

The Chemical and Pharmaceutical Industry in Lombardy

RICERCA

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Gruppo Chimici and Centro Studi

The Chemical and Pharmaceutical Industry in Lombardy

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We thank Unioncamere Lombardia for industrial production data

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1. Foreword

I am very pleased to disclose to you “The Chemical and Pharmaceutical Industry in Lombardy”. This research is promoted by Gruppo Chimici Assolombarda, a group of firms associated to Assolombarda Confindustria Milano Monza e Brianza currently including about 680 companies and almost 50,000 employees, which I have the honour to represent. The aim is to provide an all-round analysis and work tool, acting as a basis for an industrial policy proposal that recognises the significance of those sectors, both at local and national level.

Lombardy is particularly cut out for the Chemical and Pharmaceutical industry, thanks to an efficient network of companies and industrial clients, universities and research centres, plant design companies and advanced services. The Chemical and Pharmaceutical industry means innovation. It stays ahead of the market and lays the basis for future Italian growth. The crisis has not left us unscathed, but the Chemical and Pharmaceutical industry is recovering from the crisis, with Lombardy giving a head start.

Riccardo Bellato
President of the Gruppo Chimici (Chemical Companies Group)
Assolombarda Confindustria Milano Monza e Brianza

2. The Chemical and Pharmaceutical Industry in Lombardy

Key figures

With more than 3,200 companies, the chemical and pharmaceutical industry generates in Italy a total of Euro 82 billion in terms of production, and employ 172,000 people. With almost 2,800 companies, 52 billion in production, and 109,000 employees, Italy is the third largest chemical producer, after Germany and France, and is tenth worldwide. In pharmaceuticals, our country is the second largest producer in the EU, making a contribution of 30 billion in production, with 63,500 employees.

Dimensions of the chemical and pharmaceutical industry in Italy (2015)

	Chemical	Pharmaceutical	Chemical and Pharmaceutical
Production (€ billion)	51.9	30.1	82.0
Exports (€ billion)	27.0	21.9	48.9
Imports (€ billion)	35.1	22.1	57.2
Trade balance (€ billion)	-8.1	-0.2	-8.3
Internal demand (€ billion)	60.0	30.3	90.3
Companies (number)	2,740	464	3,204
Local units (number)	3,540	741	4,281
Jobs (thousand)	108.6	63.5	172.1
Investments (€ billion)	1.4	1.2	2.6
R&D Expenditure (€ billion)	0.5	1.4	1.9
Share of total manufacturing			
Turnover (%)	6.0%	3.5%	9.5%
Exports (%)	6.8%	5.5%	12.3%

Note: R&D investments and expenditure, last year available

Source: Federchimica and Farmindustria calculations and estimates on Istat, Federchimica and Farmindustria data

Within this framework of excellence, Lombardy plays a leading role not only in Italy, but also in Europe. In fact, in terms of number of persons employed (about 70,000), it is the second most important region in the European chemical and pharmaceutical industry, after North-Rhine Westphalia, and ahead of Bayern, Baden-Württemberg, Cataluña and Rhône-Alpes.

Major chemical and pharmaceutical regions in Europe (2013)

	Persons employed in the Chemical and Pharmaceutical Industry	% over total population
North-Rhine Westphalia (Germany)	120,275	0.68
Lombardy (Italy)	69,791	0.71
Hesse (Germany)	68,348	1.12
Bayern (Germany)	67,309	0.53
Rhineland-Palatinate (Germany)	66,300	1.66
Baden-Württemberg (Germany)	64,901	0.60
Cataluña (Spain)	49,686	0.67
Île-de-France (France)	44,140	0.37
Flanders (Belgium)	40,809	0.64
Rhône-Alpes (France)	36,985	0.58

Source: Federchimica calculations on Eurostat and Istat data, 2013; for French regions, Insee, 2013

With more than 1,300 local units and almost 70,000 employees (46,000 of which in the chemical sector alone), the Lombard chemical and pharmaceutical industry accounts for 31.6% of plants and 40.6% of all employment in the sector in Italy. These shares are significantly higher than the ones observed in overall manufacturing (20.5% and 24.5% respectively).

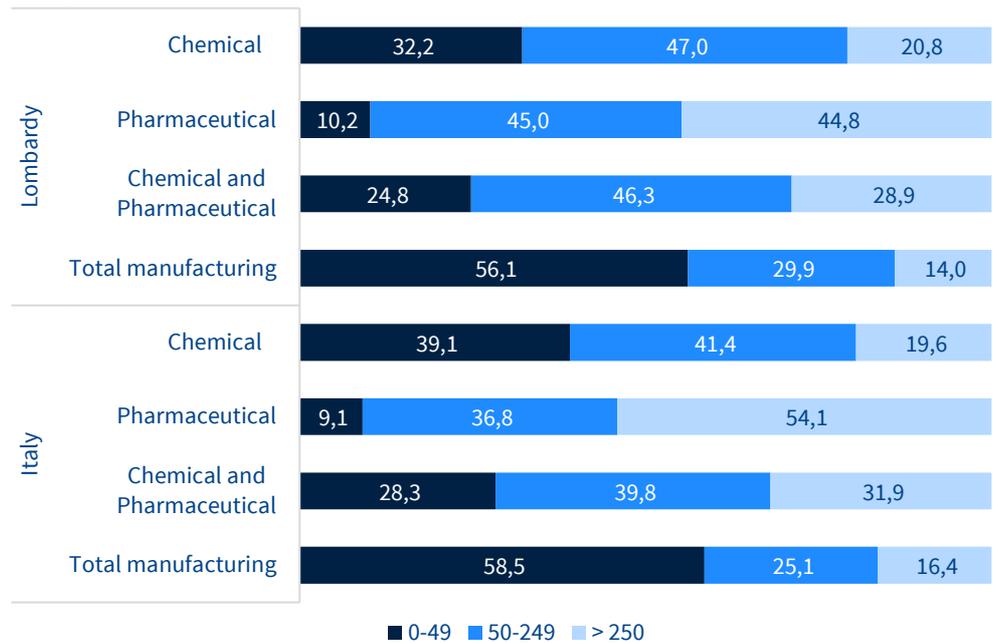
Local units and employees in the chemical and pharmaceutical industry in Lombardy (2013)

		Chemical	Pharmaceutical	Chemical and Pharmaceutical	Total manufacturing
Local units	Number	1,096	258	1,354	94,227
	% over Italy	31.0%	34.4%	31.6%	20.5%
Employees	Number	46,016	23,775	69,791	909,120
	% over Italy	42.1%	38.0%	40.6%	24.5%

Source: Federchimica and Farindustria calculation and estimates on Istat data

The chemical and pharmaceutical entrepreneurial system in Lombardy appears to be more structured than both the regional manufacturing sector and the chemical and pharmaceutical industry at national level. In terms of size, firms with more than 250 employees account for 28.9% of employment, those between 50 and 249 employees for 46.3%, and those with fewer than 50 employees for 24.8% (compared to the 14.0%, 29.9% and 56.1% registered on average in manufacturing). The differences with respect to industry data at a national level are less marked but nonetheless significant: 28.3% employees in small enterprises, 39.8% for medium size companies. National data appear to be slightly better only in the case of large companies: 31.9% of employees; 28.9% for Lombardy).

Employees in the chemical and pharmaceutical industry in Italy by categories (% , 2013)



Source: Assolombarda calculations on Istat data

In fact, Lombardy has a real calling when it comes to the chemical and pharmaceutical industry, thanks to an efficient network of companies and industrial clients, universities and research centres, plant design companies and advanced services. This is confirmed by the specialisation index for industrial sectors, calculated as the ratio between the percentage of employees that work in a given sector in the area, and the corresponding percentage for Italy. Chemical and pharmaceutical industries present the highest values in the area (1.72 and 1.56 respectively), qualifying themselves among the most strategic of the area.

Specialisation index for Lombardy by industrial sectors (2013)

	Specialisation index
Chemical and Pharmaceutical	1.66
- Chemical	1.72
- Pharmaceutical	1.56
Metallurgy	1.47
Rubber and plastic	1.34
Electrotechnology	1.25
Electronics	1.22
Metal products	1.19
Mechanical	1.18
Paper and publishing	1.03
Furniture	0,86
Wood	0.76
Food	0.66
Textiles and clothing	0.63
Automotive	0.62
Non-metal minerals	0.55
Leather and footwear	0.35

Note: Data related to local units; specialisation index calculated as the ratio between the percentage of employees in a certain sector in the area and the corresponding percentage for Italy. A higher index value indicates production specialisation in the area in that specific sector

Source: Federchimica calculations on Istat data

The size of the industry

The chemical and pharmaceutical industry highly and significantly contributes to the generation and distribution of wealth within the region. In Lombardy, the industry generates a turnover of Euro 40.7 billion in 2013 (28.4 for chemicals alone), equal to 16.2% of all manufacturing in the region, and more than 50% of the Italian chemical and pharmaceutical industry. In terms of value added (Euro 7.5 billion), chemicals and pharmaceuticals in Lombardy generate 42.5% of the national added value, while investments in tangible assets exceed one billion Euro (707 million in chemicals alone), equal to 49.2% of the national total.

Major economic data for the chemical and pharmaceutical industry in Lombardy (2013)

	Chemical		
	Euro billion	% over Italy	% over Lombard manufacturing
Turnover	28.4	54.9%	11.3%
Value added	4.1	42.2%	7.1%
Gross fixed investments	0.7	52.2%	10.6%
	Pharmaceutical		
	Euro billion	% over Italy	% over Lombard manufacturing
Turnover	12.3	46.3%	4.9%
Value added	3.4	42.9%	6.0%
Gross fixed investments	0.3	43.5%	4.7%
	Chemical and Pharmaceutical		
	Euro billion	% over Italy	% over Lombard manufacturing
Turnover	40.7	52.0%	16.2%
Value added	7.5	42.5%	13.0%
Gross fixed investments	1.0	49.2%	15.3%

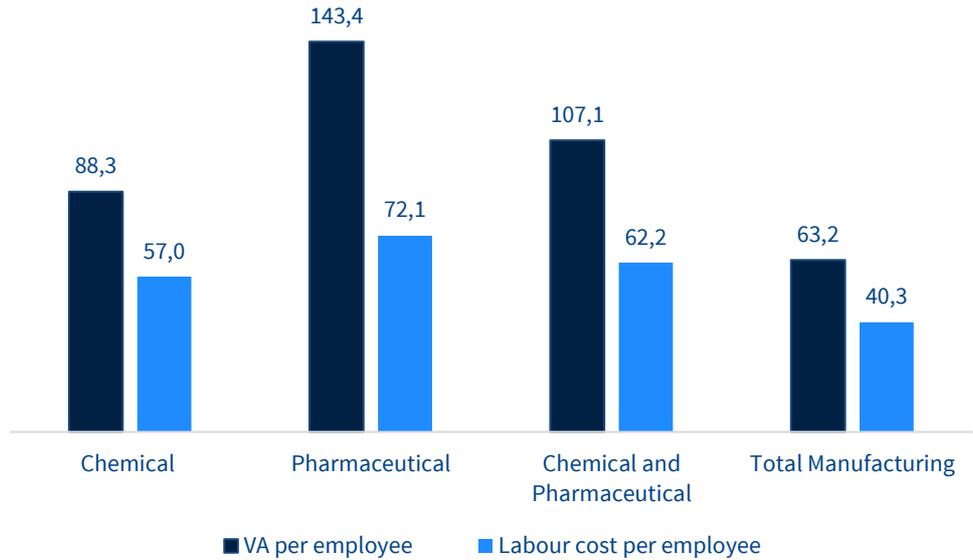
Note: Data related to local units

Source: Assolombarda calculation on Istat data

Of the overall Euro 7.5 billion in value added generated by chemicals and pharmaceuticals in Lombardy in 2013, 4.2 billion was spent on personnel costs. This sector is characterised by particular care for human resources, seen as a strategic asset.

Istat data provides an initial indication of the excellence that characterises the chemical and pharmaceutical industry in Lombardy. Despite the crisis, the value added per employee exceeds Euro 100,000 compared with 63,000 recorded for the whole manufacturing sector. This excellent performance is undoubtedly due to a qualified workforce, which determines in turn a personnel cost per employee of Euro 62,000 (Euro 20,000 higher than the average for the overall manufacturing industry).

Value added and labour cost per employee for the chemical and pharmaceutical industry in Lombardy (2013)

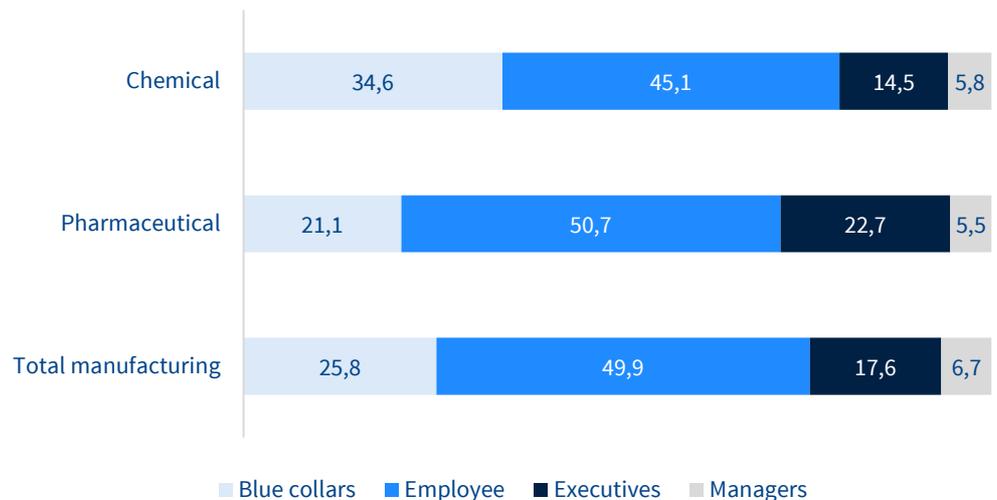


Source: Assolombarda calculations on Istat data

Data from the Assolombarda Labour survey in the Milan area in 2014 allow us to glean some more detailed information on the structure of employment¹.

In general terms, the Milan area is traditionally more a business district than a productive one. Not surprisingly then, the companies in the area are characterised by a number of blue collar workers lower than average (34.6% in chemical, 21.2% in pharmaceutical, and 25.8% of all manufacturing). The percentage of non-blue collar personnel over total employees in the chemical and pharmaceutical industry in Lombardy ranges from 65% in chemicals to about 80% in pharmaceuticals. Specifically, the pharmaceutical sector is characterised by a greater presence of white collars and middle managers, whereas the percentages of managers are substantially similar.

Employees by professional category in the chemical and pharmaceutical industry in the Milan area (% , 2014)



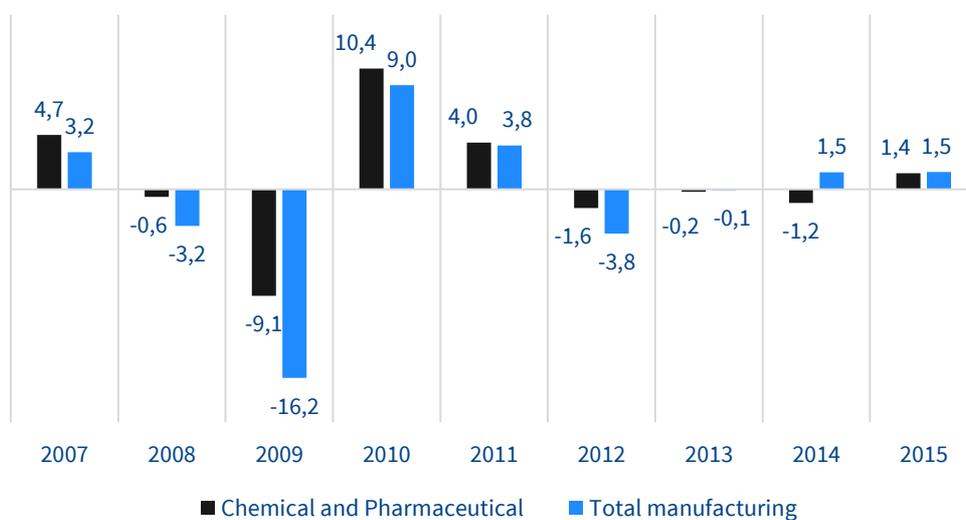
Note: data related to full-time personnel only
Source: Assolombarda Labour survey, 2014

¹ The survey was carried out from February to April 2015 and covered companies of the Confindustria system. Specifically, 572 companies were interviewed, of which 388 were manufacturers, 50 chemical and 36 pharmaceutical, located in the provinces of Milan, Lodi, Monza and Brianza.

Industrial production trends between 2007 and the second quarter of 2016

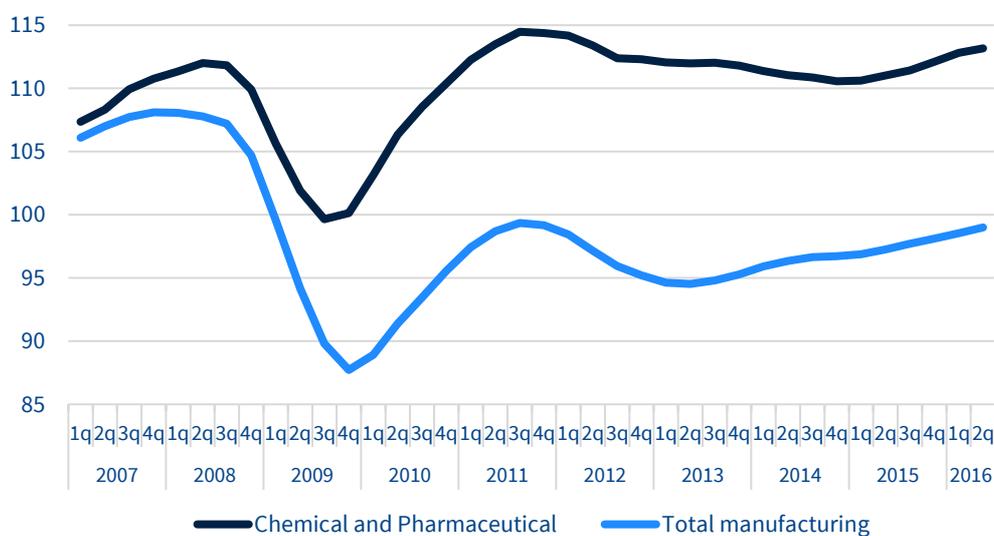
Industrial production trends have been stronger in the chemical and pharmaceutical industry than in the manufacturing sector as a whole. Data for the first two quarters of 2016 confirm the positive trend recorded at the end of 2015 (+1.4% on a yearly basis): +2.7% in the first quarter compared to the same quarter the previous year, +1.0% in the second quarter. The latest data available also highlight how chemicals and pharmaceuticals were able to exceed pre-crisis production levels, as opposed to the whole manufacturing, still below the level of 2005.

Industrial production of chemicals and pharmaceuticals in Lombardy (average annual % variation)



Source: Assolombarda calculations on Unioncamere Lombardia data

Industrial production of chemicals and pharmaceuticals in Lombardy (quarterly data, seasonally adjusted values and moving average, index 2005 = 100)

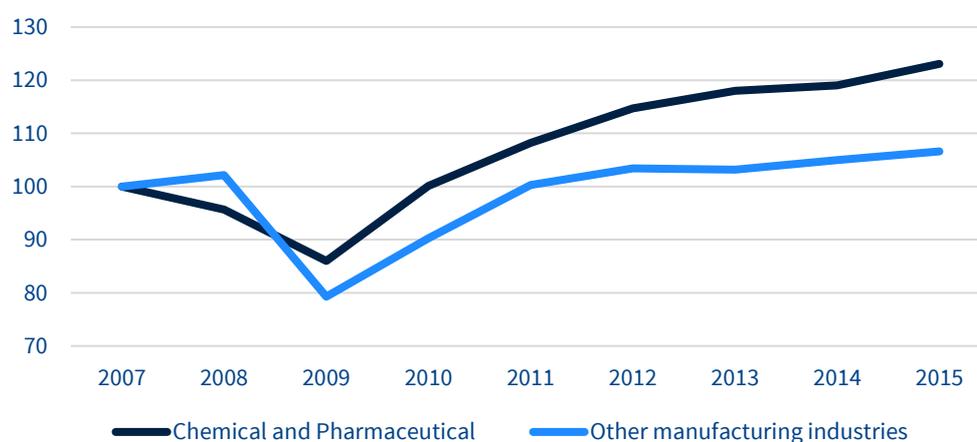


Source: Assolombarda calculations on Unioncamere Lombardia data

The international perspective

The positioning of the chemical and pharmaceutical industry has shown to be ahead also in terms of commercial flows. The driving force behind chemicals and pharmaceuticals in recent years has been exports, which from 2007 to 2015 increased by 23% compared to 7% for the other sectors. This is confirmed by the percentage of total production exported. Countrywide, pharmaceuticals is the leading sector (73%) and chemicals is above average (50%). Together, the two sectors export 60% of their production, much more than the average of other manufacturing industries. This is also due to the fundamental part played by companies based in Lombardy and their high rate of internationalization.

Export for chemical and pharmaceutical Industry in Lombardy during the crisis (Index 2007 = 100)



Source: Farmindustria calculations on Istat data

In 2015 the chemical and pharmaceutical industry exported about Euro 16 billion in goods (of which almost 12 billion for chemicals alone), with an increase of +3.4% compared to the previous year. The industry shows slightly greater exposure to the EU-28, which accounts for 55.8% of total exports (the corresponding figure for Lombard manufacturing is 54.4%).

Exports for chemical and pharmaceutical industry in Lombardy

	Export 2015 (billion euro)	% change 2015/2014	% change 2015/2007
Chemical	11,696.2	6.1%	23.7%
Pharmaceutical	4,442.1	-3.10%	21.5%
Chemical and Pharmaceutical	16,118.3	3.4%	23.1%
Total manufacturing	108,909.9	1.8%	8.8%

Source: Assolombarda calculations on Istat data

Many large companies and branches of companies with foreign capital have their headquarters in Lombardy. Among the attractiveness factors cited by top managers, we find: a production system characterised by wide-ranging skills, not only in chemical and pharmaceutical companies but also in plants and advanced services; a market open to innovation; highly qualified human resources.

Also with respect to global production, the international activity of Lombard chemical and pharmaceutical firms is remarkable, both in absolute terms and with respect to the national sector context. On the one hand, 376 Italian companies operating in Lombardy have stakes in foreign businesses (about 60% of the total sector nationwide), employing about 26,000 people. On the other hand, 214 chemical and pharmaceutical companies in Lombardy have foreign shareholders (more than 50% of the national total), with about 39,000 employees. These shares are large, both in comparison to the overall manufacturing sector (37.6% in terms of foreign shareholders, 39% in terms of stakes held abroad) and with respect to total economy (34% and 49.2%, respectively).

Overseas shares held by Lombard chemical and pharmaceutical companies (1 January 2015)

	Firms		Employees	
	Number	% over Italy	Number	% over Italy
Chemical	306	63.9%	20,006	72.5%
Pharmaceutical	70	43.7%	5,472	24.2%
Chemical and Pharmaceutical	376	58.8%	25,478	50.8%
Total manufacturing	3,217	37.6%	359,626	37.6%
Total economy	10,261	34.0%	556,079	36.2%

Source: Assolombarda calculations on Reprint, Politecnico di Milano data

Chemical and pharmaceutical companies in Lombardy with foreign shareholders (1 January 2015)

	Firms		Employees	
	Number	% over Italy	Number	% over Italy
Chemical	149	52.1%	21,472	60.9%
Pharmaceutical	65	59.6%	17,699	50.9%
Chemical and Pharmaceutical	214	54.1%	39,171	55.9%
Total manufacturing	1,118	39.0%	181,809	36.3%
Total economy	4,395	49.2%	417,092	44.0%

Source: Assolombarda calculations on Reprint, Politecnico di Milano data

R&D activities

Along with electronics, chemicals and pharmaceuticals are the sectors with the highest share of innovative companies in Italy (around 70%). Above all, this is an innovation based on research that involves not only large groups, but also many SMEs. With more than 800 companies involved in R&D, Italy is second only to Germany.

Chemical and pharmaceutical companies with R&D departments in Europe (2012)

	Chemical	Pharmaceutical	Chemical and Pharmaceutical
Germany	1056	238	1294
Italy	701	120	821
France	587	131	718
Spain	507	154	661

Source: Federchimica calculations Eurostat data

Lombardy is the leading region in Italy for in-house R&D expenditure and employment in chemicals and pharmaceuticals. In 2013 Euro 360 million were spent (164.4 of which in chemicals and almost 200 in pharmaceuticals), the equivalent of around 40% of total R&D expenditure in the sector in Italy. R&D employment is equally impressive: almost 2,000 persons in chemicals and more than 1,500 in pharmaceuticals, for a joint share of the sector total employment equal to 42.2%.

Expenditure for in-house R&D activities by chemical and pharmaceutical companies in Lombardy (2013)

	Expenditure (million Euro)	% of total sector in Italy
Chemical	164.4	45.1%
Pharmaceutical	195.6	35.9%
Chemical & Pharmaceutical	360,0	39,6%
Total Economy	3,151.2	27.4%

Note: In-house figures for pharmaceuticals do not include clinical studies

Source: Federchimica calculations on Istat data

Personnel involved in in-house R&D activities by chemical and pharmaceutical companies in Lombardy (2013)

	Employees (FTE)	% of total sector in Italy
Chemical	1,995.2	45.7%
Pharmaceutical	1,551.6	38.5%
Chemical & Pharmaceutical	3,506.8	42.2%
Total Economy	33,343.7	26.7%

Source: Federchimica calculations on Istat data

Besides in-house research, it is also essential to point out the importance of clinical studies carried out at hospitals, but financed by pharmaceutical companies. Clinical studies play a central role in pharmaceutical innovation: each year companies invest about USD 75 billion all around the world. This is an opportunity for Italy, and especially for Lombardy and Milan, given their sound scientific skills and excellence in production, universities and NHS structures.

Investing in clinical studies means: making innovative therapies accessible to patients; offering the possibility of professional growth to doctors and researchers; increasing scientific competitiveness; granting to the NHS greater resources and lower costs - this because companies take on all expenses connected with these kind of studies, e.g. hospitalisation, medicines and diagnostic examinations.

In Italy, more than Euro 700 million is invested in clinical studies every year. Although it is not possible to estimate expenditure at the regional level (studies tend to include many centres in various regions), it can be reasonably assumed that a significant portion is spent in Lombardy - the Italian leader for number of studies, with more than 50% of the total.

Elenco ricerche pubblicate:

- “Best practice e limiti da superare per il rilancio delle imprese M3 (Medie, Manifatturiere, Multinazionali)” N° 01/2015
- ““Far volare” le PMI con nuove competenze manageriali” N° 02/2015
- “L’accessibilità dei Comuni della Città Metropolitana di Milano e della Provincia di Monza e Brianza” N° 03/2015
- “Tre anni di formazione continua a Milano: i progetti Territoriali finanziati da Fondimpresa dal 2010 al 2012” N° 04/2015
- “E-Government: tra aspettative e realtà” N° 05/2015
- “Alternanza scuola-lavoro: le condizioni per il successo” N° 01/2016
- “L’accessibilità dei Comuni della Città Metropolitana di Milano e della Provincia di Monza e Brianza. Focus sull’accessibilità agli ambiti produttivi di cinque Comuni” N° 02/2016
- “Modelli di partenariato didattico università-impresa” N° 03/2016
- “Le performance delle imprese europee: un’analisi benchmark” N° 04/2016
- “Analisi e strumenti per l’attrazione di investimenti esteri” N° 05/2016
- “Strategie di internazionalizzazione: export strategy ed export performance” N° 06/2016

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