



COMPARISON OF SELECTED PERFORMANCE INDICATORS OF WOODWORKING INDUSTRY IN THE CZECH REPUBLIC AND SLOVAKIA

**POSITION AND ROLE OF THE
FOREST BASED SECTOR IN THE
GREEN ECONOMY**

Zvolen, Slovakia

May 21st-23rd 2014

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The main goal of this presentation is to present comparison of selected performance indicators of woodworking industry in the Czech Republic and Slovakia and their statistical forecasting through a correlation analysis.

The term "**performance**" is used very often, but nowhere in the legislative act is precisely defined. European Foundation for Quality Management defines "*performance*" as "*a rate of achievement by individuals, groups, organizations and processes*"

Basic Indicators of Performance = Sales, Economic result, Value Added (VA)

- VA = production value - intermediate consumption**
- *VA = wages + benefits + social operating surplus (i.e. depreciation +/- profit before paying interest and taxes),*
 - *production value - for the production of revenues (sales),*
 - *intermediate consumption (the cost of raw materials and services).*



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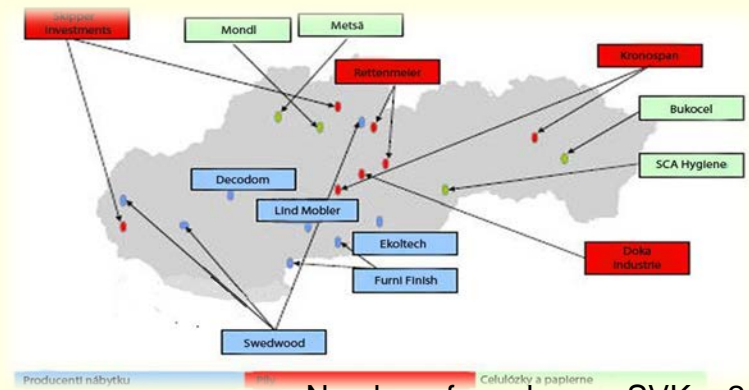
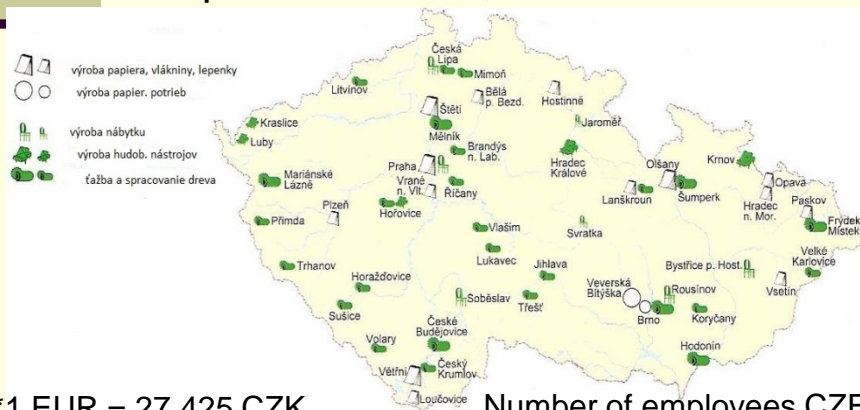
Czech republic



Currency:	Czech koruna (CZK) *
GDP:	3 845,93 mld. CZK
GDP per capita:	365 955 CZK (13 343 €)
GDP by sector:	agriculture – 1,8 % industry– 39,6 % service – 58,6%
Unemployment rate:	8,3%
Public debt:	46,5% from GDP
Inflation rate:	1,4 %
Average gross monthly wage:	26 637 CZK (971 €)
Value of exports:	3 076,2 bilion CZK
Value of imports:	2 766,9 bilion CZK

Slovakia

Currency:	Euro
GDP:	71 764,9 mil €
GDP per capita:	13 265 €
HDP by sector:	agriculture - 2,7%, industry - 35,6%, service - 61,8%
Unemployment rate:	14,2%
Public debt:	58 % from GDP
Inflation rate:	1,4 %
Average gross monthly wage:	824 €
Value of exports:	39,7 mld. EUR
Value of imports:	38,7 mld. EUR



*1 EUR = 27,425 CZK Number of employees CZE = 75 000

Number of employees SVK = 21 000

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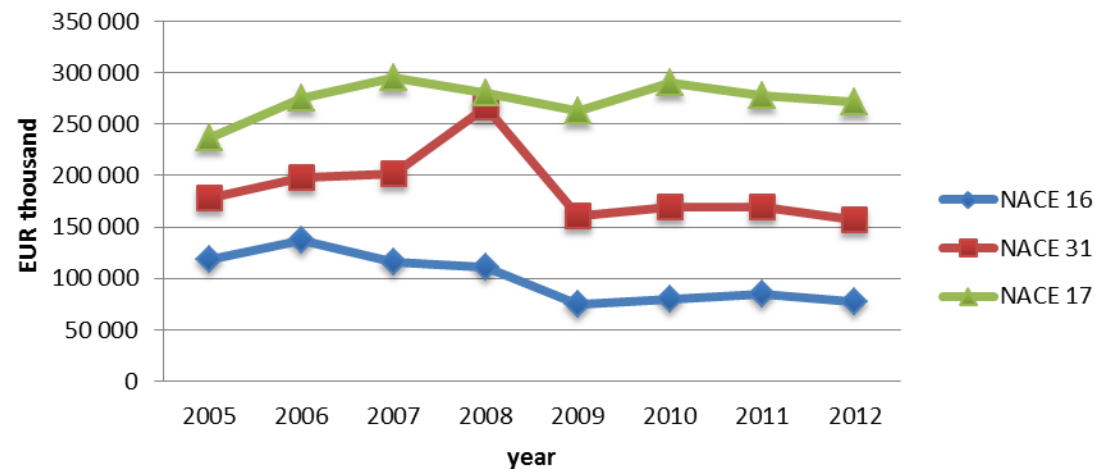
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Table 1. Basic indicators of performance in woodworking industry in Slovakia

Indicator		Unit	2005	2006	2007	2008	2009	2010	2011	2012
Value added	16	th. €	118 856	136 883	115 816	110 402	75 303	79 402	84 377	77 139
	31		177 769	197 764	202 159	265 988	161 229	168 859	169 053	157 282
	17		236 819	275 022	295 394	280 601	262 339	290 347	277 271	271 584
	Σ		533 445	609 671	613 369	656 992	498 871	538 608	530 701	506 005
Average monthly wage	16	€	436	487	544	589	583	635	647	663
	31		571	573	628	645	636	660	680	1 023
	17		728	792	851	899	948	974	965	714
	Σ		565	598	652	690	722	771	764	800
Profit after taxation	16	th. €	20 798	29 785	24 876	3 919	-37 107	-19 633	-36 563	-10 792
	31		41 960	32 274	12 313	2 000	-10 000	-10 000	-10 000	-10 000
	17		45 933	77 856	65 740	9 000	10 000	10 000	10 000	10 000
	Σ		108 691	139 916	102 930	14 919	-37 107	-19 633	-36 563	-10 792
Average number of employees	16	person	9 924	9 681	9 451	9 000	8 000	8 000	8 000	8 000
	31		11 830	14 240	15 970	16 000	16 000	16 000	16 000	16 000
	17		7 458	7 285	7 110	7 000	7 000	7 000	7 000	7 000
	Σ		29 212	31 206	32 531	32 000	31 000	31 000	31 000	31 000
Sales	16	th. €	514 769	585 724	678 981	580 000	500 000	500 000	500 000	500 000
	31		957 044	972 681	1 284 308	1 200 000	1 200 000	1 200 000	1 200 000	1 200 000
	17		1 083 091	1 203 166	1 414 868	1 400 000	1 400 000	1 400 000	1 400 000	1 400 000
	Σ		2 554 905	2 761 572	3 378 159	2 980 000	2 900 000	2 900 000	2 900 000	2 900 000

Value added - Woodworking industry Slovakia



Source: Yearbook of industry in the Slovak Republic 2005 -2012 issued by the Statistical Office of Slovak Republic.

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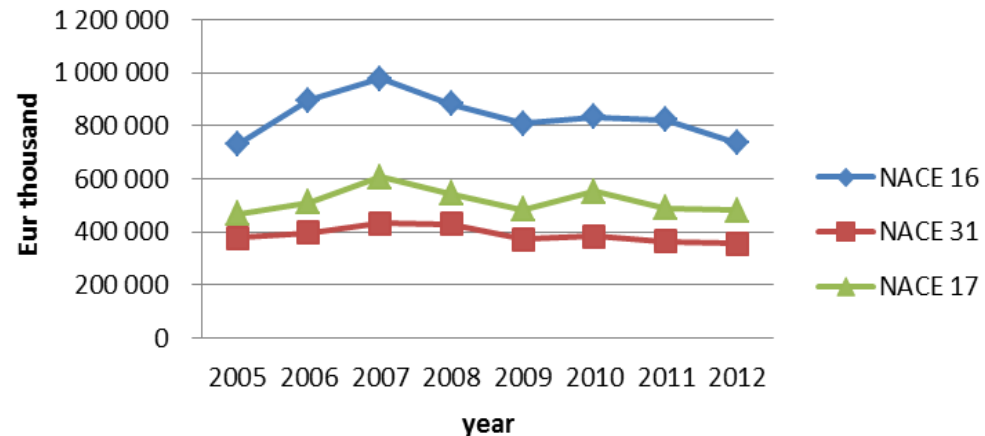
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Table 2. Basic indicators of performance in woodworking industry in Czech Republic

Indicator		Unit	2005	2006	2007	2008	2009	2010	2011	2012*
Value added	16	th. €	730 966	896 125	977 392	882 456	807 539	832 329	821 654	735 205
	31		378 828	396 325	433 303	429 730	373 475	382 866	363 439	356 640
	17		469 069	512 207	605 828	543 367	483 285	552 811	491 178	482 516
	Σ		1 578 863	1 804 657	2 016 523	1 855 553	1 664 299	1 768 006	1 676 271	157 436
Average monthly wage	16	€	444	487	553	581	605	645	636	615
	31		469	514	583	632	638	683	673	651
	17		606	690	760	803	861	939	914	872
	Σ		506	564	632	672	701	756	741	713
Profit after taxation	16	th. €	177 310	263 926	316 021	247 330	166 736	182 954	188 855	-
	31		55 138	49 372	64 744	63 553	31 164	44 412	47 931	-
	17		137 414	123 740	173 689	97 749				
	Σ		369 862	437 038	554 454	408 632				
Average number of employees	16	person	45 281	45 682	45 976	44 248				
	31		30 179	30 290	30 895	28 716				
	17		21 469	21 036	22 212	21 412				
	Σ		96 929	97 008	99 083	94 376				
Sales	16	th. €	2 828 207	3 381 626	3 781 583	3 502 884				
	31		1 415 414	1 494 670	1 672 262	1 522 866				
	17		2 112 483	2 138 476	2 480 246	2 233 786				
	Σ		6 356 103	7 014 772	7 934 092	7 259 536				

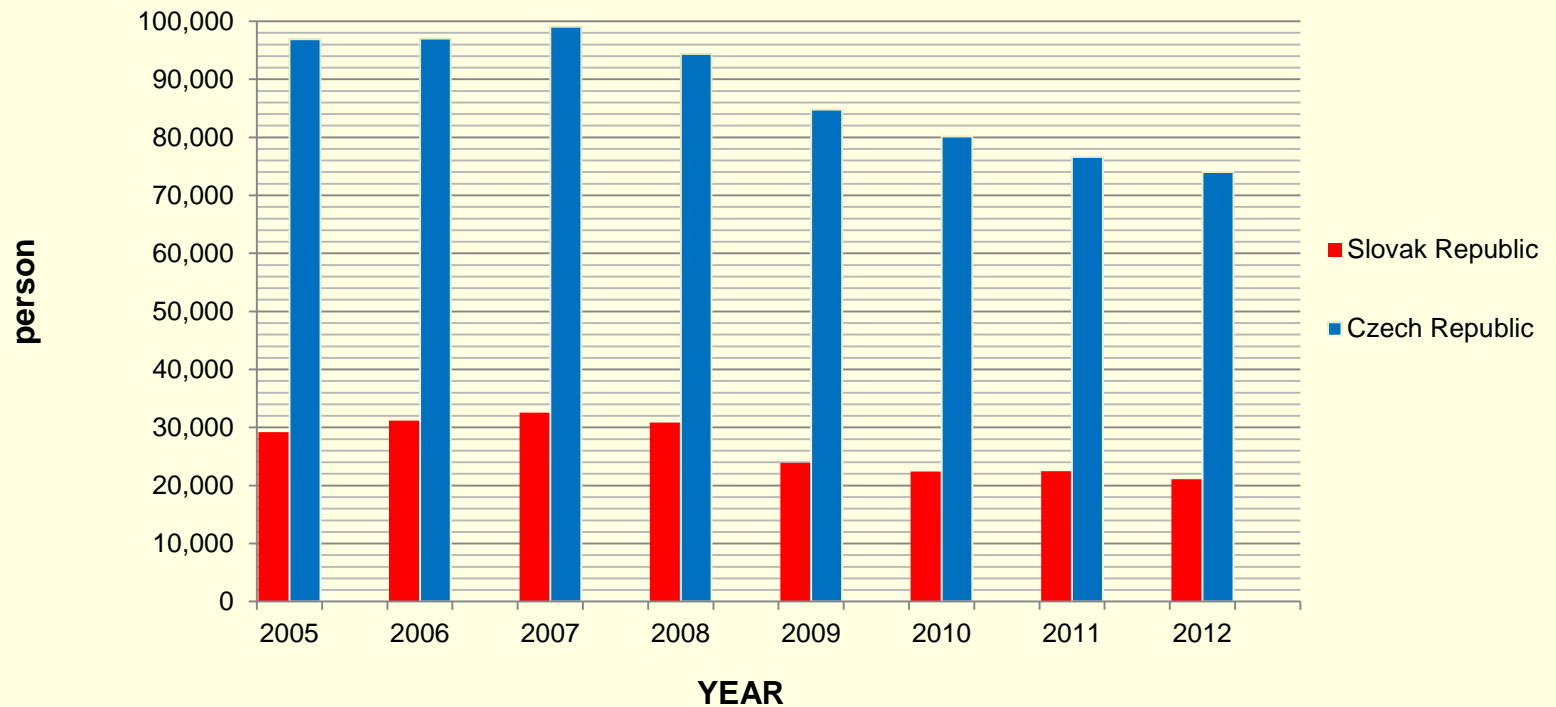
* estimate

**Value added - Woodworking industry
Czech Republic**



Source: Yearbook of industry in the Czech Republic 2005 -2012 issued by the Statistical Office of Czech Republic.

Average number of employees in woodworking industry

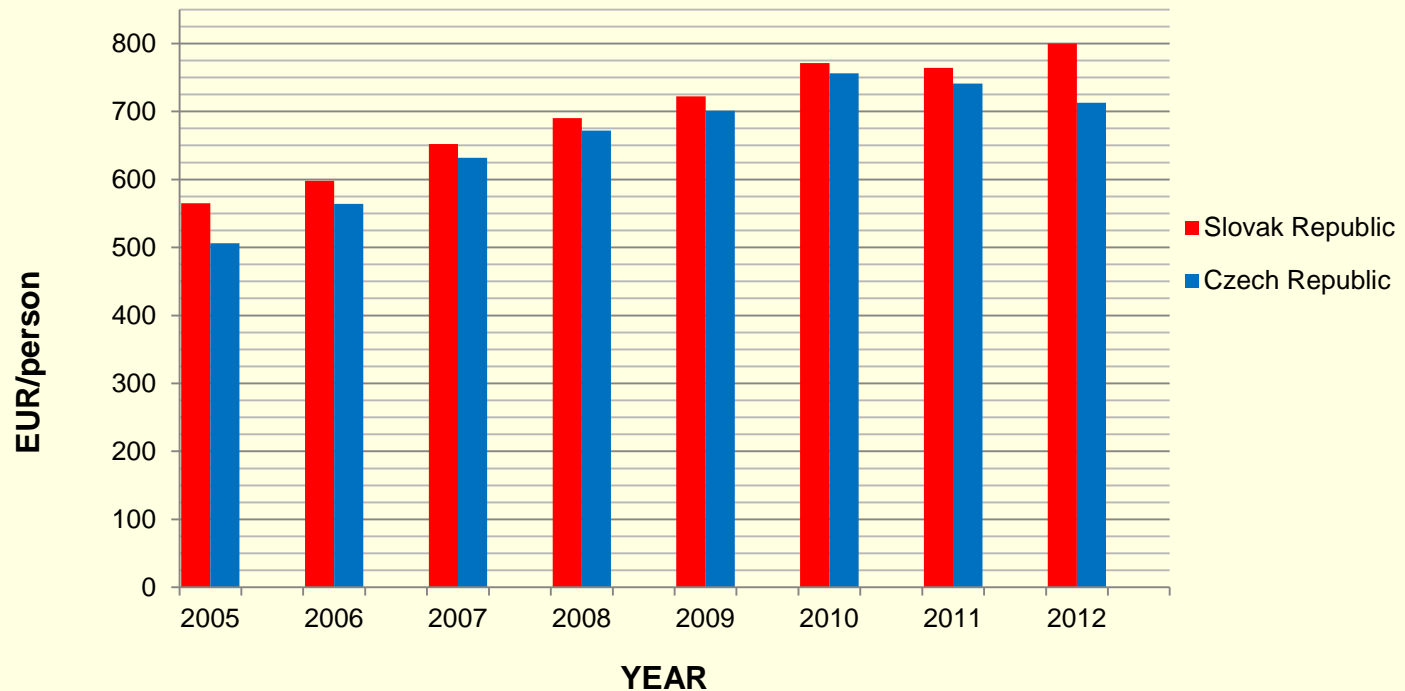


Sales/ Employees (2012)

115 280 €employee

96 783 €employee

Average monthly wage in woodworking industry



The average monthly wage in the: national economy (2013)/ woodworking industry (2012)

824 € / 800 €

971 € / 713 €

Simple linear correlation

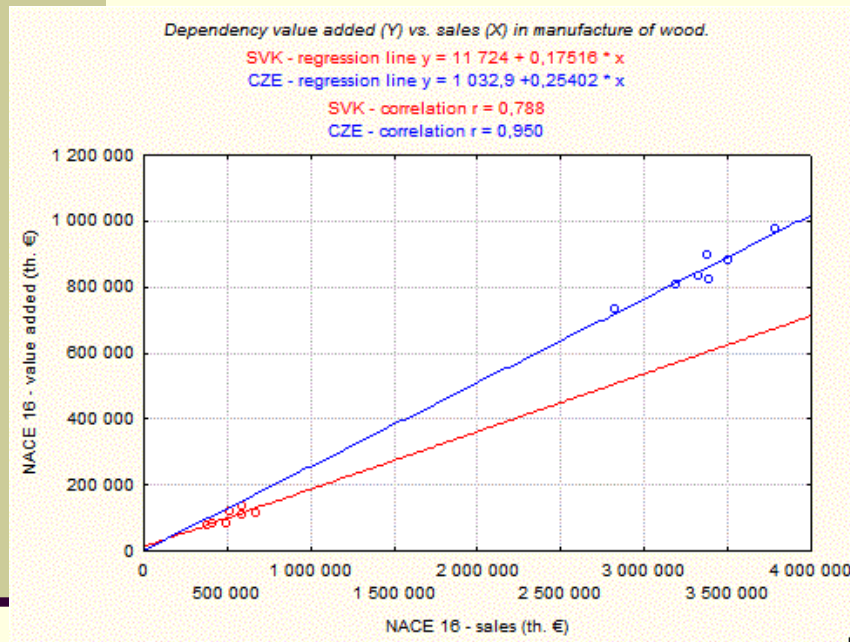


Figure 1 Correlation analyses for sector of manufacture of wood – sales/value added

In the Czech Republic we can even discuss about a very close linear relationship with a correlation coefficient of $r = 0.950$. From the coefficient mentioned above, we can conclude that these two variables (value added and sales) are highly influenced by each other, much more than it is in the Slovak Republic, where the correlation coefficient reaches a value only at $r = 0.788$. Coefficient of determination $d = r^2$ indicates that in the Slovakia the variability of sales explains 62% variability of value added. The remaining 38% are associated with random influences, as well as other factors not included in the regression function. The equation of the regression line has the form:

$y = 11\,724 + 0.17516 \cdot x$, in the Czech Republic is the coefficient of determination even at 90% while only the remaining 10% is attributed to random effects. The equation of the regression line for the Czech Republic has the form $y = 1\,032,9 + 0,25402 \cdot x$.

Simple linear correlation

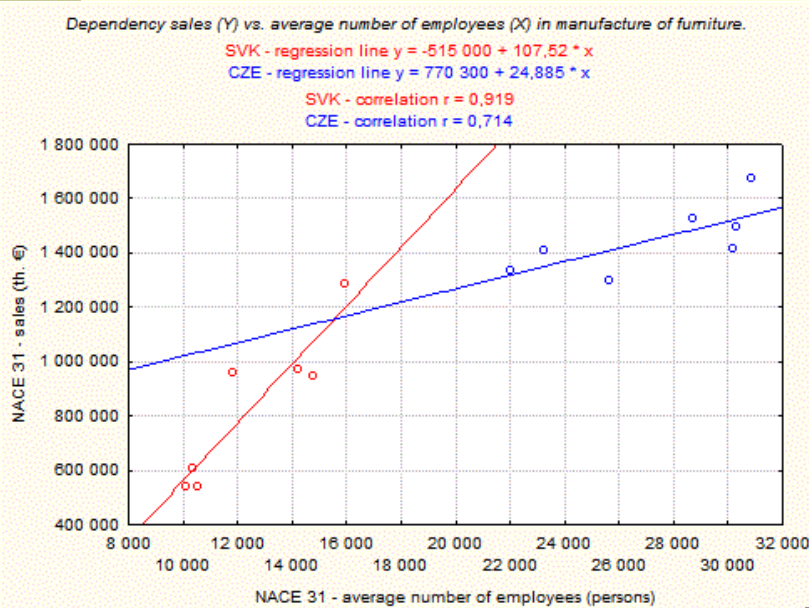


Figure 2 Correlation analyses for sector of manufacture of furniture - number of employees/sales

In Slovakia is higher dependence of average registered number of employees and sales in manufacturing of furniture than in the Czech Republic. This fact also indicates a tight correlation at $r = 0.919$. From the regression line for the Slovak Republic $y = -515\,000 + 107,52 \cdot x$, we can conclude that the increase in the number of employees by 1 unit (1 employee) will increase the revenues by an average of 107,520 €.

Coefficient of determination is $r^2 = 84\%$, and we can say that 84 % variability of sales is caused by variability of average registered number of employees. In the Czech Republic is the correlation coefficient at $r = 0.714$ and the regression line has the form $y = 770\,300 + 24,885 \cdot x$.

Simple linear correlation

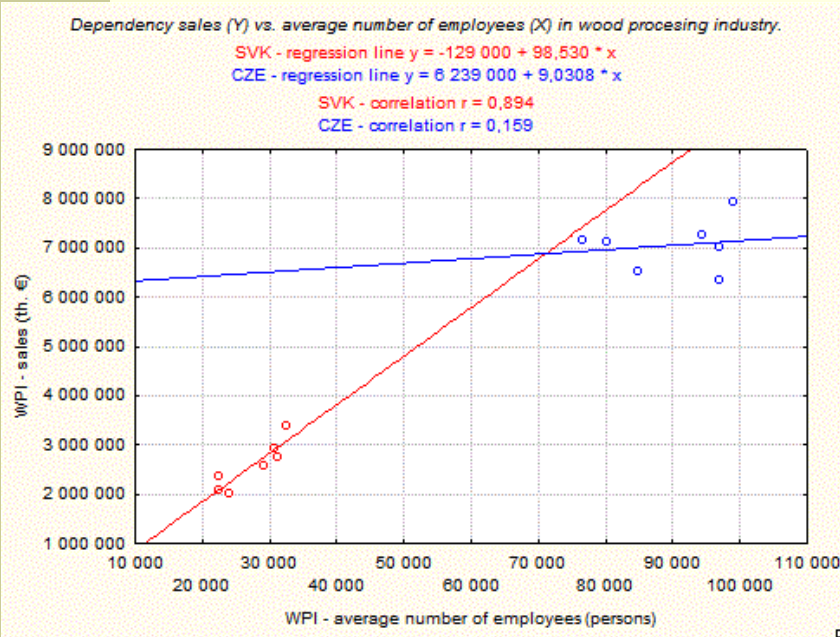


Figure 3 Correlation analyses for woodworking industry - number of employees/sales

Between the indicators of average registered number of employees and sales in the whole sector of wood processing industry (WPI) we found a close correlation in Slovakia with the value of the correlation coefficient $r = 0.894$. Therefore we can argue that in case of increase in the number of employees in the woodworking has also increased the average sales in woodworking industry in Slovakia. Coefficient of determination in Slovakia is $d = 80\%$, which means that the remaining 20% are random influences. Regression line has the form $y = -129\,000 + 98,530 \cdot x$. In the Czech Republic a close relationship we do not can argue, because the correlation coefficient is only at $r = 0.159$. Regression line has the form $y = 6\,239\,000 + 9,0308 \cdot x$.

In a similar way it would be possible to present amount of dependences of individual sectors of WWI in both countries. This dependences can be subsequently generate more detailed analysis and comparison with other sectors of national industry.

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Thanks for your attention