



---

## CONCENTRATION AND SPECIALIZATION IN SPAIN

Šárka Prát

UNIVERSITY OF ECONOMICS, PRAGUE

### ABSTRACT

The issues of concentration and specialization are important to economic policy and to the competitiveness of the European Union for many reasons. I have applied methodology to a specific case in Spanish regions and their employment structure. The purpose of my research was to find out if concentration means specialization. This project is target on details of an employment in Spain. I counted the location quotient and specialization index in the regions of Spain for finding out if there is a connection between them. After searching the database on EUROSTAT, which is led by European Commission, I have gathered some details of an employment in the regions of this country. I have focused on year 2008. Paper proved there is no link between specialization and concentration of people.

**Key Words:** specialization, concentration, location quotient, Spanish development regions

### Introduction

For a year 2008, there are 2 491 783 people employed in main industries such as manufacturing, mining and quarrying, electricity, gas, steam and air conditioning supply.

Paper have gathered the information about employment in 19 regions of Spain: Galicia, Principado de Asturias, Cantabria, País Vasco, ComunidadForal de Navarra, La Rioja, Aragón, Comunidad de Madrid, Castilla y León, Castilla-la Mancha, Extremadura, Cataluna, ComunidadValenciana, IllesBalears, Andalucía, Región de Murcia, Ciudad Autónoma de Ceuta, Ciudad Autónoma de Melilla and Canarias.

According to the database EUROSTAT the most people are employed in a manufacturing. For proving the fact there is no connection between specialization and concentration, I had to make these steps:

I gathered the information of how many people are employed in each region (Table 1), separately in:

- manufacturing
- mining and quarrying
- electricity, gas, steam and air conditioning supply

I counted how many people are employed in each region in all these industries. These numbers we can see in the yellow part of the table 1.

I counted total number of people employed in all regions in all industries, which is 2 491 783 (table 1).

For the analysis I have chosen three industries such as Manufacture of food products, Manufacture of textile and Electricity, gas, steam and air conditioning supply

According to data on EUROSTAT, we can see how many people are employed in each of these industries in each region (Table 2).

Then I have counted a location quotient which is the most commonly utilized economic base analysis method. It compares the local economy to a reference economy, in the process it is attempting to identify specializations in the local economy.

The formula can be written as:

$$LQ = \frac{e_i/e}{E_i/E}$$

Where:

$e_i$  = people employed in on region in one industry i

$e$  = total local employment

$E_i$  = reference area employment in industry i

$E$  = all people employed in all industries

We assume that the base year is identical in all of the above variables. For my case we talk about year 2008.

There are three possible outcomes when I calculated location quotients. These outcomes were:

LQ < 1.0	LQ = 1.0	LQ > 1.0
----------	----------	----------

If LQ is less than one, it says that local employment is less than was expected for a given industry. That means that industry is not even meeting local demand for a given good or service. Thus all of this employment is considered non-basic by definition.

If LQ is equal to one, it says that the local employment is exactly sufficient to meet the local demand for a given good or service. This employment is also considered non-basic because none of these goods or services is exported to non-local areas.

If LQ is bigger than one, it provides evidence of basic employment for a given industry. It concludes that local employment is greater than expected and it is therefore assumed that this "extra" employment is basic. Extra jobs then must export their goods and services to non-local areas which, by definition, make them Basic sector employment.

According to data from EUROSTAT, I have counted that there is a high location quotient in Manufacture of food products in the regions (Table 3):

- Extremadura
- Ciudad Autónoma de Ceuta
- Ciudad Autónoma de Melilla

Manufacture of textile in the regions (Table 3):

- Cantabria
- Catalunya
- Comunidad Valenciana

Electricity, gas, steam and air conditioning supply in the regions (Table 3):

- Extremadura
- Illes Balears
- Canarias

In region Extremadura, the location quotient was 2,2 what is quite strong concentration. That means this region is able to export the food. When we look at the Ciudad Autónoma de Ceuta and Ciudad Autónoma de Melilla there are even higher numbers of location quotient ( Ciudad Autónoma de Ceuta 3,75, Ciudad Autónoma de Melilla 2,27 ). On the other hand there is very low location quotient in Manufacture of food products in País Vasco (0,41) and Comunidad de Madrid (0,58). Thus these regions are lacking of the manufacture of food products so they need to import.

The best regions for export of textile are Comunidad Valencia (2,26) and Catalunya (1,97). The regions which are in the biggest need of import the textile in Spain are Ciudad Autónoma de Ceuta and Ciudad Autónoma de Melilla.

The best regions for export of electricity, gas, steam and air conditioning supply are Iles Balears ( location quotient 2,3), Canarias ( location quotient 2,14 ) and Extremadura (location quotient 1,89). So we can see that region Extremadura has very high location quotient in Manufacturing the food and also on Electricity, gas, steam and air conditioning supply. On the other hand, the regions which are the most lacking of the electricity, gas, steam and air conditioning supply are again CiduadAutónoma de Ceuta and Ciudad Autónoma de Melilla.

Then I have target on specialization index.

$$\text{Specialization index} = \frac{\sum (E_i)^2}{(\sum E_i)^2}$$

The result is always between 0 and 1. More to 1, more specialized is region. I have chosen these regions where are the highest location quotients. The higher the index is, the more specialized is the region. According to my counting, I have realized that highest specialization index is in Ciudad Autónoma de Melilla (0,63), Ciudad Autónoma de Ceuta (0,565), Extremadura ( 0,169), Cantabria (0,143), Canarias ( 0,133), IllesBalears ( 0,129), ComunidadValenciana (0,105) and last of them is Cataluna ( 0,1027).

In CiduadAutónoma de Melilla and Ciudad Autónoma de Cauta is quite high specialization index and also concentration. But when we look at Extremadura or Comunidad Valencia we can see there is very high concentration but very small specialization index. The same for IllesBalears where is concentration over 2,3 but specialization is only 0,129. We can see there are many people employed in on Electricity, gas, steam and air conditioning supply and still there is not big specialization index, thus this is the example that there is no line between specialization and concentration.

### **Conclusion:**

According to counting of a concentration and specialization, I have proved there is no connection between concentration and specialization. When there is high concentration that does not have to mean that people will be specialized there in some industry.

### **Sources:**

BARKLEY, David L. – HENRY, Mark S. RuralIndustrialDevelopment: To Cluster or Not to Cluster? ReviewofAgriculturalEconomics. Oxford University Press on

behalf of Agricultural & Applied Economics Association, 1997, roč. 19, č. 2, s. 308-325. ISSN: 10587195

BLAŽEK, J. Velké firmy a subjekty progresivního terciéru jako aktéři regionálního rozvoje v ČR, In: Hampl, M. (ed.): Regionální vývoj: specifika české transformace, evropská integrace a obecné teorie, Př F UK v Praze, Praha, s. 227-249

BUCKLEY, Peter J. – GHOURI, Pervez N. Globalisation, Economic Geography and the Strategy of Multinational Enterprises. Journal of International Business Studies. Palgrave Macmillan Journals, 2004, roč. 35, č. 2, s. 81-98

DAMBORSKÝ, M. - WOKOUN, R. Lokalizační faktory malého a středního podnikání v podmínkách ekonomiky ČR. E+M Ekonomie a Management. Liberec: 2010, str. 32 – 44.

DURANTON, G. – OVERMAN, Henry G. Testing for Localization Using Micro-Geographic Data. The Review of Economic Studies. Oxford University Press, 2005, roč. 72, č. 4, s. 1077-1106

European Commission Eurostat. Date 6.12.2011. Available on: <http://epp.eurostat.ec.europa.eu/portal/page/portal/eurostat/home>

FORAL, M. – ANDRÁŠKO, I. Lokalizační teorie a lokalizační faktory. In: Andráško, I.; Ira, V.; Kallabová, E. Časovo-priestorové aspekty regionálnych štruktúr ČR a SR. Bratislava: Geografický ústav SAV, 2011. s. 23-28, 6 s. ISBN 978-80-89580-02-6.

Florida State University. Department of Urban and Regional Planning. Location quotient technique. Date 6.12.2011. Available on: <http://mailer.fsu.edu/~tchapin/garnet-tchapin/urp5261/topics/econbase/lq.htm>

FUJITA, M. The Evolution of Spatial Economics: From Thünen to the New Economic Geography. Japanese Economic Review. 2010, roč. 61, č. 1, s. 1-32.

International Monetary Fund. Date 16.11.2011. Available on: <http://www.imf.org/external/index.htm>

STAM, E. Why Butterflies Don't Leave: Locational Behavior of Entrepreneurial Firms. Economic Geography. 2007, roč. 83, č. 1, s. 27-50.

WRIGHT, W. - DAVID C. Some Substitution Effects in the Location Decision of a Firm. Journal of Political Economy. 1971, roč. 79, č. 4, s. 903 – 908.

**Tables:**

Table 1: People employed in industries in the regions of Spain

<b>SPAIN</b>	<b>MANUFACTURING</b>	<b>MINING QUARRYING</b>	<b>AND ELECTRICITY, GAS, STEAM AND AIR CONDITIONING SUPPLY</b>	<b>TOTAL</b>
<b>Galicia</b>	166 167	4 374	2 816	<b>173 357</b>
<b>Principado de Asturias</b>	56 128	4 457	1 418	<b>62 003</b>
<b>Cantabria</b>	34 583	406	700	<b>35 689</b>
<b>País Vasco</b>	217 985	615	1 980	<b>220 580</b>
<b>ComunidadForal de Navarra</b>	71 715	341	1 681	<b>73 737</b>
<b>La Rioja</b>	29 359	255	505	<b>30 119</b>
<b>Aragón</b>	104 265	1 434	1 664	<b>107 363</b>
<b>Comunidad de Madrid</b>	226 926	1 351	7 401	<b>235 678</b>
<b>Castilla y León</b>	139 861	6 662	3 795	<b>150 318</b>
<b>Castilla-la Mancha</b>	114 910	1 988	3 538	<b>120 436</b>
<b>Extremadura</b>	30 761	1 632	1 224	<b>33 617</b>
<b>Cataluña</b>	542 885	4 436	7 673	<b>554 994</b>
<b>ComunidadValenciana</b>	300 853	2 903	4 055	<b>307 811</b>
<b>IllesBalears</b>	26 021	514	1 225	<b>27 760</b>
<b>Andalucía</b>	235 235	4 847	5 553	<b>245 635</b>
<b>Región de Murcia</b>	73 781	:	1 132	<b>74 913</b>
<b>Ciudad Autónoma de Ceuta (ES)</b>	353	:	:	<b>353</b>
<b>Ciudad Autónoma de Melilla (ES)</b>	244	0	:	<b>244</b>
<b>Canarias (ES)</b>	35 036	609	1 531	<b>37 176</b>
<b>TOTAL</b>				<b>2 491 783</b>

Table 2: People employed in chosen industries in regions of Spain

SPAIN	MANUFACTURE OF FOOD PRODUCTS	MANUFACTURE OF TEXTILES	ELECTRICITY,GAS,STEAM AND AIR CONDITIONING SUPPLY
Galicia	26 128	2 283	2 816
Principado de Asturias	8 413	475	1 418
<b>Cantabria</b>	5 414	609	700
País Vasco	12 325	1 092	1 980
ComunidadForal de Navarra	10 788	551	1 681
La Rioja	4 560	559	505
Aragón	9 992	794	1 664
Comunidad de Madrid	18 564	2 877	7 401
Castilla y León	34 176	1 753	3 795
Castilla-la Mancha	17 920	1 220	3 538
<b>Extremadura</b>	10 099	156	1 224
<b>Cataluña</b>	69 107	25 896	7 673
<b>ComunidadValenciana</b>	30 306	16 438	4 055
<b>IllesBalears</b>	4 090	438	1 225
Andalucía	47 084	3 432	5 553
Región de Murcia	19 537	:	1 132
<b>Ciudad Autónoma de Ceuta (ES)</b>	179	:	:
<b>Ciudad Autónoma de Melilla (ES)</b>	75	0	:
<b>Canarias (ES)</b>	8 226	363	1 531

Table 3: Location quotient

SPAIN – Location quoteint	Lq 1 - MANUFACTURE OF FOOD PRODUCTS	Lq 2 - MANUFACTURE OF TEXTILES	Lq 3 - ELECTRICITY,GAS,STEAM AND AIR CONDITIONING SUPPLY
Galicia	1,11	0,56	0,85
Principado de Asturias	1,00	0,32	1,19
Cantabria	1,12	0,72	1,02
País Vasco	0,41	0,21	0,47
ComunidadForal de Navarra	1,08	0,32	1,19
La Rioja	1,12	0,78	0,87
Aragón	0,69	0,31	0,81
Comunidad de Madrid	0,58	0,52	1,63
Castilla y León	1,68	0,49	1,31
Castilla-la Mancha	1,10	0,43	1,53
Extremadura	2,22	0,20	1,89
Cataluña	0,92	1,97	0,72
ComunidadValenciana	0,73	2,26	0,69
IllesBalears	1,09	0,67	2,30
Andalucía	1,42	0,59	1,18
Región de Murcia	1,93		0,79
Ciudad Autónoma de Ceuta (ES)	3,75		
Ciudad Autónoma de Melilla (ES)	2,27	0,00	
Canarias (ES)	1,64	0,41	2,14



Table 4: Specialization index

	TOTAL OF ALL INDUSTRIES	x2		Specialization index
<b>Cantabria</b>	26 682	711929124	101654158	0,142786908
<b>Extremadura</b>	29 731	883932361	149594771	0,169237803
<b>Cataluña</b>	406 131	1,64942E+11	1,69E+10	0,102706146
<b>ComunidadValenciana</b>	236 398	55884014404	5,89E+09	0,105387901
<b>IllesBalears</b>	21 252	451647504	58548500	0,129633175
<b>Ciudad Autónoma de Ceuta (ES)</b>	263	69169	39097	0,565238763
<b>Ciudad Autónoma de Melilla (ES)</b>	99	9801	6201	0,632690542
<b>Canarias (ES)</b>	32 884	1081357456	144485490	0,13361492