INDUSTRY, FAIR COMPETITION AND TRADE IN OECD COUNTRIES: IMPACT ON WAGES AND ON EMPLOYMENT BY SECTOR, 2000-2010

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Abstract

For the period 2004-2010 many OECD countries have experienced a decline in industrial real value-added per capita with negative consequences for domestic economic development, and labour markets, not only in industry but also in services and other production sectors. Free competition policies lead to unfair competition when taxes, and other compulsory costs, are much stronger for domestic industry than for massive imports from other countries. Unfair competition has a negative effect on economic development when it leads to industrial decline and unsustainable trade deficits. Industrial decline has usually negative impacts on real wages and rates of total employment in the domestic market. Here we analyze industrial development in six OECD countries: France, Germany, Italy, Spain, United Kingdom and the United States, for the period 2000-2010. We present an econometric model that relates industry and trade balance and recommend policies addressed to avoid industrial decline in OECD countries.

Keywords: Industry, OECD Countries, Wages, Employment, Trade of goods

JEL classification: C5, E23, E24, F14, J30, L60, O51, O52

1. Introduction

The financial crisis of the period 2008-2010, has had very negative consequences in those European and OECD countries with unsustainable trade deficits. Strong trade deficits should be avoided, particularly when they contribute to industrial decline and are financially unsustainable. Free competition is not the same that fair competition.

Section 2 show the evolution of real Gross Domestic Product (GDP) per capita in several areas of the World for the period 2000-2010, where we can notice that the negative effects of the crisis of years 2008-2010 have been more strong in OECD than in non-OECD countries. For that reason we present in the following sections an analysis of the effects of industrial decline and foreign trade deficits in the causes of financial restrictions in OECD countries.

Section 3 present the evolution of real value-added of industry per capita in 6 major OECD countries: France, Germany, Italy, Spain, UK and USA, for the period 1960-2010. We analyse the causes of industrial decline in 5 of these countries and relate it with increase of trade deficits. We present an econometric model which shows the significant effects of lagged trade balance of goods on the increase of industrial production.

Section 4 analyses the negative effects of industrial decline on real wages and rates of employment. The most outstanding decreases of the rates of non agrarian employment, among the 6 OECD countries here analyzed, corresponded to the two countries with the highest levels of negative balance of goods trade: Spain and the USA. In spite of the negative evolution of the period 2004-2010, the USA has already a high degree of

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industrial development. Finally section 5 presents de main conclusions were we emphasize that industrial decline should be avoided

2. OECD countries and World development in 2000-2010

Tables 1 and graphs 1 and 2 show the evolution of real Gross Domestic Product (GDP) per head in major areas of the World.

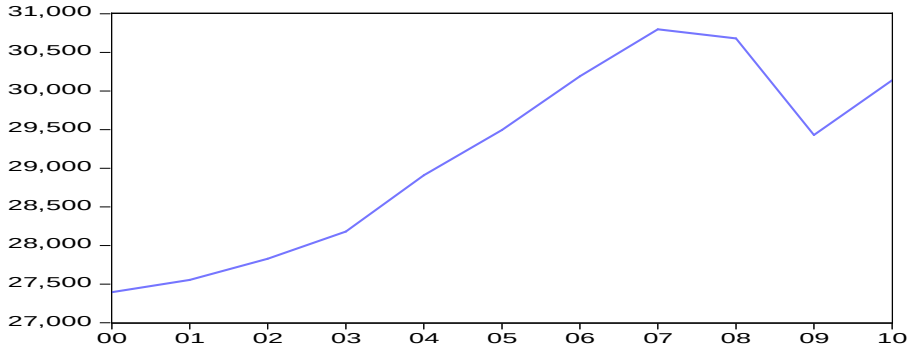
Tabla 1. Population, GDP per inhabitant (PH), rate of growth of PH and Annual Increase (Dollars per capita at prices and PPP of year 2005)

Area	PH 2000	PH 2010	Annual Rate 2000-2010 %	Annual increase 2000-2010 ($ 2005)
Africa Subsaharian	1575	2041	2.60	47
Latin America and Caribbean	8280	10117	2.00	184
Asia South	1682	2914	5.50	123
China	2667	6810	9.37	414
Middle East and North Africa	7379	9132	2.13	175
OCDE	27423	30112	0.93	269
Rest of the World (ROW)	3776	6401	5.28	262
World Total	7890	9889	2.26	200

Source: Elaborated by M.C. Guisan from World Bank data. Gross Domestic Product (GDP) in Billion Dollars at prices and Purchasing Power Parities of 2005 (PPP). Exponential rates of real growth for the period 2000-2010 in percentage. The last columns show the share of each area in World GDP for the years 2000 and 2010.

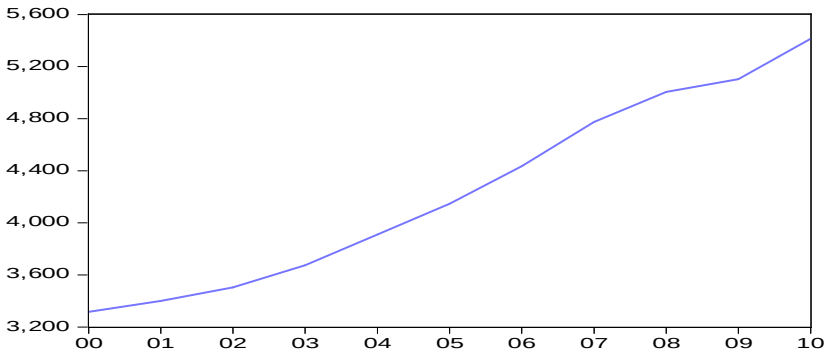
All the areas of the world have experienced a positive evolution of GDP per capita for the period 2000-2010, although as a consequences of the crises of the period 2007-2010 there was a decline in economic development of OECD countries for the period 2007-2009 and almost stagnation in non-OECD countries for years 2008 and 2009. Economic crises have arisen with attempts of high increases in oil prices in year 2007, and other economic and financial circumstances, which have led to disequilibrium in financial markets and finally have had an impact on the real economy.

Graph 1. Evolution of real GDP per capita in OECD countries, 2000-2010



Source: Elaborated from OECD statistics. Dollars at prices and exchange rates of year 2000.

Graph 2. Evolution of real GDP per capita in non-OECD countries, 2000-2010



Source: Elaborated from OECD statistics. Dollars at prices and exchange rates of year 2000.

There are clear relationships between the financial crisis of the years 2008-2010 and the trade deficits generated in many OECD countries when domestic industry, subject to many economic charges related with quality of environment, quality of labour, and contribution to public income, has been obliged to compete in its own territory with imports produced in countries with very cheap costs of production and generally not subject to the same level of taxes and contributions to social welfare.

On the other hand table A1 and A2, in the Annex, show the evolution of real GDP and Population in the World areas of table 1 for the period 2000-2010.

Figures in table 1 show that average production per capita is already very low in many areas of the World and thus that international cooperation for development must be fostered, preferably without provoking industrial decline nor wages diminutions in developed countries.

3. Industrial production, trade deficit and fair competition in OECD countries

Table 2 shows diminution of real Valued-Added per capita of industry for the period 2005-2010 when several OECD countries suffered great shocks of trade deficits due to lack of enough support to fair competition.

Among the countries of table 2 we notice that only Germany has kept a positive evolution of QHI for the period 2004-2010. Spain and Italy have experienced high increases in 1961-75, with an average of 77 per capita and year, lowering for 1976-1995 and 1996-2003. Unfortunately, they experienced a decrease for the period 2004-2010.

Very often industry suffers the consequences of excessive trade deficits. A negative trade balance of goods in year t-1, not accompanied by positive measures supporting industry, implies very often a decrease of industry in year t, as it is shown in the econometric model estimated in this section.

Tabla 2. Real Value Added of industry per capita (QHI) and increases in the period 1961-2010 ($ per inhabitant at 2000 prices and exchange rates)

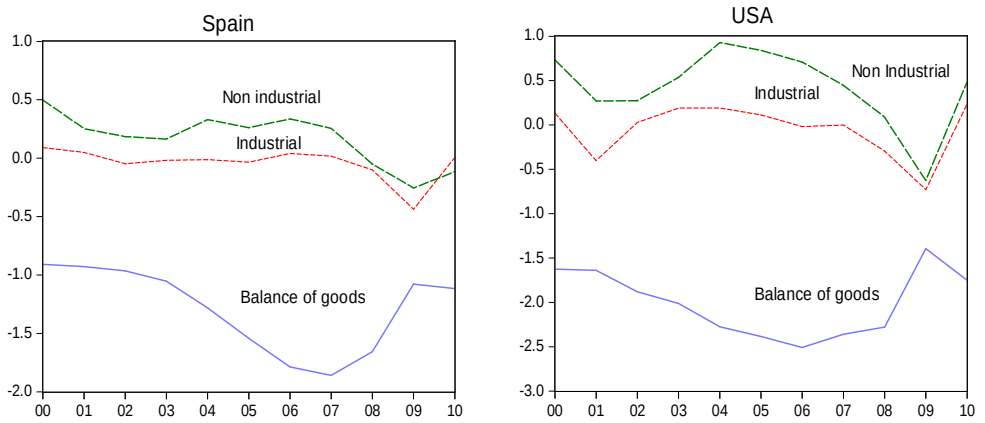
Country	QHI 2010	Average annual increase ($ at 2000 prices)				
		61-75	76-95	96-03	04-10	61-10
France	3321	73	35	32	-54	33
Germany	5818	87	92	61	60	74
Italy	3130	77	63	14	-93	38
Spain	2166	77	27	55	-75	32
UK	4031	41	54	4	-89	22
USA	5584	78	98	63	-73	62

Source: Guisan(2011) and (2012) based on OECD Nacional Accounts Statistics

Graph A1 in the Annex shows the great difficulty to keep non industrial production going on, in OECD countries, when industry experiences stagnation of decline. The graph shows the evolution of *qhi* (industrial) and *qhni* (non industrial) in Spain, Germany, France, Italy, UK and USA, in thousand Dollars at 2000 prices and exchange rates.

Graph 3 shows how decrease of industry follows decrease of trade balance and how non industrial sectors follow industrial evolution in Spain and the USA. See Annex for more information.

Graph 3. Annual increase of industrial and non industrial Value-Added, and Trade Balance of Goods in Spain and USA (thousand dollars at 2000 prices and exchange rates)



Note: Elaborated from OECD statistics. See Annex for more information.

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Negative deficits in trade of goods, in Spain and the USA, have had a negative consequence on industrial and non industrial production per head, and also on labour market as we will see in next section. Similarly it has happened in other OECD countries as seen in the Annex. It is important to develop policies addressed to conceal trade openness, without excessive trade deficits, with domestic industry and development.

Here we present an estimated model for 5 OECD countries which relates real value-added of industry per head (qhi) with its lagged value and the lagged balance of goods per head (balgh, given by the difference between exports and imports per head).

Table 3. Relation between industry and lagged trade balance of goods

Dependent Variable: QHI. Method: Pooled Least Squares				
Sample: 1993 2010. White diagonal standard errors & covariance (d.f. corrected)				
Included observations: 18. Cross-sections included: 5				
Total pool (unbalanced) observations: 80				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
QHI(-1)	1.016502	0.004154	244.7124	0.0000
BALGH(-1)	0.068274	0.027218	2.508431	0.0142
R-squared	0.986630	Mean dependent var		4.092640
Adjusted R-squared	0.986459	S.D. dependent var		1.228484
S.E. of regression	0.142956	Akaike info criterion		-1.027884
Sum squared resid	1.594030	Schwarz criterion		-0.968334
Log likelihood	43.11537	Hannan-Quinn criter.		-1.004009
Durbin-Watson stat	1.757793			

Note: Data from OECD National Accounts. Countries: France, Italy, Spain, UK and USA

As seen in Guisan(2011) the countries of the sample have experienced negative values of balgh during the period 2005-2010, what, accordingly with the estimated model, has had a negative impact on qhi. That study presents an analysis of causality between qhi and qhni which shows a strong positive impact of industry on non industrial development.

Decline in industrial production may have strong negative impact on non industrial production and employment in services. In the case of the European Union, the USA and other industrialized countries, openness to international trade should be addressed to foster international cooperation to development but avoiding high trade deficits and industrial decline. We agree with those voices, such as the European Trade Union Federations (EU-TUF(2011), that call for a strong industrial policy in the EU: *"Industry remains vitally important for a successful European economy to create jobs, boost productivity,… and to raise social standards"*

3. Impact of industrial decline on wages and rate of employment

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Table 3 shows total employment in the 6 OECD and table 4 shows the evolution of the rate of employment by sector in those countries. For the period 2005-2010 we can notice stagnation or decrease of total employment in several OECD countries, which has been, at a great deal, due to negative consequences of decline in industry

Tabla 3. Total Employment (thousand employed persons)

Año	España	Italia	Francia	UK	Alemania	USA
2000	15222	20874	23750	27793	39144	139077
2005	18431	22563	24515	29536	38851	143981
2010	18394	22946	25059	29048	40370	141245

Source: Elaborated from OECD statistics

The three countries with the highest levels of industrial development, have also the highest rate of employment in services: Germany, UK and USA. Other factors, like development of social services also play a role to explain the high rate of employment in services in some countries like in the case of the United Kingdom.

Table 4. Rates of Employment by sector in 6 OECD countries

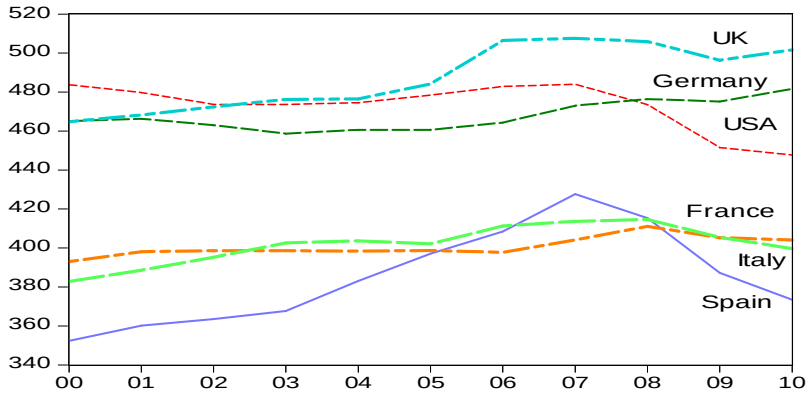
	Spain			USA			Germany		
Sector	2000	2007	2010	2000	2007	2010	2000	2007	2010
Agriculture	23	19	18	9	7	7	12	10	8
Industry	75	67	55	79	63	53	104	100	95
Building	43	59	35	35	39	29	34	28	28
Services	234	302	283	370	381	364	327	354	371
Total	375	447	391	493	490	453	477	492	502

	France			Italy			United Kingdom		
obs	2000	2007	2010	2000	2007	2010	2000	2007	2010
Agriculture	16	12	10	19	17	16	7	6	6
Industry	66	56	50	91	88	78	75	54	42
Building	25	28	30	28	32	31	32	37	34
Services	306	320	324	264	293	290	388	417	426
Total	413	416	414	402	430	415	502	514	508

Note: Persons employed per thousand inhabitants. Source: elaborated from OECD statistics.

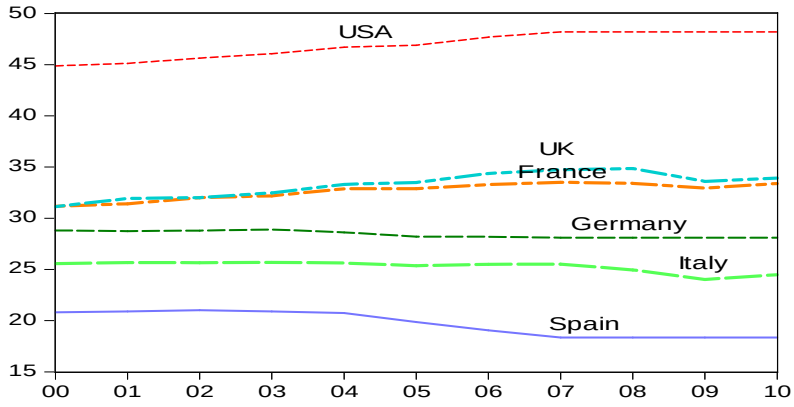
Graph 3 presents the rates of non agrarian employment per one thousand inhabitants in the 5 major European Union economies and USA, for the period 2005-2010.

Graph 3. Rate of non agrarian employment in 5 EU countries
(employed persons per one thousand inhabitants)



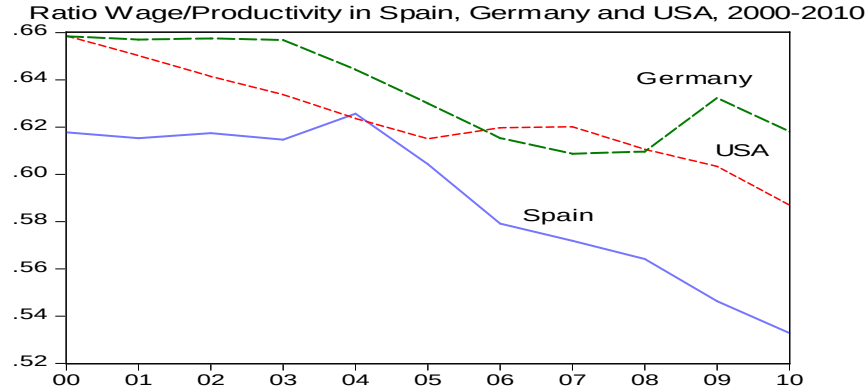
Graph 4 shows the evolution of average labour cost (compensation of employees divided by the number of employees). Both are based on OECD data. Graph 5 shows, the decline in the ratio Wage of employees/Productivity of Employment, during the last years of the period 2000-2010.

Graph 4. Real wage per worker (thousand Dollar at 2000 prices and exchange rate)



Source: Elaborated by M.C.Guisan from OECD National Accounts

Graph 5. Ratio Wage/Productivity in Spain, Germany and USA



Source: Elaborated by Guisan(2011) from OECD statistics

We notice that countries with the highest levels of industrial real value-added per capita usually are capable of reaching high rates of employment in Services, like it happens in the United States and Germany. There are countries, like UK where special positive policies addressed to favour employment in services lead to rates above the average for their level of industrial development. In case of decline in industrial production those high levels of employment in services are difficult to keep.

5. conclusions

Many OECD countries have experienced a decline in industrial production per capita and real GDP per head, during the period 2005-2010. Some negative consequences for these countries have been due to unfair competition when domestic industry has been more subjected to charges (value-added taxes, income taxes, social security contributions or other ones) than the external production.

We have presented an econometric model that relates decrease in industry with lagged trade deficits in industrialized countries. Our main conclusion is that incentives to industrial delocalization, given by high charges for domestic production and low charges for massive imports from low cost countries, is not good for domestic development and labour markets. We agree with EU-TUF call for industrial development in Europe.

The solution should not to diminish labour market quality nor environmental quality or welfare in industrial countries, but to develop trade policies which avoid excessive trade deficits and reconcile international cooperation with domestic development.

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Annex on line at the journal Website: http://www.usc.es/econo met/rses.htm

Annex

Tabla A1. Gross Domestic Product (GDP) in major areas of the World, 2000-2010
(Billion Dollars at 2005 prices and purchasing power parities)

Área	GDP 2000	GDP 2010	Annual Growth %	Share 2000 %	Share 2020 %
África Subsahariana	1050	1744	5.07	2.19	2.58
América Latina y C.	4309	5959	3.24	8.98	8.81
Asia Sur	2287	4603	7.00	4.77	6.80
China	3367	9114	9.95	7.02	13.47
MENA	2307	3496	4.16	4.81	5.17
OCDE	31613	37223	1.63	65.90	55.03
Resto del Mundo	3036	5509	5.96	6.33	8.14
Total Mundo	47969	67646	3.44	100	100

Source: Elaborated by M.C. Guisan from World Bank data. Exponential rates of real annual growth for the period 2000-2010 in percentage. The last columns show the share of each area in World GDP for the years 2000 and 2010.

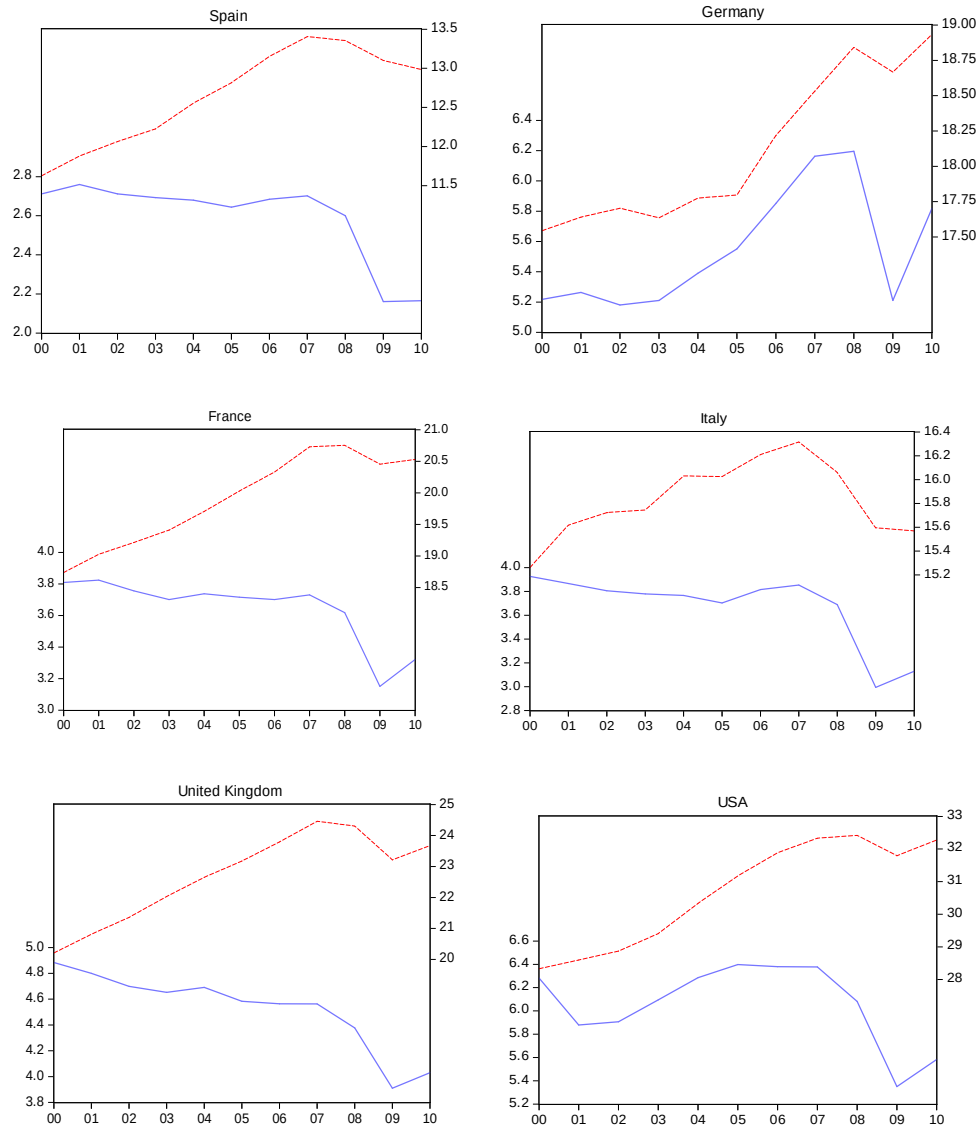
Table A2. Population in years 2000 and 2010 (million people)

Area	Population 2000	Population 2010	Annual Rate % 2000-2010	Annual Increase (millions)	World Share % 2000	World Share % 2010
Africa Sub-Saharan	667	854	2.47	19	10.97	12.48
Latin America& C.	520	589	1.24	7	8.55	8.61
Asia South	1360	1580	1.50	22	22.37	23.10
China	1263	1338	0.58	8	20.77	19.56
MENA	313	383	2.02	7	5.15	5.60
OCDE	1153	1236	0.70	8	18.96	18.07
Rest of the World	804	861	0.68	6	13.23	12.58
World Total	6080	6841	1.18	76	100	100

Source: Elaborated by M.C. Guisan from World Bank data. Areas: Sub-Saharan Africa, Latin America and Caribbean, South Asia, China, Middle East and North Africa (MENA countries), OECD (Organization for Economic Cooperation and Development, including, among others, European countries, North America, Japan, South Korea, Australia and New Zealand).

Evolution of Industry and non industrial real Value Added in 6 OECD countries

Graph A1. Real value per capita in industry (QHI) and non industrial sectors (QHNI)



Source: Elaborated by M.C. Guisan fron OECD National Accounts. Some data are provisional estimations. Dual graph: qhi left sale and blue line at the bottom, qhni right scale and red line at the top. Thousand Dollars at 2000 prices and exchange rates.

Causality test between industry and non-industrial Value-Added

Guisan(2011b) states that although some bilateral relationships usually exist, with or without lags, among qhi and qhni, the empirical evidence of OECD countries and in other areas, shows the important positive impact of qhi on qhni. With the 6 countries of this study we find the following results:

Granger test of causality: qhni does not cause qhi is non rejected in 3 of 6 countries, and rejected in 3 cases.

Granger test of causality: qhi does not cause qhni is rejected in 5 of the 6 countries, and non rejected only in one. Besides, with the modified version of Granger test suggested by Guisan(2005) there is strong evidence that qhi also causes qhni in the country were Granger test did not allow to reject non causality, which is the case of Germany.

Table A3. Modified Granger test for the case of Germany, 1962-2010.

Dependent Variable: QHNI00AX				
Method: Least Squares				
Sample (adjusted): 1962 2010				
Included observations: 49 after adjustments				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
QHNI00AX(-2)	0.873206	0.033061	26.41212	0.0000
QHI00AX(-1)	0.500132	0.102627	4.873304	0.0000
R-squared	0.995468	Mean dependent var		13.45437
Adjusted R-squared	0.995371	S.D. dependent var		3.744709
S.E. of regression	0.254771	Akaike info criterion		0.143058
Sum squared resid	3.050693	Schwarz criterion		0.220275
Log likelihood	-1.504924	Hannan-Quinn criter.		0.172354
Durbin-Watson stat	0.979789			

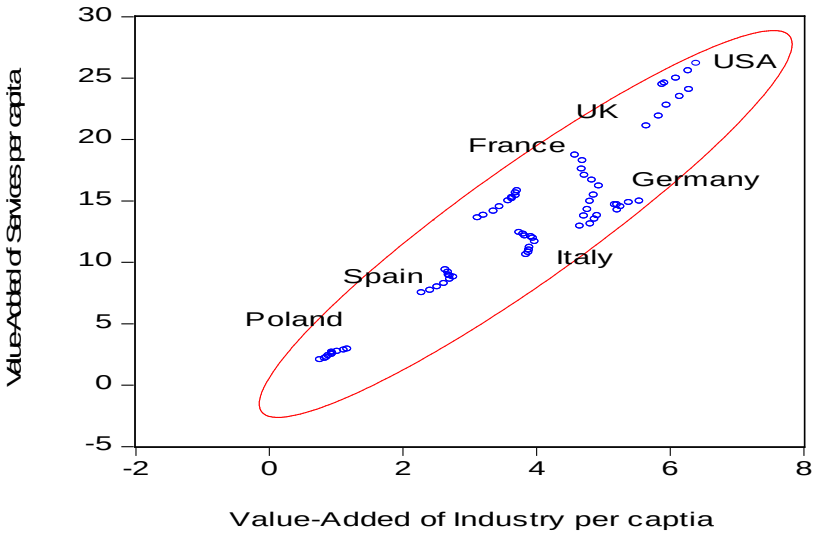
Note: The modified version of Granger test suggested for Guisan, for cases of high degree of multicollinearity includes two lags for dependent variable and one lag for the other variable.

Accordingly to the modified version of Granger test we accept a significant effect of industry on non industrial sectors.

Correlation between qhi and qhni

Graph A2 shows the positive correlation between Real Value-Added per capita in Services (QHS) and Industry (QHI) in 7 OECD countries, for the period 1996-2005. The positive correlation is very clear, although the effects of other factors also contributes to explain why the UK has higher values than Germany in Services in spite of lower levels of industrial production per capita. QHI has an important positive impact on real valued-added, employment and real wages of the services sectors (QHS).

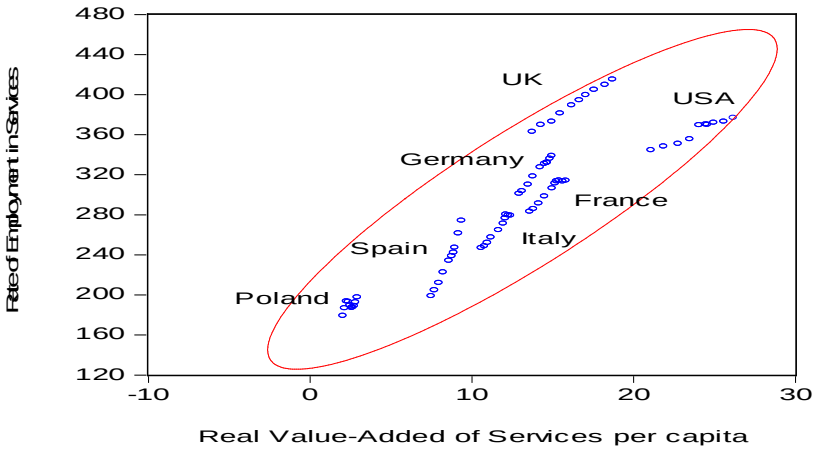
Graph A2. Real Value-Added of Services and Industry, 1996-2005
(thousand Dollars at 2000 prices and exchange rates)



Source: Elaborated by Guisan, Aguayo and Exposito(2012) from OECD statistics

Graph A3 shows the positive correlation between the rate employment and real value-added per capita in services. The influence of other variables explains that UK has higher rates of employment than other countries with higher levels of production per capita.

Graph A3. Rate of Employment in Services and Real Value-Added of Services per capita, 1996-2005



Source: Elaborated by Guisan, Aguayo and Exposito(2012) from OECD statistics. Rate of employment: number of employed population per one thousand people. Real value-added of services per capita in thousand Dollars at 2000 prices and exchange rates)

Journal Website: http://www.usc.es/economet/rses.htm