln TOKE_{it} + \alpha_7 \ln TEJTAM_{it} + \alpha_8 REGIO_{it} + v_i + \varepsilon_{it}$$

where

i is the unit of analysis (country),

t means the observed time interval (year),

V_i an error term that shows a constant country effect over time,

ε_{it} and an error term that varies from country to country and over time.

Table 2. - Main variables and its characteristics involved into testing

Variables	**Description of variable**	**Source of data**
RCA	Revealed comparative advantages index and alternatives (RCA, RMA, RTA, RC, RSCA)	World Bank, WITS
TEJHOZ	Milk yield: the amount of milk given by a cow per year (tonnes / cow)	FAO
FOLD	Land supply: utilized agricultural land / total population (1000 ha / person)	World Bank, FAO
TEHLET	Dairy cattle supply: total dairy cattle / total population (cows / person)	FAO
MUNKA	Labour supply: agricultural labour / total active workers (Ratio)	World Bank, FAO
MGRESZ	Share of agriculture in GDP (%)	FAO
TOKE	Contribution of agriculture to GDP * GDP / capita (thousand USD / person)	World Bank, FAO
TEJTAM	Milk production subsidies (thousand euros)	European Committee
REGIO	Binary variable for EU28 Member States: value for EU15 Member States 1, otherwise 0	own grouping

Source: own construction, 2019

IV. Results of the dissertation

The focus of my doctoral dissertation was the theory of meso-level competitiveness and its application. In the theoretical unit of the dissertation, I went into detail about the available literature on meso-level competitiveness. The starting point was the concepts of micro- and macro-level competitiveness. In addition to the theoretical framework, I gathered the possibilities of measurement methods. A significant part of the theoretical part of the dissertation is a systematic literature analysis, which aimed to examine the available literature on meso-level competitiveness. In the dissertation, I then applied the measurement method accepted in the literature to determine meso-level competitiveness, using the index and its variants of the manifest comparative advantage. For this, I took the example of a chosen industry, the dairy industry.

Following this logic of the dissertation, I have collected the following new and novel results, which I would like to list as a contribution of the dissertation to the available scientific knowledge. New and novel results include both theoretical and empirical results:

- Systematic literature analysis of meso-level competitiveness.
- Application of meso-level competitiveness theory to the dairy industry.
- A trade-based study of the long-term competitiveness of some EU Member States in the dairy industry.
- Priority study of industry competitiveness for Hungary.
- Examining the stability of the competitiveness of the EU Member States in the dairy industry.
- Identification of the factors behind the different performances of the dairy industry.

Although the literature on competitiveness research is very rich, it basically focuses on two major levels, micro-level (i.e., corporate) and macro-level (i.e., country) competitiveness research. The conceptual definition of meso-level competitiveness is also difficult, it is difficult to draw boundaries in the study circle. Yet, based on the available literature, two major directions seem to emerge, regional and industry competitiveness as meso-level competitiveness directions. However, it is important to note that although these are two directions and interpretations, the phenomenon of industry, sector and regional competitiveness cannot be separated in many cases.

For my meso-level literature analysis, I performed a systematic analysis according to the PRISMA protocol. As a result, I identified the main directions of meso-level competitiveness, the main research areas, sectors and applied methods. As a result of the analysis of the literature (which also included the analysis of the international and domestic literature), I chose the method used for empirical research, the method of comparative advantages. To the best of my knowledge, the systematic literature analysis method used in the dissertation according to the PRISMA protocol has not been dealt with in the Hungarian language literature before. I did not find this type of systematic analysis for the analysis of the meso-level competitiveness literature or the competitiveness literature in general in the Hungarian literature.

After defining meso-level competitiveness, I attempted to apply it. For this, I chose the dairy industry in its field of application. I considered a long period of 20 years, between 1999 and 2018, as the research boundary of the research, and the 28 EU Member States that still existed in 2018 as the geographical boundary. When examining the competitiveness of the industry, I gave priority to the situation of the domestic dairy industry, so in the hypotheses I also examined the competitiveness of the 15 previously associated member states and the 13 associated member states after 2004 separately. I compared the development of Hungary's dairy industry competitiveness to these.

Overall, the competitiveness of the domestic dairy industry has faced a competitive disadvantage for the sector as a whole throughout the 20 years under review, none of the emerging comparative indices and their variants have reached the lower limit of competitiveness, so it is in the last third of the ranking for the EU as a whole. away from the Hungarian dairy industry. However, I considered it important to examine this period at the product group level as well, as we get a slightly more nuanced picture based on the results at the product group level. It is quite difficult to delimit the range of dairy products, yet a logical grouping is offered by the World Bank's classification of HS04 product group 6, on the basis of which different dairy products can be classified into 18 product groups. Some of these product groups require lower processing (eg different fat processing of milk), while other product groups require higher processing (eg cheeses, products made from natural milk ingredients).

Based on the above (ie examined at the level of dairy product groups), it can be said about the Hungarian dairy industry that 3 product groups were identified that proved to be competitive

during the period under review. Two of these represent the lower processing product range (processing of raw milk with different fat contents, ie milk and cream with a fat content not exceeding 40110, not exceeding 1%, without concentration, and milk and cream with a fat content of between 40120, 1% and 6%, without compression). Another product group represents a product range with a higher level of processing, the range of products made from natural milk ingredients (40490) (eg. milk protein concentrate). The latter product range means a wide range of uses in the pharmaceutical industry, it is further processed in the meat industry, and it means a product that requires complex technology. From the point of view of Hungary, specialization in the product range with a higher level of processing can be a goal and an opportunity to break out.

Comparing the averages of the EU15 and the 13 new Member States product groups and the processing needs of dairy products, it can be observed that the EU15 comparative advantage index values (and other versions of the index) exceed the EU13 results for almost all higher processed product groups. That is, the newly acceded Member States are more at a disadvantage than the EU15 in producing dairy products that require more sophisticated processing technology. For the EU13 and thus, of course, for Hungary as well, this kind of unfavourable product structure can be detected during the whole period under review, which is a serious challenge for the majority of the newly acceded Member States.

Based on described above, I accept both sub-hypotheses H1a and H1b and hypothesis H1, that the competitiveness of the Hungarian dairy industry lags behind that of the EU Member States.

In addition to the competitiveness study carried out for Hungary and other EU member states, I also considered it important to examine the stability of the acquired competitive positions for the indicated period. The question was how much the positions acquired (whether positive or negative) changed over the period. Whether the dairy industry in a given Member State has held a stable position while retaining the comparative advantage it has acquired or may have lost that advantage over the years. It may have kept the former competitive disadvantage stable in a given Member State's dairy industry, meaning it could not break out in 20 years. Is there a change in the direction of certain Member States? A series of questions came up.

The two methods used in the study are to examine the change from the base period to another period using a correlation coefficient of the manifest comparative advantages and by using transition probability matrices. In this case, too, I split the study into the 15 Member States

that joined earlier and the 13 other Member States in order to make any discrepancies more visible. Based on the results, it can be said that the EU15 Member States retained their previously acquired positions better during the period under review. The competitive position of the Hungarian dairy industry resulted in lower stability compared to other Member States.

Based on the above described test results, I reject sub-hypotheses H2a and H2b. The acquired competitive positions of the domestic dairy industry were not more stable either compared to the EU15 or compared to the Central and Eastern European Member States between 1999 and 2018. Thus, I reject Hypothesis H2 itself, as it is only partially true that the competitive position of the Member States was stable during the period under review.

In connection with my second research question, I examined the most important explanatory factors behind the competitiveness of the dairy industry, using the method of corrected errors in panel estimation and dynamic panel models. In the case of regression models, I also performed the separation of the EU15 and the newly acceded Member States.

The results confirm that, as expected, there is a positive relationship between milk yield and dairy competitiveness based on the model regarding the relationship between milk yield and competitiveness. In other words, the goal set during milk production, ie the increase of milk yield, the results of husbandry technology in dairy farms, animal husbandry technology, feeding (feed quality, its composition), modern technologies and knowledge appear in animal husbandry, thus increasing the sector's competitiveness.

Based on a further result of the model, in those Member States with a lower share of agriculture, the dairy competitiveness score is higher. This is in line with international trends, as the most competitive economies worldwide have a low agricultural share / weight (see USA, Australia, etc.). The fragmented production structure and the large number of small farms can also be considered a feature of Central and Eastern Europe, which does not improve competitiveness. In addition, however, it can be seen that this is a capital-intensive sector. It is clear from the results that modern dairy industry requires capital and knowledge, the application of modern technologies is essential.

Perhaps the most interesting result of the regression models is the negative impact of milk subsidies on competitiveness. It can be concluded that subsidies should be treated with caution. Based on the results of the model, it can be said that the competitiveness of the dairy industry cannot be improved or developed with the existing subsidies linked to milk. It is much more important to create a capital-intensive sector that enables the application of

modern technologies in line with Industry 4.0, outstanding achievements with modern expertise, support for large-scale farming in both milk production and processing, and specialization in more processed dairy products. Although the scope of these subsidies provides some assistance in the short term, support to the actors of the sector, of course, the competitiveness of a sector cannot be based on this model.

Based on the above described test results, I accept Hypothesis H3, according to which higher milk yields result in higher competitiveness of the dairy industry in the EU Member States.

H4a, so higher supply of land, labour and capital, all results in higher competitiveness of the dairy industry, I partially accept its sub-hypothesis. I reject the sub-hypothesis of H4b, so that the level of agricultural support increases the competitiveness of the dairy industry. Thus, overall, I partially accept Hypothesis H4.

There are several limitations to my research, and thus to the dissertation itself, and I consider it essential for the dissertation to describe them and take them into account in this part of the dissertation. Research constraints belong on the one hand to the research methodological group and on the other hand to the constraints of research boundaries. The limitations belonging to the methodological group of the research are basically related to the index and variants of the applied comparative advantages and the stability study, as well as the limitations caused by the source of the data, the available or not attainable data. I discussed these methodological limitations in more detail in subsection 4.3 of the dissertation. The size limit defined in the dissertation was limited in time to the period between 1999 and 2018, and in terms of its geographical boundaries to the Member States of the European Union. It was appropriate to draw this geographical boundary, yet the presence of this research constraint must be reckoned with. As trade in dairy products is not limited to the Member States of the European Union, major milk-producing and milk-processing countries can be ranked in the world (USA, New Zealand, India) (FAO, 2020). An additional limitation is the independent use of the applied method, as opposed to the use of the complex competitiveness method.

Based on my research results and research limitations, future research directions can also be outlined. On the one hand, as a complement to meso-level competitiveness research, I consider it important to complement research at the enterprise level. By finding and presenting best practices in Hungary, they can help and set an example for other actors in the

sector. Thus, returning to the definition of industry competitiveness formulated in the dissertation, the totality of corporate successes would increase industry competitiveness.

On the other hand, referring to the methodological research limitations defined in Chapter 4 of the dissertation, it would be worthwhile to expand the research presented in the dissertation by including macroeconomic indicators, thus nuancing the results obtained in the dissertation.

Thirdly, I would find it interesting to repeat the research presented in the dissertation after a few years, supplementing the period under study with later years. This is because, with the withdrawal of Great Britain on 31 January 2020, a Member State that has played a significant role in several industries, including the dairy industry, on both the import and export side, is a large milk-producing and milk-processing Member State. . The effects of Britain's exit I think would also become visible in terms of competitiveness. A further argument in favour of extending the investigation period is that we are unfortunately living in a period of a pandemic. The effect of the coronavirus on the competitiveness of the dairy industry can yield interesting results, even though it is a staple food. In addition, we can get surprising results from comparisons with other food industries. Finally, an additional research direction is the extension of the studied region to other regions or even to the whole world, and the comparison of these research results with the results obtained in the dissertation.

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