CONSIDERATIONS ABOUT THE DISTRIBUTION OF SMALL ENTERPRISES IN ROMANIA AT THE REGIONAL AND COUNTY LEVEL

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Abstract: Regional development balanced and sustainable, is a prime target interest not only locally and at the level of states and the EU as a whole. In the process of regional development, the small enterprises play an important role, contributing, on the one hand, at the rational use of local resources, and secondly, to create jobs and thus increase the living standards of local population. Based on these aspects, the paper examines, in a first hand, the manner in which are distributed the small enterprises from manufacturing, construction, trade, transport and hospitality industry at the level of the eight development regions. Also in the second part of the paper are presented the results of the analysis of territorial concentration of small active enterprises in 2014 in the five areas of activity, both in the development regions and counties of Romania.

Keywords: small enterprises, regional development, county, Gini, territorial concentration

JEL classification: C10, R11, R12

1. Introduction

In competitive contemporary economies, the small enterprises defined by [3] and NACE Rev. 2 [10] as "with less than 50 employees and an annual turnover below 10 million euros", plays an increasingly important role. Thus, since the 1990s, due to technological changes and the evolution of manufacturing organization methods, the number of small enterprises in West European countries has seen a steady increase [16], contributing significantly to the national product.

At the same time, small enterprises play an important role in the process of sustainable development [13]. Although globalization exerts strong pressure on SMEs, they have identified development opportunities [4], taking into account their role in job creation [5] in rural areas, in utilization of resources, in local community development, hospitality industry [1, 12] and not only. Moreover, sustainable development in line with the Europe 2020 goals is also based on harnessing the potential of SMEs [7]. On the other hand, one of the main objectives at EU level is economic convergence. Its fulfillment implies the achievement of a sustainable and balanced development at the level of each member state, which in turn implies the convergence of the levels of development both economic and social at the level of the development regions as well as at the level of the counties. However, the end of the first decade and the first part of the second decade of the 21st century were marked by large and contradictory economic and social events. The economic crisis, triggered in 2008, has affected and affected the process of convergence in the EU. Thus, if a rapid convergence process took place between 2000-2008, after 2008 it has stagnated [9].

In Romania, the uncertain climate, as well as some bureaucratic impediments to small enterprises relations with the local government and beyond, have created problems that have slowed the process of SMEs formation [14]. However, the impact of the economic crisis on SMEs was lower than on large enterprises [2], thus surpassing the crisis and continuing to play an active role in the Romanian economy.

Based on these considerations, the paper examines two issues concerning SMEs from Romania. A first aspect and focus of this paper is the analysis of the evolution of the number of small enterprises in the regions and counties of Romania, including the analysis of small firms manufacturing, construction, trade, transport, and storage, as well as hotels and restaurants (the hospitality industry) in the 2008-2014 period, which period includes the economic crisis.
For more eloquent image on the evolution of the number of small enterprises in the period under review, it was concerned a second objective, namely the determination and analysis of territorial concentration of the five types of small enterprises at the level of regions and counties of Romania. Their territorial concentration analysis is done for the year 2014, the last year of the period included in the analysis.

2. Research methodology

Starting from the research objectives: analysis of the evolution of the number of small enterprises in the areas of manufacturing (MNF), construction (CNS), trade (TRD), transport (TST) and hospitality (HRS) and analysis of their concentration in the development regions and counties of Romania, have taken into account the following indicators: Entropy, Maximum Entropy, Normalized Entropy, Herfindahl, Normalized Herfindahl, Gini Coefficient, and Concentration Coefficient.

Entropy, also known as Entropy Shannon, as an indicator for measuring the concentration is given by relation:

\[ S = \sum_{i=1}^{n} \frac{q_i}{\sum_{i=1}^{n} q_i} \cdot \ln \frac{\sum_{i=1}^{n} q_i}{n} \]  

where: \( q_i \) is the share of aggregate global values up to the same level \( i \) and represented by the number of small enterprises at the regional level, in which case \( n = 6 \), or county, in which case \( n = 42 \).

Given that \( 0 \leq S \leq \ln n \), in order to have a more conclusive upon the degree of concentration has been used also Normalized Entropy:

\[ S_0 = \frac{S}{\ln k} \quad \text{where} \quad 0 \leq S_0 \leq 1 \]  

In case of Normalized Entropy (2) its value is closer to 1 the concentration is higher.

Herfindahl coefficient (3), as an indicator of the degree of territorial concentration, has the form:

\[ H = \left( \sum_{i=1}^{n} \frac{q_i}{\sum_{i=1}^{n} q_i} \right)^2 \]  

In (3), because \( \frac{1}{n} \leq H \leq 1 \), was used the Normalized Herfindahl (\( H^* \)):

\[ H^* = \frac{H - \frac{1}{n}}{1 - \frac{1}{n}} \quad \text{where} \quad 0 \leq H^* \leq 1 \]  

The more the lower limit value of Normalized Herfindahl is closer to 0, the concentration is weaker.

Also, as a measure of the degree of territorial concentration of the five types of small enterprises included in the analysis, the Gini index of the concentration between the first bisector (Perfectly Equal Distribution) and the concentration curve, given by the relation:

\[ S_c = \frac{1}{2} \left[ 1 - \frac{1}{n} \sum_{k=2}^{n} (q_{k-1} + q_k) \right] \]  

The degree of concentration of small enterprises, both at the level of regions and counties was also assessed through Concentration Coefficient:

\[ C = \frac{n}{n-1} S_c \]
For the processing and analysis the data series corresponding to the evolution of the number of small enterprises in the fields of manufacturing, construction, commerce and hospitality [6] and to analyze their concentration both at the level of development regions and Romania counties, was used SPSS [8], Excel [11] and Free Statistics Software [17].

3. Results and discussion

3.1. Evolutions and mutations at the regional level in the period 2008-2014

In Romania, at regional level, in terms of the number of small enterprises in the fields of manufacturing, construction, commerce, transport and hospitality there have been relatively different developments. Thus, while the number of small enterprises for manufacturing, construction, trade in all eight regions, has declined, the number of small enterprises in transport and hospitality industry has increased. (Figure No.1)

![Figure No. 1 – The total number of small enterprises in 2008 and 2014. Source: own construction. Data source: http://statistici.insse.ro/shop/index.jsp?page=tempo3&lang=ro&ind=INT101O](image)

The largest number of small enterprises registered in both 2008 and 2014 belongs to the commerce (TRD) sector. However, there is a decrease of 13.79%. Compared with 2008, reductions in the number of small enterprises registered in 2014 were also lower in manufacturing (MNF), with 15.19%, and construction (NS), with 11.64%. In terms of transport and storage (TST) and hotels and restaurants (HRS), their number increased by 31.03% and respectively 29.60%. Evolutions recorded in the period under review, both in terms of the total number of active enterprises, as well as the total number of small enterprises has led to changes in their weights (Figure No. 2). Thus, the number of registered small businesses in 2014, in the fields of manufacturing, construction and trade, was lower than in 2008, their share in the total of active enterprises increased which means that they have more bore economic crisis than medium and large enterprises, because of their ability to adapt to new conditions. As a matter of fact, this is true for small enterprises in all five areas included in the analysis.

![Figure No. 2 – Share of small enterprises in total enterprises in operation in 2008 and 2014. Source: own determination and construction](image)
The number and shares of small enterprises, of the five fields, in the total of active enterprises in 2014 towards to 2008, at the regions of Romania presents some peculiarities (Figure no. 3).

Figure No. 3 – The total number of enterprises in manufacturing (MNF), construction (CNS), trade (TRS), transport (TST) and hospitality industry (HRS), at the regions of Romania in 2014.

Source: own construction. Data source:

Thus, in the field of Manufacturing, the hierarchy of regions according to the shares of small enterprises active in the total of the active ones places the South-Muntenia region with 21.42% in 2008 and North-West with 21.52% in 2014. The second place is occupied by the South-East region in 2008 (by 20.91%) and in 2014 (by 20.97%). The ranking ranks third in the North-West region with 20.37% in 2008 and the Center in 2014 by 20.44%. The fourth hierarchy is occupied in 2008 by the West region by 20.10% and in 2014 by South-Muntenia by 20.40%. The next four places are occupied by the North-East regions both in 2008 by 19.66% and in 2014 with a larger share of 0.67 percentage points, Center with 19.52% in 2008 and West by 20.10% in 2014, South-West Oltenia in 2014 with 18.94% higher than in 2008 (18.84%) by 0.95 percentage points and Bucharest - Ilfov with 17.94% in 2008 and 16.74% in 2014. Construction represents the field that includes most of the small active enterprises in the total of active, in South-West Oltenia region compared to other regions, a fact highlighted by the largest share of 13.84% in 2008 and 14.18 percent in 2014. In relation to the region which ranks first, at a difference of 1.37 percentage points is the region North-East in 2008 and 1.92 percentage points is the region South-Muntenia in 2014. This last region has recorded a trend in the number of small active enterprises in relation to 2008 when, ranked third, with a total share by 12.16%. At the level of the year 2014 region Center ranks third place with 13.48%. Bucharest-Ilfov with 12.03% (2008) and South-East, West and Center corresponding percentages ranging between 11.53% and 11.25%, while the North-West has the lowest share of small active enterprises in the total of active assets underlying the lowest share of 9.88%.

After Manufacturing and Construction fields, the field which has a significant enough share of small active enterprises in the total of active enterprises is Hotels and restaurants. Bucharest-Ilfov region has a feature that facilitates this outcome: reduced surface with a high density of hotels, restaurants, thereby simultaneously with intense practice, mainly to business tourism. Thus is explained the largest share of 13.84% in 2008 and 14.18 percent in 2014. In relation to the region which ranks first, at a difference of 1.37 percentage points is the region North-East in 2008 and 1.92 percentage points is the region South-Muntenia in 2014. This last region has recorded a trend in the number of small active enterprises in relation to 2008 when, ranked third, with a total share by 12.16%. At the level of the year 2014 region Center ranks third place with 13.48%. Bucharest-Ilfov with 12.03% (2008) and South-East, West and Center corresponding percentages ranging between 11.53% and 11.25%, while the North-West has the lowest share of small active enterprises in the total of active assets underlying the lowest share of 9.88%.

Compared to other, the field trade, at a regional level, corresponding to the lowest share at the level of 2008. Thus, the share of small active enterprises in total active enterprises oscillate between 7.49% and 7.96% at the level of...
the regions: Center, North-West, Bucharest-Ilfov and West. The other four seats are held by the North-East with 6.92%, South-Muntenia region with 6.56%, South-West Oltenia with 6.26%, respectively, of the South-East with 6.10%.

With regard to the field of Transportation and storage, the shares of small active enterprises to the total active enterprises are quite reduced and similar to those of the trade. The central region includes most small active enterprises from their total, the share being fixed at 8.29%. Bucharest-Ilfov, West, South-East, and South-Muntenia regions include territorial shares rather significant as compared with other regions in relation to small enterprises in their total. This aspect is highlighted through the shares between 7.81% respectively 7.03%. With the fewest small active enterprises in their total in transport and storage shall be provided to the regions: North-West with 6.76%, North-East with 6.28% and South-West Oltenia with 6.26%.

3.2. Characteristics of concentration of small active enterprises at regional and county level in 2014

As a result of the evolution in the number of small enterprises in the period under review, in 2014 at the level of Romania were recorded 47890 small enterprises, with 214 less than in 2014 (a decrease with 0.5%). In comparison with the total number of enterprises whose number decreased during the same period with 8.56%, it can be concluded that the impact of the economic crisis on small enterprises was much smaller than for the other. This is due to their capacity of adaptation to market conditions. With regard to their distribution at the level of the regions of Romania in 2014 is not recorded significant differences. Thus, at the level of total small enterprises, the Lorenz curve (Figure No. 4) is quite close to Perfectly Equal Distribution, % of small enterprises for six of the eight development regions increasing approximately linear. These focused about 75% of all small enterprises. The other two regions (Bucharest-Ilfov and North-West) concentrating supply about 25% of all small enterprises.

![Cumulative percentage of SMEs in % of development regions](http://www.wessa.net/co.wasp)

The existence of relative concentrations, but no significant intensity is highlighted so 0.178033 values of the Gini Coefficient, respectively 0.203466 of Concentration Coefficient (Table No.1). This conclusion is also highlighted and value very close to 1 of Normalized Entropy (0.972850), and the value low (close to zero) of Normalized Herfindahl (0.017675).

<table>
<thead>
<tr>
<th>Total</th>
<th>MNF</th>
<th>CNS</th>
<th>TRD</th>
<th>TST</th>
<th>HRS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Entropy</td>
<td>2.022985</td>
<td>2.047482</td>
<td>2.017847</td>
<td>2.022193</td>
<td>2.032652</td>
</tr>
<tr>
<td>Maximum Entropy</td>
<td>2.079442</td>
<td>2.079442</td>
<td>2.079442</td>
<td>2.079442</td>
<td>2.079442</td>
</tr>
<tr>
<td>Normalized Entropy</td>
<td>0.972850</td>
<td>0.984631</td>
<td>0.970379</td>
<td>0.972469</td>
<td>0.977499</td>
</tr>
<tr>
<td>Herfindahl</td>
<td>0.140466</td>
<td>0.132493</td>
<td>0.141973</td>
<td>0.141304</td>
<td>0.137933</td>
</tr>
<tr>
<td>Normalized Herfindahl</td>
<td>0.017675</td>
<td>0.008564</td>
<td>0.019398</td>
<td>0.017257</td>
<td>0.018579</td>
</tr>
<tr>
<td>Gini Coefficient</td>
<td>0.178033</td>
<td>0.136884</td>
<td>0.188542</td>
<td>0.172577</td>
<td>0.158882</td>
</tr>
<tr>
<td>Concentration Coefficient</td>
<td>0.203466</td>
<td>0.156211</td>
<td>0.215476</td>
<td>0.197230</td>
<td>0.181579</td>
</tr>
</tbody>
</table>

Source: Authors calculus using Free Statistics Software [17], [http://www.wessa.net/co.wasp](http://www.wessa.net/co.wasp)
Regarding the types of small enterprises included in the analysis it is found that, in general, it keeps the same characteristics, a fact highlighted by their corresponding values. It records some features, especially in the case of Manufacturing and construction. Small enterprises of manufacturing have the lowest degree of concentration at the level of the development regions of Romania, a fact highlighted by the lowest Gini Coefficient values (0.136684) Concentration Coefficient (0.156211) and the Normalized Herfindahl (0.008564), and the highest value of Normalized Entropy (0.984631).

Of the types of small enterprises, at the regional level, the highest concentration shall be recorded in the case of small enterprises of construction field. In this case, the value Coefficient Gini is 0.188542 and the value of Concentration Coefficient is 0.215476, value greater than the total level. This feature is determined by the fact that in 2014 of the 6098 small enterprises of construction in Romania, 1331 (21.82%) were in Bucharest-Ilfiov region, and 1015 (17.35%) in the North-West region. At the level of regions in Romania, the level of concentration of small enterprises from trade (with a value of the Gini Coefficient of 0.172577) is quite similar to that recorded at the total level. In this case, the differentiation is made by Bucharest-Ilfiov Region, where in 2014 were recorded of 3104 those 13205 small enterprises from trade registered at the level of Romania.

As regards small enterprises from travel and hospitality industry, the Gini Coefficient values were 0.158882, and 0.168379. And in this case, the Gini Coefficient values are significantly influenced by the fact that in Bucharest-Ilfiov Region in 2014 were 16.47% of total registered enterprises in transport and 18.23% of all small businesses in the hospitality industry.

One conclusion that emerges from the analysis of the degree of concentration of small enterprises from Romania, and categories of small întreprineri analysed is that, except Bucharest-Ilfiov Region, between the other seven regions there are no significant differences, the distribution of small entreprises being approximately uniform. On the other, taking into account that appears inside the regions of Romania there are disparities between counties that compose them, for a clearer picture of the territorial concentration of small enterprises, the analysis was extended to 42 of the counties of Romania.

At the total level of small enterprises and at the counties of Romania, a first characteristic of the concentration is given by Lorentz Curve (Figure No. 5) which is quite far from the straight line to Perfectly Equal Distribution, the slope of the tangent line to the Lorentz Curve increasing significantly for % of counties higher than 0.7, which highlights the emergence of the territorial concentration of small enterprises.

Also, the existence of territorial concentration of small enterprises at the county level is evidenced by the Gini Coefficient values (0.4144) and Concentration Coefficients (0.4245) as well as the Normalized Entropy (0.9009) and Normalized Herfindahl (0.0348), presented in Table 2. Of the total of small enterprises, 50% are concentrated in eight counties (Cluj, Constanța, Timiș, Brașov, Bigor, Prahova, Ilfov and Iasi) and Bucharest recorded 19.17% of SMEs from Romania.

Table 2 – Values of Entropy, Herfindahl, Gini and Concentration Coefficient for small enterprises from Romania at the level of counties, in 2014

<table>
<thead>
<tr>
<th></th>
<th>Total</th>
<th>MNF</th>
<th>CNS</th>
<th>TRD</th>
<th>TST</th>
<th>HRS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Entropy</td>
<td>3.3672</td>
<td>3.5308</td>
<td>3.3677</td>
<td>3.3792</td>
<td>3.4474</td>
<td>3.2523</td>
</tr>
</tbody>
</table>
The largest territorial concentration at the level of the counties was registered in the small enterprises of hospitality industry. In this case, the values of Gini Coefficient (0.5028) and Concentration Coefficient (0.5151) show the significant territorial concentration of small enterprises in the hospitality industry at county level, as evidenced by Normalized Entropy (0.8701) and Normalized Herfindahl (0.0402).

The Lorentz Curve (Figure No. 6) highlights three groups of counties in terms of concentration at small enterprises of the hospitality industry. A first group includes 25 counties (57.14% of the counties) with similar distributions of the concentration to small enterprises of the hospitality industry. The second group includes 12 counties.

This corresponds to the area where the slope of the tangent to Lorentz Curve is significantly higher than in the first group, showing higher percentages in small enterprises of hospitality industry than recorded in the first group. The third group includes six counties (Constanța, Cluj, Timis, Brașov, Iasi and Bihor) and Bucharest, for which the slope of the tangent to Lorentz Curve has the highest slope. These included 50.42% of small enterprises of the hospitality industry in 2014.

It is worth noting that in Bucharest were 18.78% of total registered small enterprises of the hospitality industry, with one percentage point less than the total number of small enterprises of the hospitality industry from Constanța, Cluj and Timis.

Territorial concentration levels at county level, higher than those recorded in the total number of small enterprises in 2014, were also recorded in small construction enterprises. Values of Gini Coefficient (0.4263) and Concentration Coefficient (0.4367), Normalized Entropy (0.9010) and Normalized Herfindahl (0.0325) signify the existence of significant territorial concentration.
In contrast to small enterprises of hospitality industry, in the case of small enterprises of construction, Lorentz Curve does not show groups of counties with very close levels of the percentage of small enterprises of construction in the total small enterprises construction sector in the level of country (Figure No 7). In this case, the slope of the tangent line to the Lorentz Curve is changed continuously throughout the curve. With the exception of Bucharest were concentrated 18.20% of all small enterprises of construction, the other eight counties (Cluj, Timis, Prahova, Ilfov, Brasov, Constanta, Bihor and Maramures) were recorded 32.08% by small enterprises of construction, so together focused 50.28% of all small enterprises of construction at the level of Romania.

To third place, with level of territorial concentration at county level, similar to the total number of small enterprises of construction were situated small enterprises of transport and storage. For this category of small enterprises, values of Gini Coefficient and Concentration Coefficient were by 0.4109, and 0.4209. Also, values of Entropy Normalized (0.9041) and Normalized Herfindahl (0.4143) signifies the existence of territorial concentration of small enterprises of transport and storage.

Lorentz Curve (Figure No.8) also shows the existence of concentration. Thus, in 9 counties (Constanta, Bihor, Arges, Cluj, Suceava, Timis, Prahova, Brasov and Ilfov) were recorded 1309 small enterprises of transport and storage, accounting 39.95% of the total small enterprises of transport and storage. These nine counties, together with Bucharest, included, in 2014, 51.85% of the total number of small enterprises of transport and storage from Romania.
The level of territorial concentration at the county level in Romania, similar with of small enterprises of transport and storage, were recorded in 2014 and in terms of small enterprises in trade. For this category, the values of the Gini Coefficient and Concentration Coefficient were by 0.4044 and 0.4143. Also, Entropy Normalized values (0.9041) and Normalized Herfindahl (0.0340) signifies the existence of territorial concentration.

In the case of small enterprises of trade shows a significant concentration of this type of enterprises in Bucharest (Figure No. 9) where, in 2014, were registered 2513 enterprises, representing 19.03 percent of the total in the country. Also, as can be seen in the upper part of Lorentz Curve, (where the slope of the tangent line to the curve is higher than the bottom part of Lorentz Curve), there is a group of 8 counties ((Ilfov, Cluj, Constanța, Bihor, Brasov, Timis, Prahova and Dolj), where were registered 3987 small enterprises of trade representing 30.19% of their total at the level of county.

Finally, of the five categories of small enterprises, the lowest level of territorial concentration at the level of counties, in 2014 register at small enterprises of manufacturing. Both values of Gini Coefficient and Concentration Coefficient and Lorentz Curve shape (Figure No. 10) shows a focused territorial much weaker. Thus, with exception of Bucharest in which are recorded 10.84% of the total small enterprises of manufacturing, small businesses in 34 counties were recorded between 1.10% (Calarasi) and 4.44% (Cluj) of the total number of small enterprises of manufacturing. However, it should be noted, that in 11 counties (Cluj, Bihor, Timis, Prahova, Constanta, Brasov, Arges, Mures, Maramures, Suceava and Iasi) were recorded in total 39.89% of total small enterprises of manufacturing and which together with Bucharest have 50.74% of total small enterprises of manufacturing in Romania.
Comparative analysis of the levels of territorial concentration of small active enterprises in 2014 in the fields of manufacturing, construction, trade, transport and storage and the hospitality industry at the counties compared to the levels of their territorial concentration at the level of questioning regions, the question arises: why at the level of regions the territorial concentration is much lower than at the level of the counties of Romania. We consider that this difference is due to the fact that in most development regions there is one or several counties where the number of small enterprises is significant “leveling” their number at the level of the development regions. Thus, if at the level of the development regions in Romania the desirable of sustainable and balanced development of the convergence of development levels tends to be achieved, there are still significant disparities in the counties.

4. Conclusions

The econometric analysis, both the level of Romania’s development regions and counties, of the concentration of the number of small enterprises of manufacturing (MNF), construction (CNS), trade (TRD), transport (TST) and hospitality industry (HRS) based on indicators such as Entropy, Maximum Entropy, Normalized Entropy, Herfindahl, Normalized Herfindahl, Gini Coefficient and Concentration Coefficient point out that, except Bucharest-Ilfov, between the other seven development regions there are no significant differences, the distribution of small enterprises being approximately uniform, and at the level of the counties the highest territorial concentration, was registered in the small enterprises of the hospitality industry.

Half of all small enterprises lies in eight counties (Cluj, Constanța, Timiș, Brașov, Bihor, Prahova, Ilfov and Iași) and 19.17% in Bucharest. Of all small enterprises of hospitality industry, 18.78% were registered in Bucharest, with a percentage point less than the total number of small enterprises of hospitality industry from Constanța, Cluj and Timiș.

The small enterprises of the five fields of activity taken into study keeps the same characteristics, a fact highlighted by their parameter values corresponding to them, being recorded some peculiarities, especially those in the fields of manufacturing and construction. Thus, small enterprises of manufacturing have the lowest degree of concentration at the level of the development regions of Romania, while small enterprises of construction presents at regional level, the highest concentration.

5. References


