Plná verze článku / Full paper

XXIV. Mezinárodní kolokvium o regionálních vědách
TRENDS IN THE CZECH REGIONAL MANUFACTURING

Mgr. Helmuth Yesid Arias Gomez, Ph.D.
Ing. Gabriela Antošová, Ph.D.

PLAN OF PRESENTATION

- THEORETICAL ASPECTS

- KIM-KRUGMAN INDICATOR OF SPECIALIZATION

- NUMBERS FOR THE CZECH REPUBLIC

THEORETICAL ASPECTS

- According to Ohlin and Krugman in the analysis of regional specialization can be applied similar principles as in the trade theory.

- The neoclassical Heckscher-Ohlin trade model argues that incomes of regions vary because of differing factor endowments and factor price. The economic integration and trade in goods lead to income convergence through factor price equalization.

- The Heckscher-Ohlin model predicts that regional specialization will arise as regions produce and export products that are relatively intensive in their abundant resource.

- The increasing returns model predicts that regional specialization will arise if external economies are significant or if conventional production economies of scale dictate that only a few large plants can satisfy total demand.

THEORETICAL ASPECTS

Ricardian Tradition:
Costs

Hecksher- Ohlin
Endowments

-No transport costs
-Immobile Factors

Blended Approach

Lucca Ricci
Krugman, …

New Trade Theory
New Economic Geography

Transport Costs
Factor mobility

(Krugman, Fujita, …)

The same principles for international specialization can be applied to the international trade and inter – regional trade (Ohlin, Krugman)

Krugman, 2008
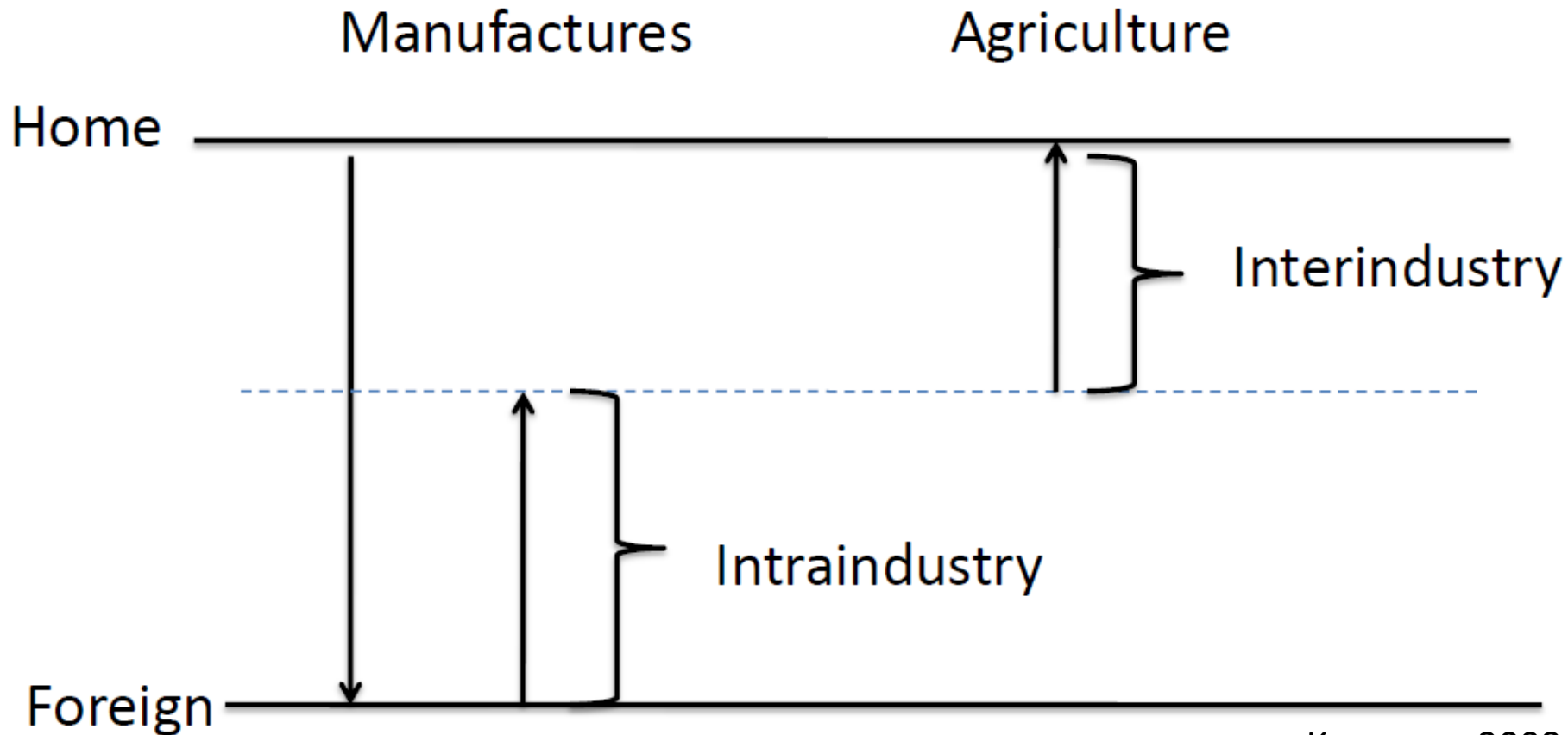
Krugman, 2008

The combination of increasing returns and comparative advantage are provided with a compelling explanation of the trade patterns.

Index of the Regional Specialization:

- Where *Eij* is the level of employment in the industry i = 1, . . . , and *n* for Region *j* and *Ej* is the total industrial employment for region *j* and similarly for region *k*.

- If the index is equal to zero, then two regions, *j* and *k*, are completely despecialized.

- If the index is equal to two, then the regions are completely specialized.

$$SI_{jk} = \sum_{i=1}^{n} \left| \frac{E_{ij}}{E_j} - \frac{E_{ik}}{E_k} \right|$$

In the Krugman book is promptly defined as:

- $\sum_i | s_i - s_i^* |$

where S_i is the industry i´s weight in the *first region*, and S_i^*

$\quad\quad$ * is the industry i´s weight in the *second region*.

Krugman, 1991

According to the chart, European countries are less specialized than American regions.

In terms of the economic functions and the role of each American region they are mutually, more diverse than individual European countries.

	Northeast	Midwest	South	West
1977	NE	MW	S	W
NE	-	0,224	0,247	0,242
MW	-	-	0,336	0,182
S	-	-	-	0,271

Avg: 0,253

	F	G	I	U K
1985				
France	-	0,200	0,197	0,083
Germany	-	-	0,175	0,184
Italy	-	-	-	0,184

Avg: 0,17

Krugman, 1991

USA: Long term Trend in the Specialization Index in Manufacturing

- As factors became increasingly more mobile and as technological innovations favored the development of substitutes, recycling, and less resource-intensive methods over the twentieth century, regional resource differences diminished.

- The growing similarity of regional factor endowments and the fall in scale economies caused regions to become despecialized between World War II and today.

. Regional specialization in manufacturing.   Krugman, 2008
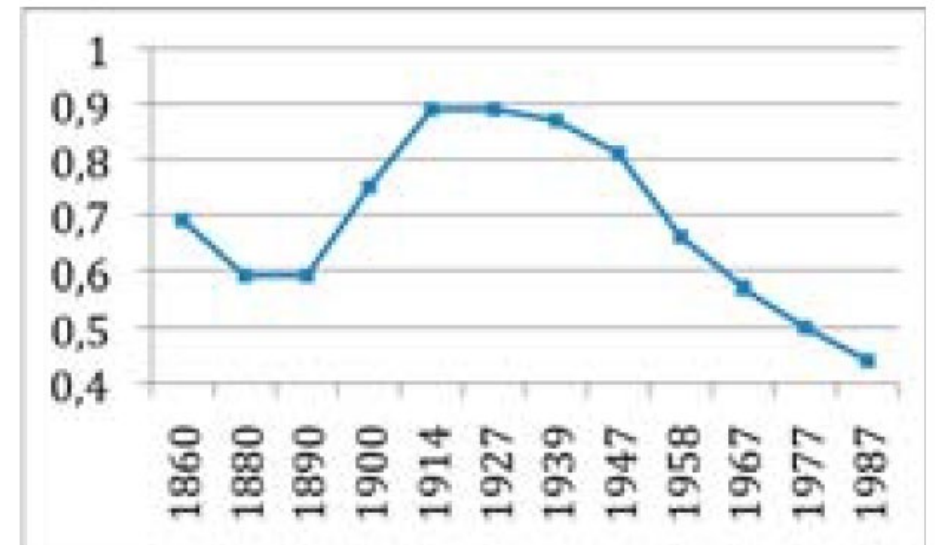
USA: Long term Trend in the Specialization Index in Manufacturing

From Klier and Rubinstein (2006)

Evolution of assembly geography: 2006+
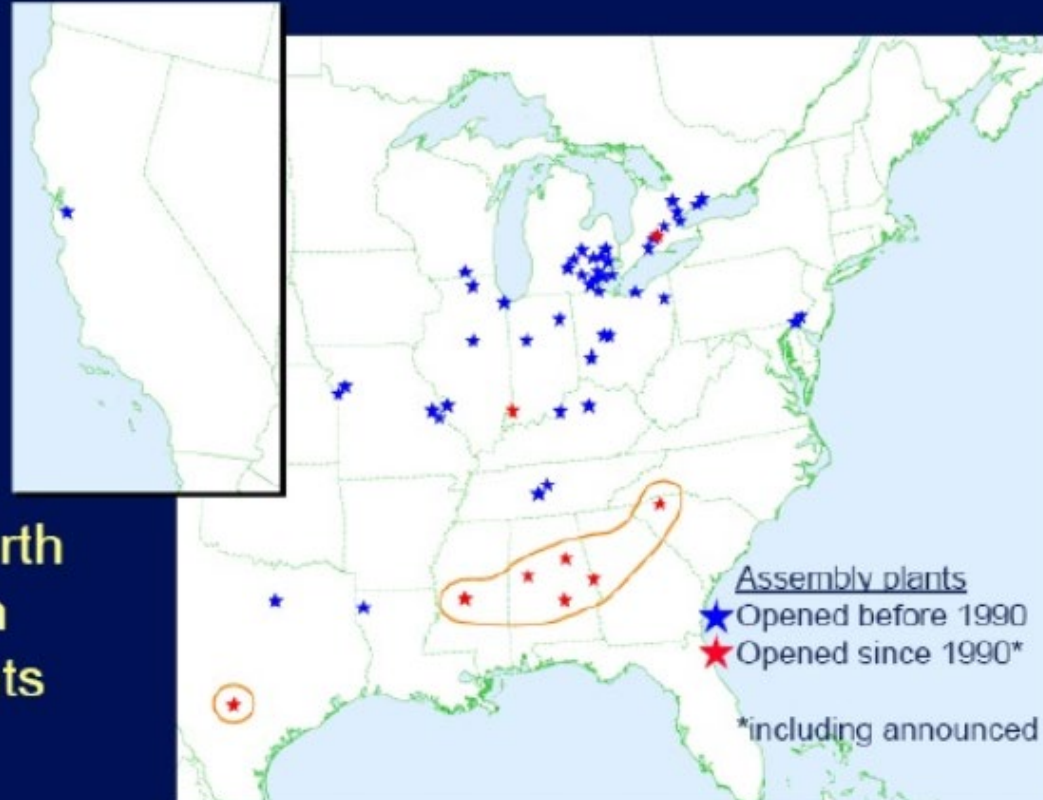
7 of 9 North American transplants in Deep South

Assembly plants
★ Opened before 1990
★ Opened since 1990*

*including announced

Cited by Krugman, 2008

USA: Long term Trend in the Specialization Index in Manufacturing II

- Technological innovations in transportation and communication have continuously increased the geographic mobility of goods, factors, and information.

- The U.S. economy was predominantly agricultural and most regions were endowed with excellent agricultural land.

- However, as manufacturing became more important between the nineteenth and the early twentieth centuries, regional factor endowments became increasingly dissimilar. Regional difference~in resources, such as energy and minerals, as well as capital and skilled labor became significantly more important as the U.S. economy became a manufacturing based economy.

Manufacturing Employment by NUTS 2 (2018)
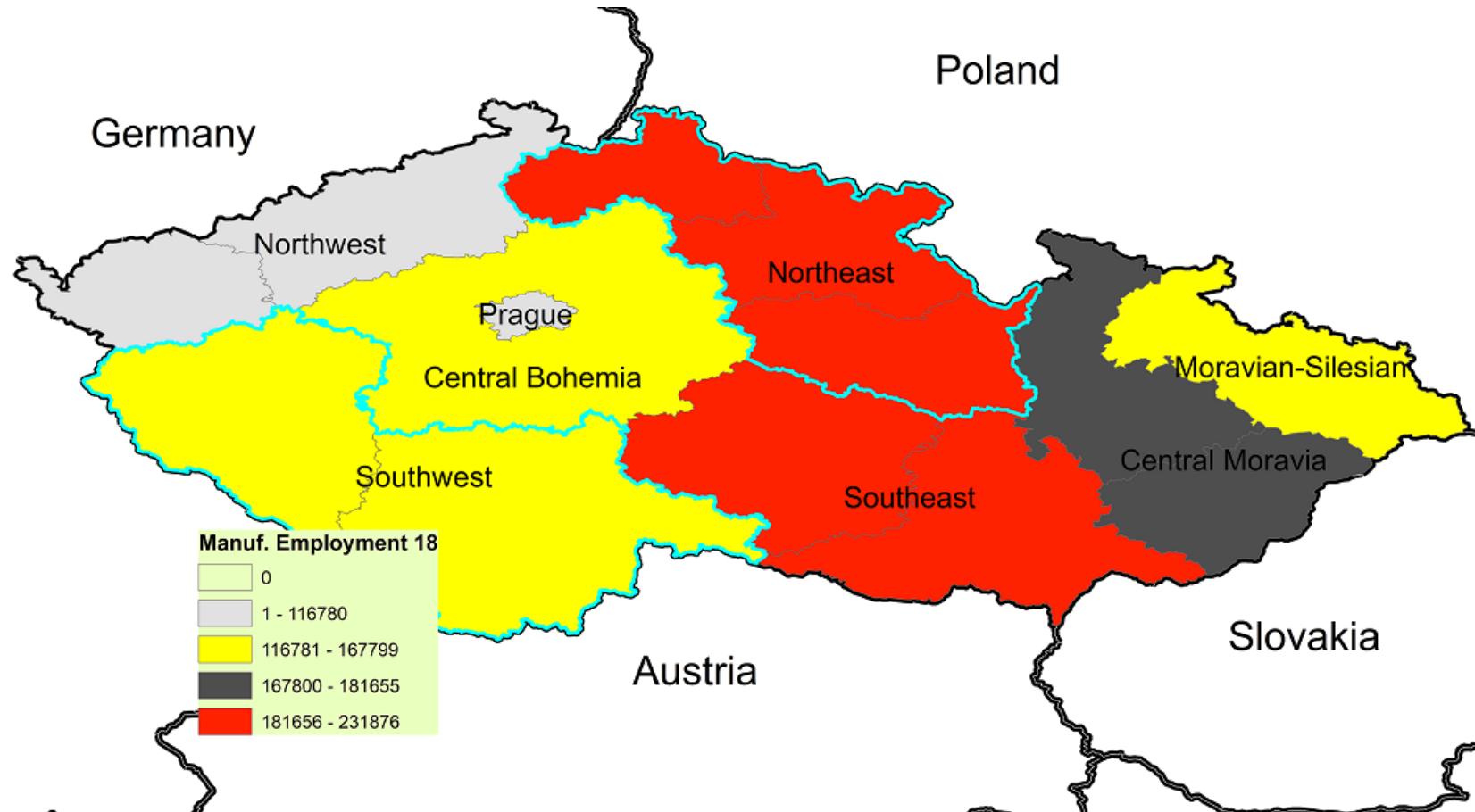
Source: Own elaboration with data EUROSTAT,2018

Composition of manufacturing employment by industry, 2018

Composition of manufacturing employment by sector 2018

	GEO/NACE	Manufacture of food products	Manufacture of beverages	Manufacture of textiles	Manufacture of wearing apparel	Manufacture of leather and related products	Manufacture of wood and of products of wood and cork, except furniture; manufacture of articles of	Manufacture of paper and paper products	Printing and reproduction of recorded media	Manufacture of chemicals and chemical products	Manufacture of basic pharmaceutical products and pharmaceutical preparations	Manufacture of rubber and plastic products	Manufacture of other non-metallic mineral products	Manufacture of basic metals	Manufacture of fabricated metal products, except machinery and equipment	Manufacture of computer, electronic and optical products	Manufacture of electrical equipment	Manufacture of machinery and equipment n.e.c.	Manufacture of motor vehicles, trailers and semi-trailers	Manufacture of other transport equipment	Manufacture of furniture	Other manufacturing	Repair and installation of machinery and equipment
Prague	Praha	10,4%	3,0%	1,4%	3,0%	0,3%	6,6%	1,4%	7,4%	2,6%	2,0%	4,0%	4,8%	1,6%	12,0%	4,0%	8,0%	6,6%	3,0%	2,9%	1,7%	4,4%	8,9%
Central Bohemia	Strední Cechy	7,7%	0,9%	0,5%	1,3%	0,1%	3,7%	1,5%	2,7%	3,2%	0,8%	5,3%	4,6%	2,0%	10,5%	4,1%	3,6%	7,5%	29,6%	1,7%	1,3%	4,0%	2,9%
Southwest	Jihozápad	7,3%	1,8%	1,1%	2,1%	0,2%	5,2%	1,3%	1,0%	1,3%	0,1%	6,5%	3,7%	1,5%	15,5%	2,8%	9,5%	11,4%	16,7%	1,9%	2,0%	4,2%	2,9%
Northwest	Severozápad	5,4%	0,8%	3,1%	1,4%	0,3%	2,5%	2,5%	1,3%	6,2%	0,1%	5,8%	10,1%	3,3%	16,6%	1,2%	8,4%	7,6%	12,1%	0,7%	1,5%	2,8%	6,0%
Northeast	Severový chod	5,6%	0,7%	4,2%	1,5%	0,2%	3,0%	2,1%	0,9%	2,1%	0,4%	8,0%	5,4%	2,1%	12,6%	5,8%	7,9%	11,1%	18,2%	1,1%	1,3%	3,3%	2,3%
Southeast	Jihovýchod	9,1%	1,5%	2,1%	2,8%	0,8%	5,0%	1,3%	1,6%	1,1%	1,5%	7,4%	3,8%	2,4%	16,3%	2,7%	9,2%	13,3%	6,4%	1,2%	2,8%	3,9%	3,6%
Central Moravia	Strední Morava	8,7%	1,1%	0,8%	2,4%	0,8%	3,9%	1,5%	1,1%	3,3%	0,2%	12,8%	2,6%	2,2%	19,9%	4,1%	10,5%	9,2%	4,2%	2,9%	2,3%	2,1%	3,5%
Moravian-Silesian	Moravsko slezsko	6,8%	1,1%	1,2%	1,5%	0,2%	2,8%	1,6%	1,4%	1,4%	1,9%	4,5%	1,8%	12,5%	14,1%	3,1%	7,2%	9,3%	16,4%	3,1%	1,8%	1,2%	4,6%

Source: Modified from EUROSTAT, 2018

SBS data by NUTS2 regions and NACE (from 2018)

SBS data by NUTS 2 regions and NACE Rev. 2 (from 2008 onwards) [sbs_r_nuts06_r2]

NAME ENGLISH	NACE_R2	Manufacturing	Manufacture of food products	Manufacture of beverages	Manufacture of textiles	Manufacture of wearing apparel	Manufacture of leather and	Manufacture of wood and of	Manufacture of paper and paper	Printing and reproduction of	Manufacture of chemicals and	Manufacture of basic pharmace	Manufacture of rubber and	Manufacture of other non-metallic mineral	Manufacture of basic metals	Manufacture of fabricated metal products,	Manufacture of computer, electronic and optical	Manufacture of electrical equipment	Manufacture of machinery and equipment	Manufacture of motor vehicles, trailers and	Manufacture of other transport equipment	Manufacture of furniture	Other manufacturing	Repair and installation of machinery and
	GEO/TIME	2018	2018	2018	2018	2018	2018	2018	2018	2018	2018	2018	2018	2018	2018	2018	2018	2018	2018	2018	2018	2018	2018	2018
	Czechia	1 327 215	100 161	16 986	25 227	26 163	5 167	53 242	21 419	24 211	32 230	10 752	95 193	58 363	44 858	196 732	48 010	108 240	132 491	181 486	24 367	24 931	43 027	51 627
	Cesko	1 327 215	100 161	16 986	25 227	26 163	5 167	53 242	21 419	24 211	32 230	10 752	95 193	58 363	44 858	196 732	48 010	108 240	132 491	181 486	24 367	24 931	43 027	51 627
Prague	Praha	93 123	9 661	2 782	1 263	2 763	253	6 103	1 330	6 850	2 382	1 860	3 716	4 434	1 518	11 153	3 738	7 429	6 165	2 784	2 695	1 570	4 137	8 303
Central Bohemia	Strední Cechy	158 518	12 185	1 444	724	1 995	211	5 904	2 312	4 242	5 086	1 289	8 394	7 358	3 247	16 606	6 449	5 715	11 876	46 906	2 624	1 997	6 320	4 555
Southwest	Jihozápad	167 799	12 307	3 055	1 861	3 441	257	8 728	2 116	1 742	2 151	92	10 925	6 288	2 582	25 964	4 774	15 966	19 184	28 012	3 144	3 309	7 026	4 817
Northwest	Severozápad	116 780	6 334	971	3 671	1 632	298	2 939	2 892	1 551	7 247	159	6 810	11 807	3 871	19 381	1 427	9 821	8 896	14 186	777	1 747	3 290	7 041
Northeast	Severovýchod	231 876	13 100	1 656	9 805	3 407	534	6 999	4 800	2 089	4 761	857	18 539	12 634	4 758	29 324	13 343	18 387	25 676	42 261	2 486	3 073	7 762	5 321
Southeast	Jihovýchod	222 202	20 251	3 432	4 686	6 321	1 790	11 091	2 870	3 497	2 403	3 296	16 445	8 402	5 410	36 240	6 056	20 524	29 492	14 254	2 612	6 291	8 772	8 040
Central Moravia	Strední Morav	181 655	15 735	1 938	1 424	4 300	1 526	7 073	2 669	2 014	5 969	309	23 342	4 655	4 007	36 217	7 451	19 153	16 687	7 599	5 201	4 134	3 857	6 366
Moravian-Silesian	Moravskoslezsk	155 261	10 587	1 707	1 793	2 304	298	4 407	2 430	2 225	2 232	2 888	7 021	2 785	19 465	21 847	4 772	11 246	14 516	25 483	4 828	2 810	1 864	7 184

Persons employed - number (2018)

Source: Modified from EUROSTAT, 2018

Divergence in Manufacturing Employment (2018)

NUTS2 regions			Prague	Central Bohemia	Southwest	Northwest	Northeast	Southeast	Central Moravia	Moravian-Silesia
			Praha	Strední Cechy	Jihozápad	Severozápad	Severovýchod	Jihovýchod	Strední Morava	Moravskoslezsko
				(Mladá Boleslav, Kutná Hora, Kolín)	(České Budějovice, Plzen, Strakonice, Tabor)	(Ústí nad Labem, Karlovy Vary, Teplice)	(Hradec Králové, Pardubice, Jablonec nad Nisou, Česká Lípa)	(Brno-město, Jihlava, Třebíč, Znojmo, Hodonín)	(Olomouc, Zlín, Kroměříž, Vsetín)	(Ostrava, Bruntál,Frýdek-Místek)
Prague	Praha									
Central Bohemia	Strední Cechy	(Mladá Boleslav, Kutná Hora, Kolín)	0,603							
Southwest	Jihozápad	(České Budějovice, Plzen, Strakonice, Tabor)	0,525	0,414						
Northwest	Severozápad	(Ústí nad Labem, Karlovy Vary, Teplice)	0,609	0,567	0,421					
Northeast	Severovýchod	(Hradec Králové, Pardubice, Jablonec nad Nisou, Česká Lípa)	0,613	0,395	0,266	0,387				
Southeast	Jihovýchod	(Brno-město, Jihlava, Třebíč, Znojmo, Hodonín)	0,444	0,593	0,246	0,460	0,421			
Central Moravia	Strední Morava	(Olomouc, Zlín, Kroměříž, Vsetín)	0,512	0,638	0,408	0,527	0,520	0,317		
Moravian-Silesian	Moravskoslezsko	(Ostrava, Bruntál,Frýdek-Místek)	0,604	0,510	0,343	0,478	0,409	0,491	**0,536**	

Own calculation based on data EUROSTAT

Index of regional Specialization Average 0,473

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THANK YOU FOR YOUR ATTENTION

Q and A?