

# Evolution of the rmc market in Europe 2007-2011

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## **Abstract**

For a number of years ERMCO has been collecting data from its members on production, turnover, cement consumption, number of plants and employees in the sector. This long track record now allows ERMCO to trace the evolution of the rmc market in Europe over time and to examine trends in the sector, with specific attention to the 2007-2011 period.

## **Keywords**

Ready-mixed concrete, production, plants, turnover, cement.

## **Biographical notes**

A civil engineer, for a number of years has been Research Professor of Building Materials and Structural Engineering at the Department of Structural and Geotechnical Engineering, Polytechnic of Turin, Italy.

Expert in concrete and reinforced concrete related matters, since 1975 he has been involved on Standards and Codes assessment, evaluation and implementation and is a member of CEN Committees TC104 - Concrete and TC250/SC2 - Eurocodes.

Since 1997 he has been Secretary-General of ERMCO, the European Ready-Mixed Concrete Organisation, based in Brussels.



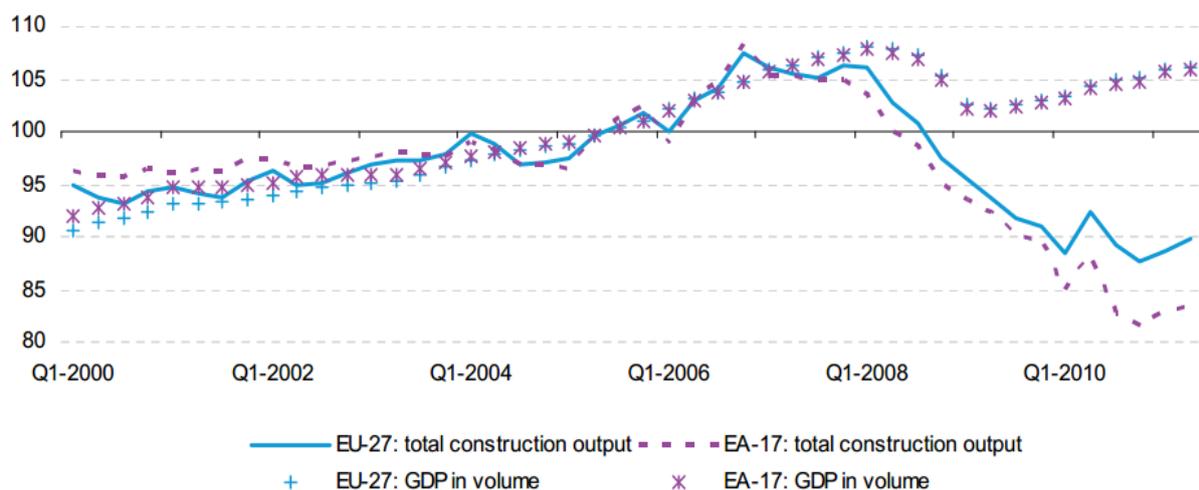
## 1. INTRODUCTION

The end of a long period of expansion in the European construction sector has been coincident with a severe worldwide economic and financial crisis. The result has been a sudden fall since 2007 in demand for all construction materials and ready-mixed concrete is no exception. On the basis of data collected for a number of years in a number of European countries, the major EU indicators and trends for the 2007-2011 period are examined and discussed.

### 2. 2007: the sudden change

According to Eurostat [1], from 2000-2011 the change in the index of production for total construction compared to that for the development of Gross Domestic Product (GDP), in volume terms and with the effect of inflation price changes being removed, clearly marks Y2007 as the starting point of the construction sector decline (figure 1). From 2007 onwards construction activity slowed and later, from the second quarter of 2008, the European economy went into recession, with the downturn in construction activity far greater than the average reductions in GDP as a whole. 2007 may therefore be assumed as a starting point to examine the evolution of the ready-mixed concrete sector.

In recent years, on average, the construction sector has been performing worse than the general economy: though indicators confirm some recovery during 2011, no definite positive trend can yet be identified.



(<sup>1</sup>) Construction output index: seasonally adjusted, includes estimates. Index for constant price GDP: seasonally adjusted and working day adjusted.

Figure 1 Total construction and GDP, 2000-2011 (2005 = 100) [1]

In fig. 1 the curves traced for 27 EU members (EU-27) and the 17 countries belonging to the Euro Area (EA-17), show a similar trend. This suggests that in order to trace trends, EU “cumulative” information, if available, may reasonably be taken as representative without excessive bias. This is the case for ready-mixed concrete data[2], which have been available for a number of years for 17 countries (EU17 in the text) which are EU ERMCO members but not all belonging to the Euro (€) Area. Such cumulative information can be used for a pan-European review but, as it may strongly over- or under-estimate national trends, conclusions have to be drawn cautiously.

According to a recent report [4] “...whereas construction activity in the various Member States has been impacted with equal force during the first two years (2008-2009) of the crisis, since then, the recovery process has varied greatly from one country to the other and the situation is relatively complex to assess...”. According to the report, trends in construction are largely different in two different European areas: north-western countries and south-eastern countries plus Ireland.

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The ERMCO data were classified accordingly, putting together information for countries belonging to the two suggested macro regions to make comparisons for the whole 2007-2011 period, in order to better identify trends.

The first set of data. is for total production and plant average production, calculated on the basis of the number of plants in each country. In table 1, and in the following ones, north-western countries (N-W) are in green, south-eastern plus Ireland (S-E) in red.

	Ready-mixed concrete production [ $10^6$ m <sup>3</sup> ]					Rmc production change (%)					Plant average production (m <sup>3</sup> /plant)					Plant production change (%)				
	2007	2008	2009	2010	2011	2007	2008	2009	2010	2011	2007	2008	2009	2010	2011	2007	2008	2009	2010	2011
<b>Austria</b>	11,3	11,5	10,3	10,2	10,5	100	102	91	90	93	44314	45098	40392	41633	43750	100	102	91	94	99
<b>Belgium</b>	12,0	11,8	10,4	10,8	11,6	100	98	87	90	97	44444	43704	39098	40000	42963	100	98	88	90	97
<b>Denmark</b>	2,9	2,7	1,8	1,7	1,7	100	93	62	59	59	26364	25234	18000	18085	18085	100	96	68	69	69
<b>Finland</b>	3,1	2,8	2,0	2,6	3,0	100	90	65	84	97	16316	14737	10526	13684	15385	100	90	65	84	94
<b>France</b>	45,0	44,1	37,0	37,4	41,3	100	98	82	83	92	25729	24692	20694	20743	22742	100	96	80	81	88
<b>Germany</b>	40,8	41,0	37,7	42,0	48,0	100	100	92	103	118	21206	21444	19738	21483	24742	100	101	93	101	117
<b>Netherlands</b>	8,9	10,5	9,3	8,1	8,8	100	118	104	91	99	44949	53030	46970	40500	47312	100	118	104	90	105
<b>Poland</b>	16,0	21,2	17,7	18,6	23,7	100	133	110	116	148	15625	20742	17249	18164	22701	100	133	110	116	145
<b>Sweden</b>	3,3	3,5	2,8	3,3	3,3	100	106	85	100	100	16500	17500	14000	16667	16667	100	106	85	101	101
<b>United Kingdom</b>	25,6	20,5	15,8	15,7	16,7	100	80	62	61	65	24381	20500	15960	16702	18152	100	84	65	69	74
<b>Czech Republic</b>	8,5	9,6	7,3	6,4	7,5	100	113	86	75	88	18889	21333	16222	14222	16667	100	113	86	75	88
<b>Greece</b>	24,0	22,0	17,0	12,0	12,0	100	92	71	50	50	38095	34921	34000	30000	30000	100	92	89	79	79
<b>Ireland</b>	7,4	10,0	3,8	2,7	2,7	100	135	51	36	36	29600	40000	15200	10800	10800	100	135	51	36	36
<b>Italy</b>	75,2	73,2	58,8	54,4	51,8	100	97	78	72	69	26962	26222	21810	20163	20972	100	97	81	75	78
<b>Portugal</b>	11,5	11,0	8,5	7,5	6,1	100	96	74	65	53	36508	35484	27869	24194	21034	100	97	76	66	58
<b>Slovakia</b>	3,2	3,7	2,6	2,4	2,33	100	116	81	75	73	11034	12131	8814	8276	8321	100	110	80	75	75
<b>Spain</b>	95,3	69,0	49,0	39,1	30,8	100	72	51	41	32	39283	28442	20053	16929	17042	100	72	51	43	43
<b>N-W average</b>	<b>16,9</b>	<b>17,0</b>	<b>14,5</b>	<b>15,0</b>	<b>19,6</b>	<b>100</b>	<b>102</b>	<b>84</b>	<b>88</b>	<b>97</b>	<b>27983</b>	<b>28668</b>	<b>24263</b>	<b>24766</b>	<b>27250</b>	<b>100</b>	<b>102</b>	<b>85</b>	<b>89</b>	<b>99</b>
<b>S-E average</b>	<b>32,2</b>	<b>28,4</b>	<b>21,0</b>	<b>17,8</b>	<b>13,2</b>	<b>100</b>	<b>103</b>	<b>70</b>	<b>59</b>	<b>57</b>	<b>28624</b>	<b>28362</b>	<b>20567</b>	<b>17798</b>	<b>17834</b>	<b>100</b>	<b>102</b>	<b>74</b>	<b>64</b>	<b>65</b>

Table 1 - EU17 –Total and plant production 2007-2011 [2]

The change evident in the graph (fig. 2) confirms the correctness of the subdivision of Europe into two macro areas: the trends in the two variables are totally different - northern countries have recovered earlier while the southern ones are still in the middle of the crisis.

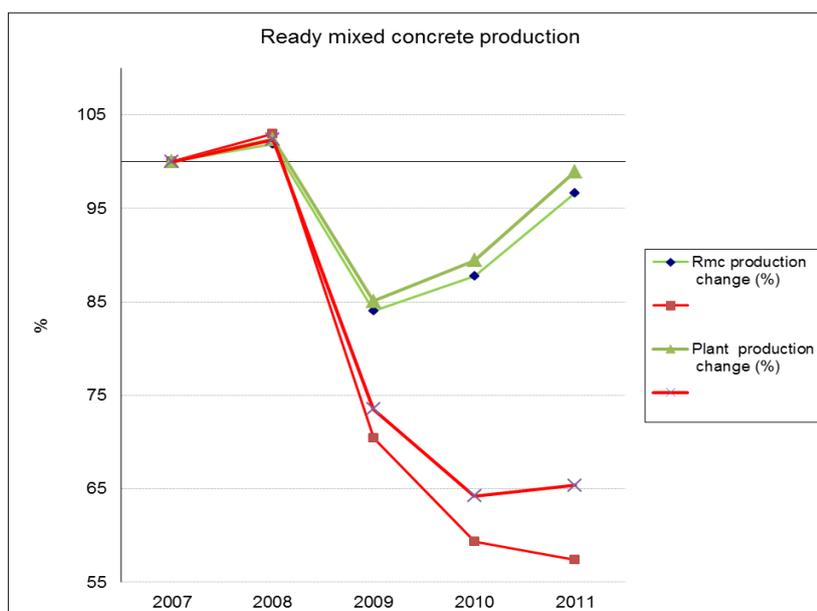


Figure 2 - EU17 –Total and plant production % change 2007-2011 (2007 = 100) [2]

Other indicators may be used to “value” what has happened. Using as reference the standard EU classification of the different types of construction – housing, new non-residential,

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repair/maintenance, and civil engineering works (railways, roads, bridges, etc.), figure 3 represents cement consumption in the EU27 grouped by end use. Some changes are evident in the relative importance of the different uses for cement. Building works were affected most by the crisis, as the share of cement used in new housing has fallen from 34 to 26% in the 2007-2010 period, while cement use in civil engineering has been stable or even increased (from 31 to 33%). The share of non-residential uses also increased (from 26 to 34%).

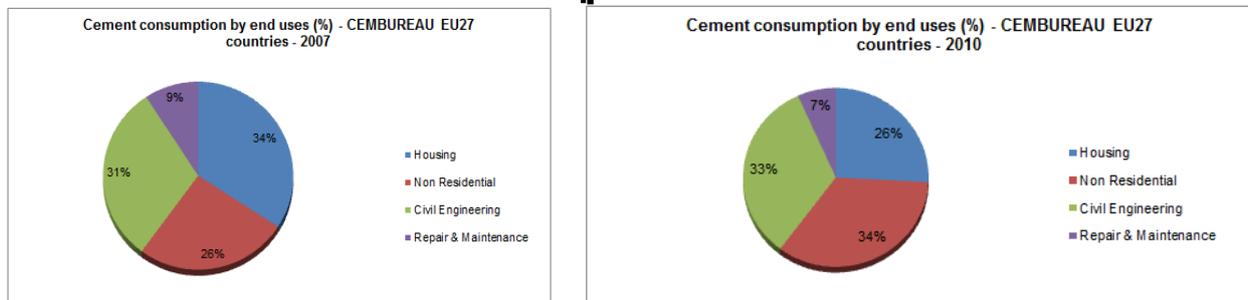


Figure 3 EU 27 - Cement consumption by end uses 2007-2010 – Source: Cembureau

However, in a shrinking economy graphs may be misleading. Absolute figures give a totally different picture: from 2007 to 2010 cement going into housing construction fell by 60%, from 81430 to 32119 kt; cement for civil engineering fell by 35%, from 62762 to 41006 kt; and cement for non-residential uses fell 28%, from 58981 to 42698 kt.

The same decline in absolute terms is observed in cement used for ready-mixed concrete production. However, though reduced in absolute terms, the percentage of cement going into ready-mixed concrete remains almost constant over the years: it fluctuates around 50% for NW countries, while for the SW countries it has increased somewhat to over 50% (figure 4).

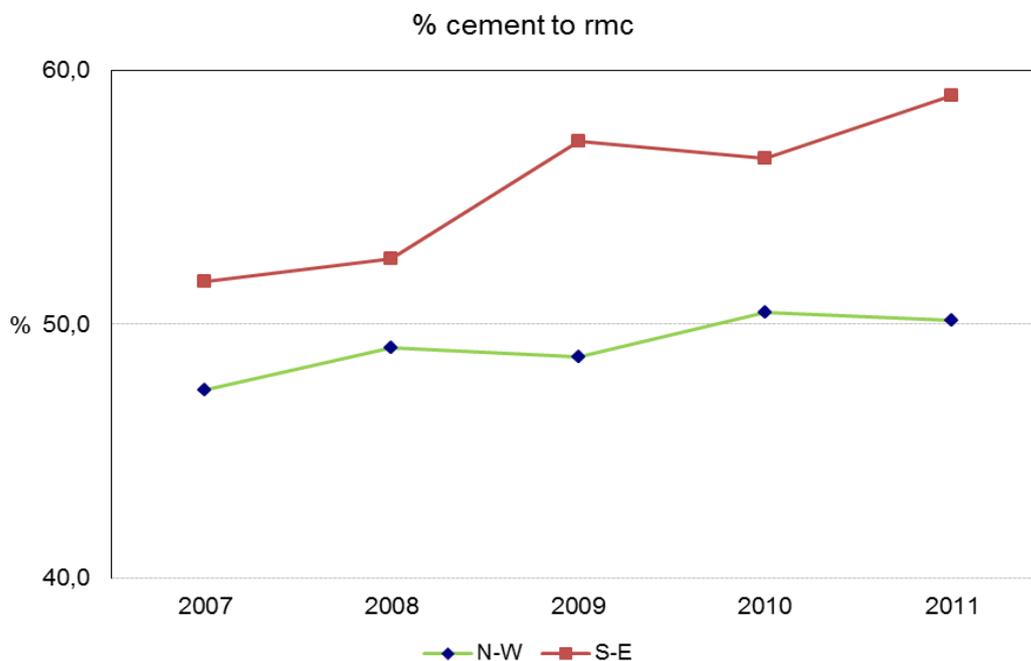


Figure 4 EA17 - % cement to ready-mixed concrete 2007-2011 [2]

On the other hand, the average quantity of cement per m<sup>3</sup> of ready-mixed concrete shows no difference between the NW/SE groups, nor has it changed over the years under consideration. It varies greatly from country to country, reflecting different technical and normative situations (table 5).

	cement to rmc kg/m <sup>3</sup>				
		1	2	3	4
<b>Austria</b>	260	265	265	260	260
<b>Belgium</b>	260	260	260	260	260
<b>Denmark</b>	230	250	250	255	255
<b>Finland</b>	340	345	345	345	345
<b>France</b>	293	298	299	298	294
<b>Germany</b>	298	299	300	296	296
<b>Netherlands</b>	306	316	313	305	303
<b>Poland</b>	300	283	282	288	288
<b>Sweden</b>	378	378	378	378	378
<b>United Kingdom</b>	230	220	220	250	250
<b>Czech Republic</b>	284	289	278	276	275
<b>Greece</b>	300	300	300	300	300
<b>Ireland</b>	300	330	330	330	330
<b>Italy</b>	265	290	315	316	310
<b>Portugal</b>	250	250	230	260	240
<b>Slovakia</b>	303	331	315	315	310
<b>Spain</b>	285	285	295	295	289
<b>average N-W</b>	<b>290</b>	<b>291</b>	<b>291</b>	<b>294</b>	<b>293</b>
<b>average S-E</b>	<b>284</b>	<b>296</b>	<b>295</b>	<b>299</b>	<b>293</b>
<b>total average</b>	<b>287</b>	<b>293</b>	<b>293</b>	<b>296</b>	<b>293</b>

Table 5 - EU17 –Average cement/m<sup>3</sup> concrete 2007-2011 [2]

### 3. Tracking the change

The information above is related to changes in concrete production volume and cement consumption only. What about turnover and prices? Is it there any difference between NW and SE countries? Figure 6 presents the relative variation of turnover, production and of the “average concrete unit price”, obtained by dividing turnover by production.

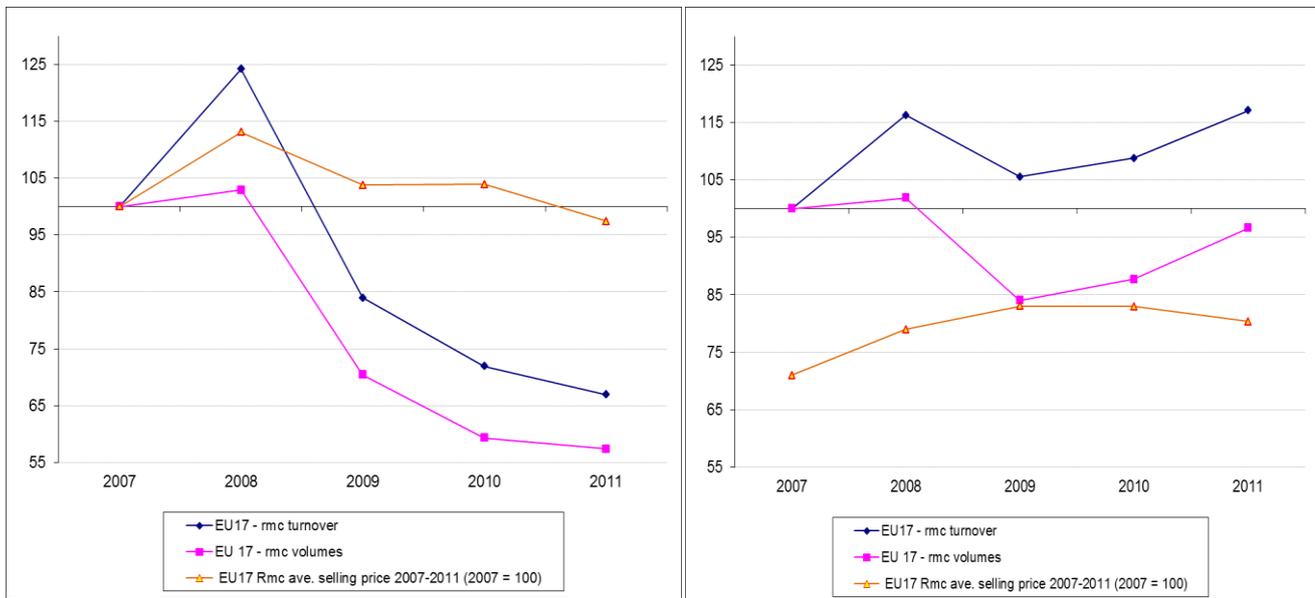


Figure 6 EU17 rmc, turnover, volumes and average selling prices 2007-2011 (2007 = 100) SE countries (left) , NW countries (right) [2]

Once again the situation is totally different in the SE and NW groups. For the SE group (fig. 6, left) both volume and turnover have decreased at less competitive, decreasing prices. For the NW group of countries (fig. 6, right), on the other hand, turnover and prices have slightly increased during the crisis and have remained relatively stable for a number of years .

It is instructive to look at how the sector reacted over years: did it go through any kind of restructuring? and what about productivity?

Looking to the variation of the number of plants and of the employees during 2007-2011 it is evident that the number of plants and the number of employees have both decreased, more clearly in the SE region. The average number of employees per plant (fig. 8) fell by 8% in the NW group, but by 18% in the SE..

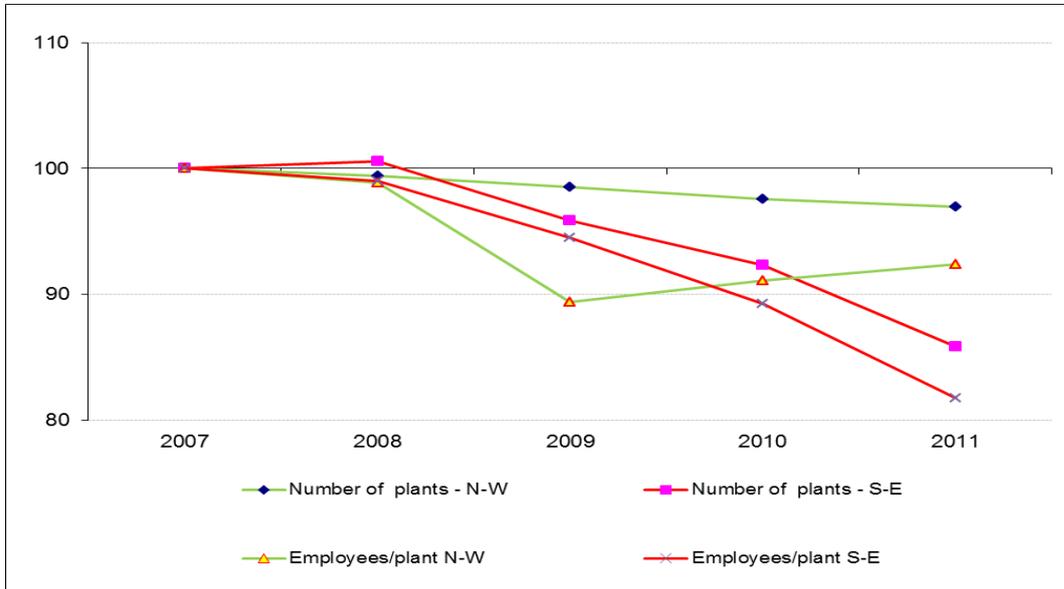


Figure 8 Number of plants and employees 2007-2011 (2007 = 100) [2]

On the basis of the total number of concrete plants and the total of concrete production it is possible to trace the variation of the “average” volume produced in a concrete plant (total production divided by the number of concrete plants). This information is in figure 2.

The average volume of concrete production per plant is increasing in NW countries and decreasing in SE countries, where the production volumes of “still active” plants have been falling over the period. By putting together this information with that shown in figure 6 on the decreasing “average” unit price in the same countries, it may reasonably be concluded that the strong pressure on street prices in a number of countries is related to the presence of too many plants in a shrinking market.

Productivity may be evaluated in terms either of concrete production per employee ( $m^3$  per capita) or turnover per employee ( $10^3$  Euros per capita) - fig. 9

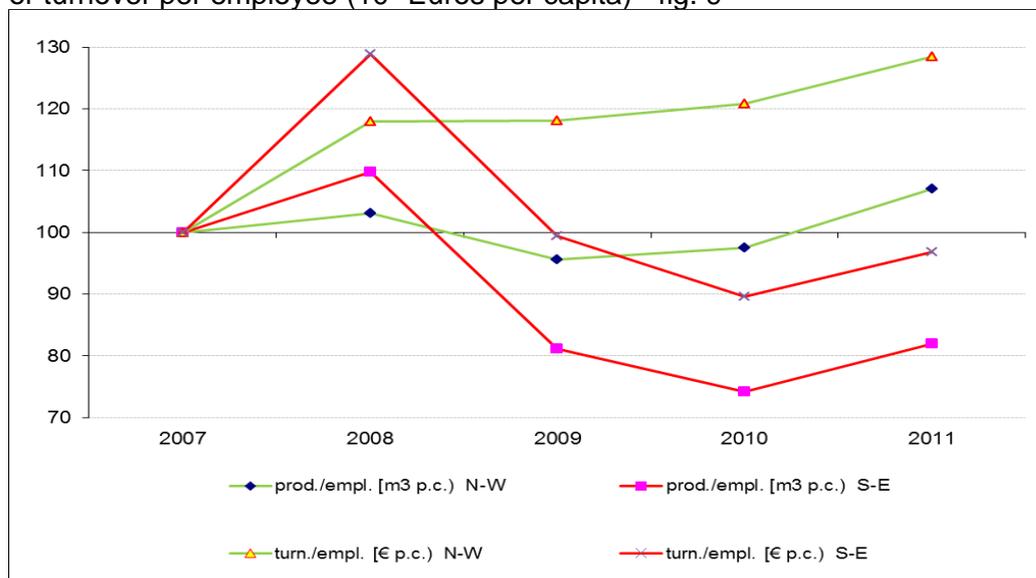


Figure 7 Production and turnover per capita 2007-2011 (2007 = 100) [2]

Again, the trends in the NW are better than those in the SE, where both indicators have declined over time, but some better result seems to have been achieved in 2011.

#### 4. Sensitivity analysis

Benjamin Disraeli spoke of “lies, damn lies and statistics”. But concrete experts well know the value of statistics. An average value has little sense if it is not accompanied by another indicator, the *standard deviation*, a measure of the distribution of the data – in this case the individual countries’ data. And if we want to compare different parameters expressed in different units, we need a third indicator, the *coefficient of variation* obtained dividing the standard deviation by the average value. High standard deviations or coefficients of variation mean that data are widely spread and that local differences are and remain important.

For the major indicators previously described, all values may be calculated at the beginning and at the end of the period (table 8)

Parameter	Unit	Region	Average		Std deviation		Coeff. Var.	
			2007	2011	2007	2011	2007	2011
Production per country	10 <sup>6</sup> m <sup>3</sup>	N-W	16,9	19,6	15	17	91%	87%
		S-E	32,2	13,2	27	15	83%	116%
Production per plant	m <sup>3</sup> /plant	N-W	27983	27250	12078	12421	43%	46%
		S-E	28624	17834	11146	11357	39%	64%
Selling price	€/m <sup>3</sup>	N-W	71	80	25,3	21,0	36%	26%
		S-E	71	62	22,6	7,9	32%	13%
Employees	no./plant	N-W	10	9	3	3	26%	29%
		S-E	14	10	9	7	65%	65%
Turnover/empl	10 <sup>3</sup> €/no.	N-W	1994	2152	818	750	41%	35%
		S-E	1827	1122	940	499	51%	44%
Turnover/plant	10 <sup>3</sup> €/plant	N-W	212	245	87	64	41%	26%
		S-E	151	145	44	72	29%	50%

Table 8 Average, std. deviation and c.o.v. 2007-2011 [2]

The better performance of the NW countries is remarkable, in terms both of absolute values and reduced coefficients of variation (c.o.v) of all the parameters. Moreover, the majority of c.o.v.s in the NW region have, in general, fallen over the period while, with few exceptions, the opposite happens for S-E regions. This means that actual values are much more spread around averages in these regions than in the other ones.

#### 5. Conclusions

When data are collected on a consistent basis over the years, trends may be identified with sufficient accuracy. Here, the picture given is a general one and some significant differences may exist between countries. We know that some countries are reacting better than others, and some may even show positive trends. Precise information at country level is given in the ERMCO statistics document [2]

From 2007 to 2010, in a declining economy ready-mixed concrete has declined more than the global economy and more than the construction sector as a whole. The industry’s revenues and productivity did not improve. In a similar way to the European car industry, there were (and for some countries still are) probably too many actors on the scene.

In 2011 the overall trend for the EU ready-mixed sector now seems slightly better, though not at an even pace for all countries. Some indicators show improvement and the sector seems to have been able to partly restructure itself: if this trend continues, when construction recovery really starts, the sector should be able to fully exploit its potential.

### **Acknowledgements**

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