GROCERY RETAIL MARKET CONCENTRATION CONVERGENCE IN EASTERN EUROPEAN AND BALTIC EU MEMBER STATES IN 2010-2019

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Abstract. The paper analyses market concentration development in the Chech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Slovakia and Slovenia. It is determined that these countries have a converging market concentration tendency indicating a decrease in the competition level and becoming more homogeneous. At the same time there are strong indications for market concentration being linked also to retail turnover.

Keywords: *retail, competition, market concentration*.

JEL code: L11, L81

Introduction

This paper looks into potential convergence of market concentration. The territory of research encompasses the eastern European and Baltic countries that joined the EU in 2004. The period of research starts in 2010 to coincide with the period after the 2008 financial recession to avoid usage of data from economically volatile periods. The latest data stems from 2019. One of the main questions is weather the grocery retail markets have become more concentrated due to increasing power of leading retail chains and if this process is converging among countries due to effects of the single EU market. Tools of analysis will be Herfindahl-Hirschman Index, variance statistics, models of main tendency and correlation analysis.

Literature Review

Development of the retail sector has been analysed in different contexts during past ten years. Authors in different countries have observed the development of this industry as well as the influence on other characteristics of retail. In some cases the analysis has been purely descriptive and showed an increase in market concentration in the Russian retail sector (Sigarev, 2018), an increase in most Central European countries in 2010-2015 with the exception of Hungary (Špička, 2016) and the same tendency in Croatia (Kovac, 2020). Also, in Slovakia similar trends have been observed in a research looking into concentration from the point-of-view of supply chains (Kita, 2019) and concluding that this concentration growth can be linked to radical changes in distribution channels. There seems to be a quite typical development in many European countries for larger retailers to increase their dominating role in the retail sector. Concentration analysis has been topical also in other regions. An extensive research has been done in Australia (Hambur, 2019) spurred by the fast growth of price comparison technologies and emergence of highly integrated global supply chains. The results indicated a certain market concentration increase in last two decades with a slight decrease during the last few years before the research was done.

From a broader point of view, several factors have been attributed as the influencing force for increasing market concentration. In a research done in the United States of America investment in intangible capital has been argued to influence the concentration in industry (Crouzet, 2019), although the effects have been not the same in all industries.

Further research on this topic outside of current methodology in the region analysed could include analysis not only of the whole retail industry, but also segments within the industry. This notion is based on similar analysis done in Saint-Petersburg, Russia (Dengov, 2016) where the authors concluded that emergence of multiformat chains had changed the competition landscape. The segmentation of the industry had led to a situation, where concentration can be analysed within a segment of the retail industry, thus creating a more detailed overview of the market development. Another potential direction of analysis is a combination of prisoners' dilemma game model with concentration (Ezeala-Harrison, 2016) where USA market analysis indicates a higher concentration leading to increased pricing and possible collusion between the competitors.

If market concentration is increased, certain negative results can be observed. It has been suggested to be an enhancer of bargaining power imbalances (Rebolledo, 2020) that is a certainly an unwelcome trait in a free market system. Another negative effect discussed in literature is the impact on end-consumers. A merger of two German retail companies has led to an increase of average prices (Rickert, 2018) and no significant increase in regions that did not experience rise of concentration.

Research results and discussion

The chosen territory includes countries that joined the EU in 2004. This enlargement included eastern European and Baltic countries – the Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Slovakia, Slovenia. The author chose to analyse this group of countries due to several reasons. These countries have a common historical background, all of them have been part of the communist bloc in the 20th century, all these countries have a geographic proximity, they joined the EU during the same year. As a result, the author believes that these countries have been in a similar development trend and that allows for a coherent analysis of processes in the retail market. Additionally, many of these countries share the same retail chains.

The main indicator for analysis is the distribution of market shares in these 8 countries of grocery retail stores. The data comprises the time period from 2010 to 2019 and includes a varied number of companies in each market. Different development has been observed in each country.

The Czech Republic had a relatively large number of retailers active with the number of retail grocery stories varying from 35 in 2010 down to 29 in 2019. At the same time the market share of the market leader has increased from 18.6% to 26.7% in this time period. A close-by country, Hungary, had the opposite tendency in the number of retailers. From 2010, the number has increased from 21 up to 24 in 2019. And moreover the leading retailer had a decrease in the market share. If at the peak in 2011 the top retailer controlled 17.3%, it was down to 12.5% in 2019. This makes Hungary a unique country with a decrease in the leader position and an increase in the number of stores. Poland is in a sense similar to the Czech Republic in the general tendencies of its retail market. The number of retailers has varied from 32 to 28. But the leader position is significantly different from other neighbouring countries and was 11.2% in 2019 and increased to 20.9% in 2019. This doubling of the leading position is a strong sign for a high change in market concentration, but it will be analysed in greater depth later in the paper. Slovakia has experienced moderate change in retailers' quantity but also a significant increase of the leading position. If the number of companies has changed only from 28 to 32, the leader had an increase of approximately 50% from 19.2% in 2010 up to 30.3% in 2019. Slovenia, on the other hand, had a very small increase of companies from 14 to 15 and an uncharacteristic decrease in leader market share from 33.3% to 28%. It must be noted that the leader has been a different company in different time periods.

In the Baltic region, Estonia had an increase in number of grocery retail chains from 26 to 28 in the period from 2010 to 2019 and the market leader had a significant market share growth. In general, this is a very stable situation in the observed territories with no significant changes for almost a decade. Latvia, however, had a decrease of retailers from 31 to 26 in the period of 2010-2019 and the leader had a slight increase from 23.3% up to 27.5% in 2019. The third Baltic country is Lithuania and, compared to others, it had a quite a moderate development in these numbers. The number of retailers has decreased from 34 to 32 and the leader had lost appr. 2 percent points by going down from 37.7% in 2010 to 35.4% in 2019.

The variance in market shares and number of companies cannot be used as a meaningful statistic to come to conclusions in regard of the level of competition in these countries. Thus, a market concentration indicator must be used. The basic approach would be to refer to the concentration ratio of *n* leading retailers, but this ratio is not applicable in this case. One reason is the necessity for the analyst to choose the value *n* for the number of top retailers to be included in the analysis. That leads to a certain level of subjectivity. Another reason is the simplicity of this indicator that can lead to incoherent conclusions in countries with several large retailers.

To compensate for these deficiencies, the author will rely on the Herfindahl-Hirschman Index for market concentration analysis. This index has a general advantage over concentration ratio in that it uses all the market shares of all companies without ignoring smaller members of the market. The HHI index is calculated as sum of squared market shares. The expected range is from 0 to 2500 points. A higher number indicates a higher market concentration.

An HHI value below 100 points indicates a highly competitive industry. There are a lot of small companies competing in the market. A value above 100 points and still below 1500 points signifies an unconcentrated industry. Once the HHI reaches 1500 points and more, up to 2500 points, we can conclude that we have a moderate concentration level in the market. 1500 points is usually considered as a border between high and low concentration. If the HHI is above 2500, then the market analysed has a high concentration.

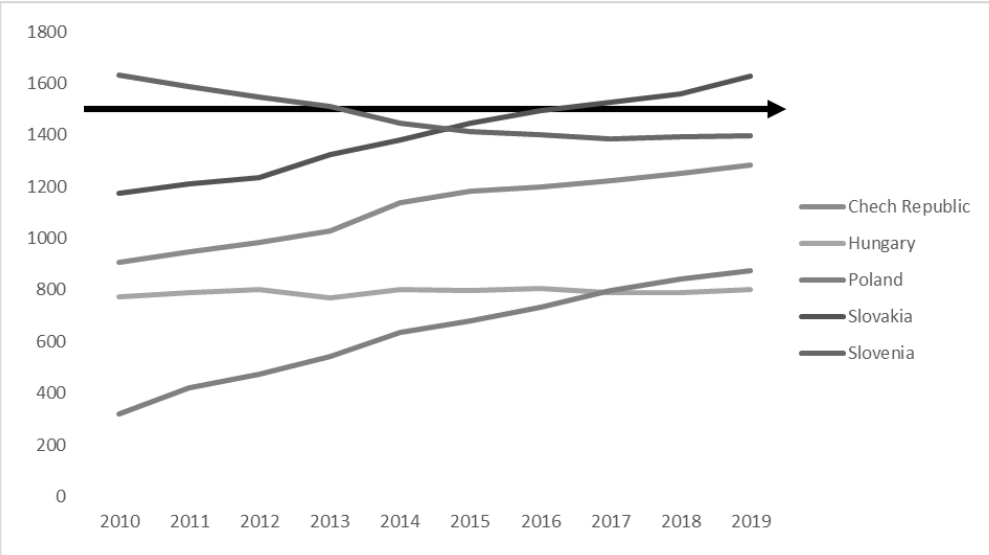
Table 1

Development of Herfindahl-Hirschman Index in selected countries from 2010 till 2019

Year	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
The Czech Republic	906	947	982	1030	1136	1183	1198	1224	1253	1285
Estonia	1233	1247	1244	1260	1274	1290	1290	1300	1318	1282
Hungary	775	789	803	771	800	797	805	789	791	803
Latvia	1283	1294	1329	1323	1356	1391	1428	1502	1573	1595
Lithuania	1875	1855	1818	1848	1842	1930	1761	1656	1661	1700
Poland	322	422	472	543	637	679	734	799	843	875
Slovakia	1173	1211	1233	1326	1381	1447	1492	1526	1557	1627
Slovenia	1634	1588	1546	1510	1445	1411	1402	1386	1391	1397

Source: author's calculations based on Euromonitor

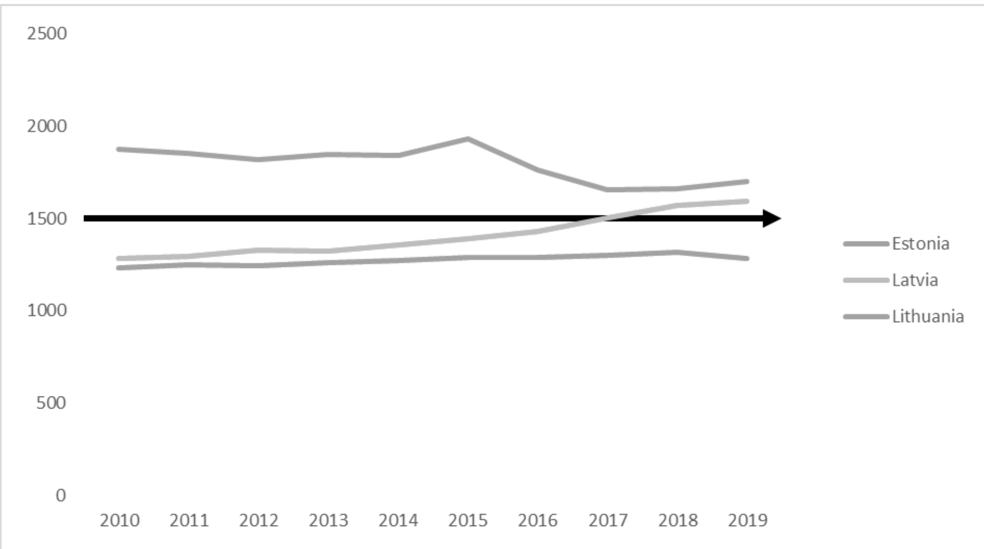
The countries under analysis show a large variety of development trends for the analysed market concentration. If we consider the initial period of the research in 2010 and a few following years, there is a considerable variety among the countries. Poland has a low value of 322 compared to Lithuania with a very high level of 1875. So, there is reason to believe that there was a very different starting point in these countries. On the other hand, in 2019 the situation has become much more stable. Poland has been surpassed by Hungary as the country with the lowest HHI value with 803 points. And the leading country is still Lithuania, but now the concentration by HHI has decreased to 1700 points. Overall, there are different tendencies. For the sake of ease of comparison, Eastern European countries have been analysed separately from the Baltic countries.



Source: author's construction based on Euromonitor

Fig. 1. **Dynamics of market concentration in selected Eastern European countries from 2010 till 2019**

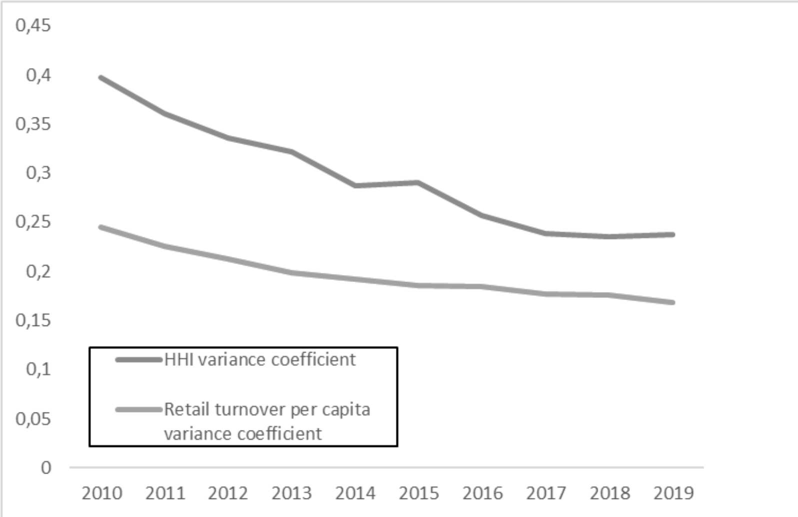
In the region of Eastern Europe the highest growth has been observed for Poland. On average the HHI score has been increasing by 11.8% per year and the total growth rate was 172%. No other country has demonstrated such a significant change in the market situation. Poland is followed by the Czech Republic and Slovakia with similar growth tendencies. The Czech Republic had an HHI increase of 41.9% and average increase of 4.0% per year and Slovakia had an HHI increase of 38.7% and an average increase of 3.7% per year. On the other end of the spectrum are Slovenia and Hungary. Slovenia is the only country with decrease in HHI and thus market concentration in general, and Hungary had no significant change at all. Slovenia had a 14.5% total HHI decreased averaging to 1.7% per year, and Hungary had a mere 3.6% total increase averaging to 0.4% per year – basically a stall.



Source: author's construction based on Euromonitor.

Fig. 2. **Dynamics of market concentration in selected Baltic countries from 2010 till 2019**

If we observe the Baltic States, these three countries seem quite different from one another in their development tendencies but are very similar when compared to Eastern European countries in general. Latvia is the country with the growing market concentration and had an overall HHI growth by 24.2% and an average growth rate of 2.4% per year. Estonia is the country with a stable market and HHI has increased only by 3.9% and average of 0.4% per year. Lithuania is the country with the decrease and had the HHI drop by 9.7% in total and by 1.1% per year.



Source: author's construction based on Euromonitor

Fig. 3. **Convergence of market concentration and retail turnover per capita in Eastern European and Baltic countries, 2010-2019**

The author assumed a convergence tendency in the analysed countries. The assumption was based on several possible development factors. By joining the single market, the analysed countries started a growth of retail markets in general and that contributed to interest of larger companies to invest in these markets. All countries observed economic growth in the period from 2010 to 2019 that contributed to an increased retail market value in total. Due to policies by the European Union aimed at developing the new member states, economic growth in these states was relatively higher than in older member states of the European Union. Thus, the GDP growth in new member states and general convergences of economic development have been the objective of the European Union from the start. At the same time the author assumes that there could be additional effect of market concentration also converging in the analysed countries. To analyse market concentration convergence, a specific value must be used. One of the options for analysing convergence is to calculate the standard deviation for each year for all observed countries. These values show a decrease of the Standard deviation. In 2010 the Standard deviation of Herfindahl-Hirshman index was 457 points; in 2019 it had decreased to 314 points. Thus, we can assume that there was a convergence of market concentration. At the same time the mean level of market concentration increased from 1150 points to 1320 points. So, at the same time we can observe a favourable process of convergence and a less favourable process of increasing domination of a few large retailers.

Since the author mentioned an increasing retail value, it was determined to check if the retail value of these markets also increases. To compare such different countries, the retail value of these countries was recalculated per capita for each year observed. For the resulting data to be tested for convergence, standard deviation was also calculated for each year. It also showed a decrease from 0.31 million euro per 1000 inhabitants in 2010 to 0.29 million euro per 1000 inhabitants in 2019.

The calculations of standard deviation do not allow it to compare convergence of both market concentration and relative retail value. To fix this issue the variance coefficient was used to make these values comparable, as can be seen in Figure 3. Based on the development of the variance coefficient we can say, that there truly is both a convergence of Herfindahl-Hirshman index and retail turnover per capita in the eight observed countries from 2010 till 2019.

Table 2

Correlation between Herfindahl-Hirshman index and Retail value in million euros from 2010 to 2019

The Czech Republic	Estonia	Hungary	Latvia	Lithuania	Poland	Slovakia	Slovenia
0,747179	0,906334	0,335215	0,908515	-0,79115	0,963389	0,991771	-0,64816

The use of the Herfindahl-Hirshman index is definitely advantageous compared to the basic concentration ratio. Nevertheless, there appears to be a tendency that the concentration ratio is different based on the development of the retail market as such. To test it, the author assumed the possibility, that the total retail value of each country influences the market concentration, correlation coefficients were calculated for the relationship between Herfindahl-Hirschman index and total retail value in million euros. The results indicate a strong correlation in most countries. The only countries with weak correlation were Hungary and Slovenia. At the same time, these countries also showed very low change in market concentration. If the market concentration changed significantly, the retail value in total also changed. This leads to a conclusion that market concentration can be influenced by the market growth.

Conclusions, proposals, recommendations

It can be concluded that there is, in fact, convergence among the analysed countries of the market concentration. During the time period from 2010 to 2019 Eastern European countries and the Baltic countries all together experienced mainly increase of market concentration and a higher level of domination by market leaders in grocery retail sector. At the same time the retail value per capita has also converged among these countries.

There results of this research can be recommended for consideration for respective Competition oversight authorities in the countries analysed, since most countries had an increase in market concentration and this could mean a possible abuse of dominant power by the largest retail companies in each country.

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