

## THE REGIONAL ASSESSMENT OF MARGINAL INTRA-INDUSTRY SPECIALIZATION

**Oana Ancuța Stângaciu**

“Vasile Alecsandri” University of Bacău  
anca\_stangaciu@yahoo.com

### **Abstract**

*The dynamics of intra-industry specialization was shown by means of the regional indices of marginal specialization, indices which break down the changes which appear in the specialization processes into two components: the marginal intra-industry specialization and the inter-industry specialization. The regional assessment of the marginal intra-industry specialization was done on the level of the sections in the Combined Register, and the results of the analyses confirm the fact that the dynamics of the specialization processes in the Romanian regions was greatly influenced by the increase of intra-industry specialization, increase manifested especially in the specialization process pertaining to the manufacturing of products which use intensively the human capital and high technology.*

### **Keywords**

marginal specialization; intra-industry specialization; sections in the Combined Register

### **JEL Classification**

C16; F14

### **1. Introduction**

The intensification of trade with goods which use intensively the human capital and high technology has a beneficial role in the process of economic growth, since this intensification leads to an acceleration of the specialization process on regional level, due to the economies of scale, as well as to achieving comparative advantages in relation to other countries.

### **2. Methodology**

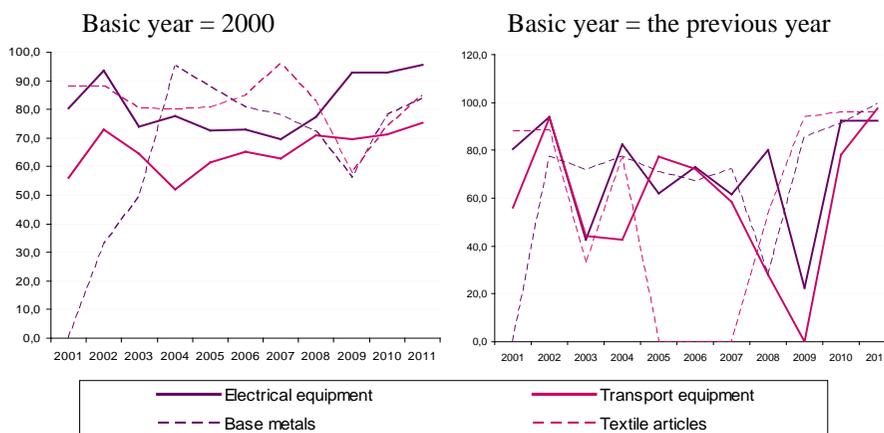
The regional assessment of the marginal intra-industry specialization implied calculating the marginal intra-industry specialization (MIIT) index suggested by Brühlhart (1994), which is in fact a Grubel and Lloyd type index that measures the dynamics of intra-industry specialization (Bastos P, Cabral M, 2007). The marginal intra-industry specialization index (MIIT), as well as the Grubel and Lloyd index, (Grubel H, Lloyd P, 1975), was calculated on the level of sections in the Combined Register (CR), thus quantifying the changes which come up in the intra-industry specialization processes on the level of each section. The index is generally expressed in percentage, and its value is between 0 and 100; it is zero when the changes pertaining to the current year compared to the basic year in the specialization processes on the level of each section are inter-industry, or it has values close to 100 when the increase of specialization in the current year compared to the basic year is due to the expansion of intra-industry specialization. The marginal specialization indices per section were calculated considering as basic years 2000, as well as the previous year since, on one hand, we wanted to see the evolution of changes in the intra-industry specialization processes over a longer period of time (when the basic year is 2000) and, on the other hand, we wanted to explain the yearly evolution by

means of the changes which come up on the level of each section in the Combined Register or on regional level (when the basic year is the previous one).

### 3. Regional assessment of the marginal intra-industry specialization on the level of the sections in the Combined Register

On national level [figure1], in the case of the main sections in which the Romanian economy has a high degree of intra-industry specialization, the marginal specialization indices calculated for each year in the period of time 2001-2011 compared to 2000 or to the previous year respectively (the basic years) evolve as follows:

- a) In the case of *electrical machines and devices*, the contribution of intra-industry specialization in the changes that took place in the specialization processes is slightly oscillatory. Thus, during the first two years, the contribution increased up to 93,7% compared to 2000 and then, in 2003, it decreased compared to 2000 as well as compared to the previous year up to the value of about 70,0%. This value stays approximately constant for the next 4 years until 2007, while during the last 4 years the contribution increases, getting once again over the value of 90,0%, as it was during the first years.
- b) In the case of *means of transport*, the contribution of intra-industry specialization in the changes that took place in the specialization processes is slightly oscillatory, just as in the case of the section presented above. Thus, during the first two years the contribution increased up to 73,1% compared to 2000, and then there was a decrease in 2004 compared to 2000, as well as compared to the previous year, decrease up to the value of 50,0%. This value is the lowest contribution of intra-industry specialization registered during the whole period of time 2001-2011 compared to 2000. After 2004, the contribution of intra-industry specialization increases slightly until 2008, when it reaches once again a percentage over 70,0%, and during the last 3 years, due to the significant increase registered compared to the previous years, the contribution rises to over 75,0%.
- c) In the case of *metal products*, the contribution of the intra-industry specialization in the changes that came up in the specialization processes has the highest increase of all sections subjected to the analysis. Thus, during the first four years, compared to 2000, the contribution increases dramatically from 0,0% in 2001 (in other words, the modifications that appeared in the specialization processes pertaining to the manufacturing of metal products in 2001 compared to 2000 were 100,0% due to the inter-industry specialization) to 95,4% in 2004. During the next 5 years, until 2009, the contribution of intra-industry specialization decreases slightly until it gets to values around 60,0%, while during the last years the situation improves, reaching once again the percentage of approximately 80,0%.
- d) In the case of *textile products*, the contribution of intra-industry specialization in the changes that came up in the specialization processes is oscillatory; however, there is a decreasing trend, especially after 2007. Thus, during the first 6 years the contribution oscillated between 80,0% and 90,0% compared to 2000, while in 2007 it increased up to 96,0%. This value is the highest contribution of intra-industry specialization registered during the whole period of time 2001-2011 compared to 2000. During the next 2 years, until 2009, the contribution of intra-industry specialization decreases slightly until it gets around the value of 60,0%, while during the last years the situation improves, reaching once again percentages over 80,0%.



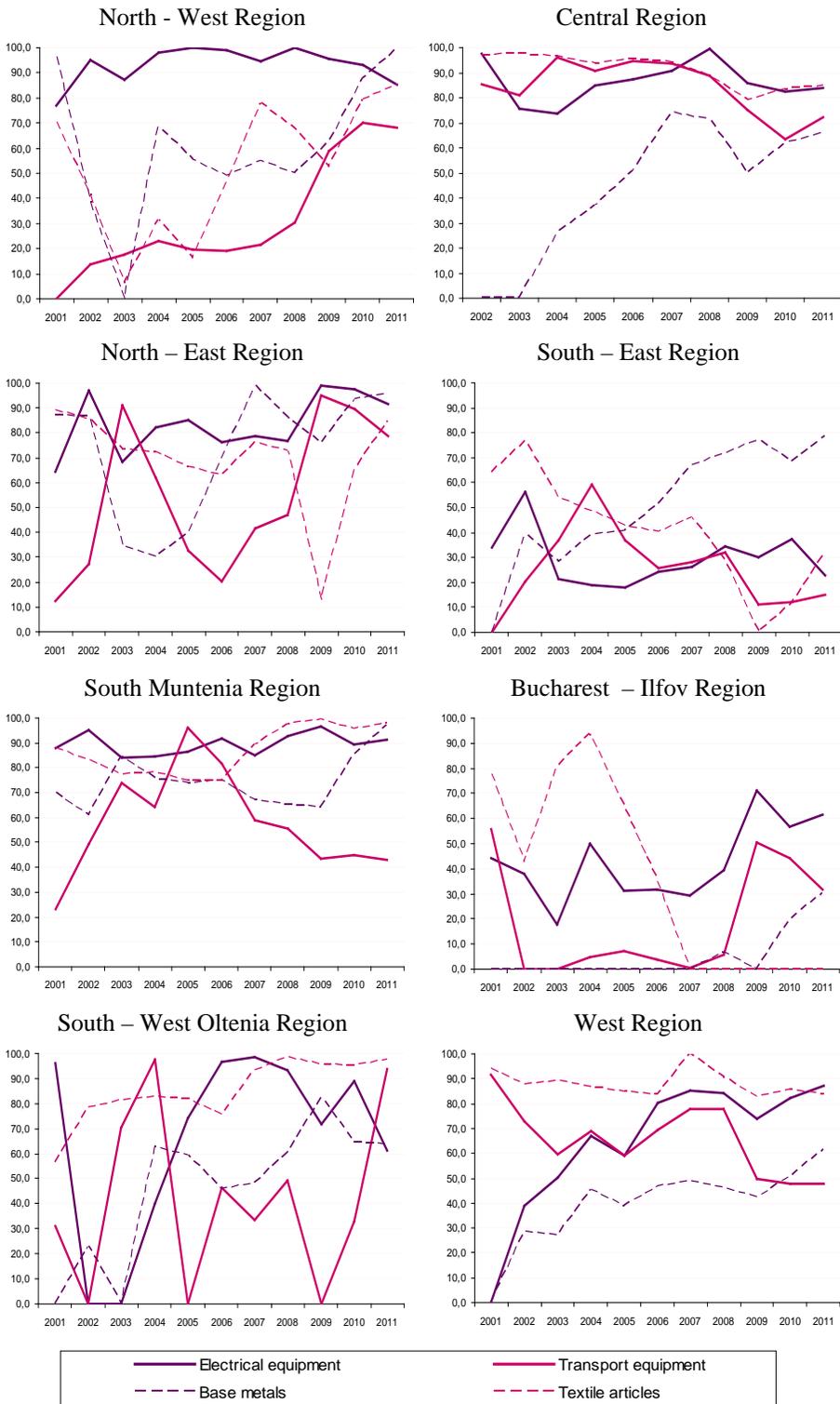
**Figure 1 Indices of the marginal intra-industry specialization (MIIT) on the main sections in the CR in Romania, in the period of time 2000-2011 (%)**

Source: processing of the data collected from NIS

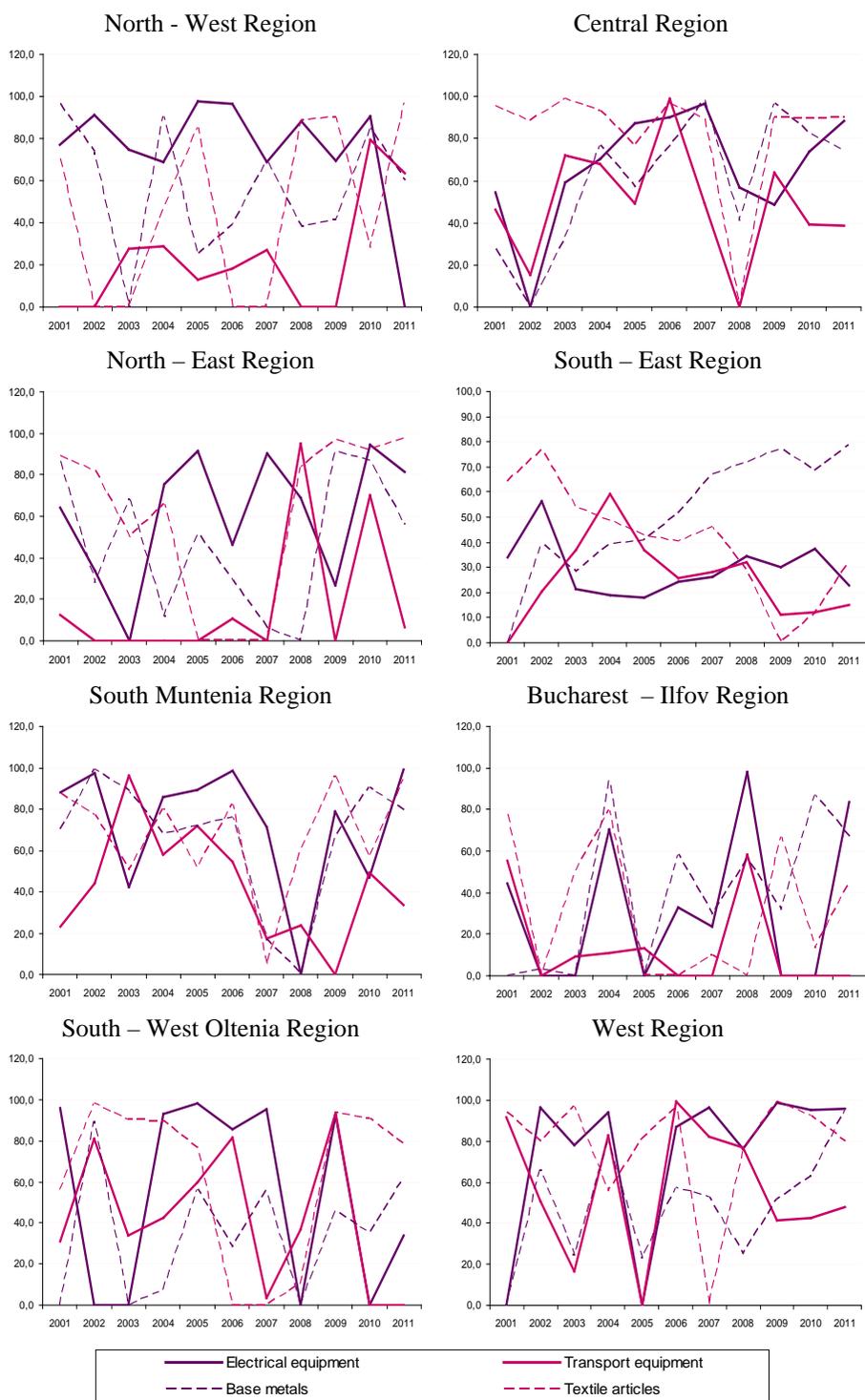
Consequently, in Romania, in the period of time 2001-2011 compared to 2000, the intra-industry specialization is the main factor which triggers the changes registered in the specialization processes in manufacturing certain products, since its contribution is over 50,0% in the case of the main sections analyzed. We must notice that, in the case of the sections in which Romania has a high degree of intra-industry specialization, the percentage of its contribution is very high, generally over 80,0% in the case of electrical equipment and textile articles, or 60,0% in the case of metal products during the last years.

On regional level, the discrepancies concerning the contribution of the intra-industry specialization among the sections in the Combined Register are great [figures 2, 3], and the main trends of the marginal intra-industry specialization are the following:

- a) In most regions there are high values of the contribution of intra-industry specialization in the specialization process pertaining to *electrical equipment*, in 2011 the contribution being of over 90,0% compared to 2000 (except for the regions Bucharest-Ilfov, South-West Oltenia and the South-East region where the contribution of intra-industry specialization is under 60%). The highest values, of over 90,0% during the whole period analyzed, can be found in the North-East and South Muntenia regions, and significant increases compared to 2000 are registered in the West region (from 0,0% in 2001 to 87,2% in 2010). In the South-West Oltenia region the contribution of the intra-industry specialization is fluctuating, with yearly oscillations (e.g: from 96,0% in 2001 to 0,0% in 2002 and 2003).



**Figure 2 Regional indices of the marginal intra-industry specialization on the main sections in the CR, in the period of time 2000-2011 (%) –2000=basic year**  
 Source: processing of the data collected from NIS



**Figure 3. Regional indices of the marginal intra-industry specialization on the main sections in the CR in the period of time 2000-2011 (%)**  
 – the previous year=basic year-

Source: processing of the data collected from NIS

- b) In most regions there are average values of over 40,0% of the contribution of intra-industry specialization to the specialization process pertaining to the manufacturing of *means of transport* (except for the South-East and Bucharest-Ilfov regions, where the contribution of intra-industry specialization is lower). Constant increases during the whole period analyzed can be found in the North-West region (from 0,0% in 2001 to 68,3% in 2011), and oscillating evolutions are registered in the North-East, South Muntenia and South-West Oltenia regions. In the West region, the contribution of intra-industry specialization has a negative trend in the period of time 2000-2011.
- c) In most regions, the contribution of intra-industry specialization in manufacturing *textile articles* decreases (in the Central, North-East, South-East and Bucharest-Ilfov regions) or has slight oscillations (in South Muntenia and the West regions). In the North-West and South-West Oltenia regions, the contribution of intra-industry specialization decreases only compared to 2000. We must notice that there are very high discrepancies among the regions concerning the values of the contribution of intra-industry specialization in manufacturing textile articles.
- d) In most regions, the contribution of intra-industry specialization in manufacturing *metal products* increases constantly (in the Central, South-East, South-West Oltenia and the West regions) or has oscillation during the increasing process (in North-West and North-East regions). The intra-industry specialization has no contribution in Bucharest-Ilfov region, and there are great discrepancies among the regions.

#### 4. Conclusion

After assessing the marginal intra-industry specialization on sections, we noticed that in most regions the contribution of the intra-industry specialization in the specialization process pertaining to the manufacturing of products using high technologies intensively has increased, registering high values in the case of specialization processes pertaining to the trade with electrical equipment, in 2011 the contribution being of over 90% compared to 2000 (except for Bucharest-Ilfov, South-West Oltenia and the South-East regions).

Also, there are average values of over 40% of the contribution of intra-industry specialization to the specialization process pertaining to the manufacturing of means of transport (except for the South-East and Bucharest-Ilfov regions, where the contribution of intra-industry specialization is low), while the contribution of intra-industry specialization in manufacturing textile articles or products that use intensively the work force decreases in the Central, North-East, South-East and Buchares-Ilfov regions or it has slight oscillations in South Muntenia and the West regions.

Ville (2008) got to similar results when she determined the marginal intra-industry specialization index for 23 countries in the European Union. The author notices that, in the case of 94 industrial branches in the period of time 1995-2005 the marginal specialization index has high values in the sectors that use intensively high technologies, and low values in the industries which use intensively the workforce. This fact empirically proves that an increase in the degree of inter-industry specialization leads to a lower increase in productivity, while the increase of intra-industry specialization is associated to a faster increase in productivity.

Consequently, we can say that in Romania the dynamics of the regional specialization processes was greatly influenced by the intra-industry specialization, and this influence has positive effects on the economic development, since an increase in the

degree of inter-industry specialization leads to a lower increase in productivity, while the increase of intra-industry specialization is associated to a quick increase of productivity.

### References

- Bastos, P, Cabral, M (2007), The dynamics of international trade patterns, *Review of World Economics*, 143 (3), 391-415.
- Brühlhart, M (1994) Marginal intra-industry trade: measurement and relevance of the pattern of industrial adjustment, *Weltwirtschaftliches Archiv/Review of World Economics*, 130 (3), 600-613.
- Grubel, H, Lloyd, P (1975), *Intra-industry trade: the theory and measurement of the international trade in differentiated products*, London, Macmillan.
- Stângaciu, A (2012), *Convergența comerțului regional intra-industrie în România - o perspectivă empirică asupra modelelor de specializare*, Bacău, Editura Alma Mater a Universității „Vasile Alecsandri” din Bacău.
- Tingvall, P (2004), The dynamics of European industrial structure, *Review of World Economics (Weltwirtschaftliches Archiv)*, 140(4), 665-687.
- Ville, K (2008), Marginal intra-industry trade expansion and productivity growth, *ETLA, The Research Institute of The Finnish Economy*, Helsinki Finland, Keskusteluaiheita – Discussion papers, no. 1164.