

High-technology and medium-high technology industries main drivers of EU-27's industrial growth

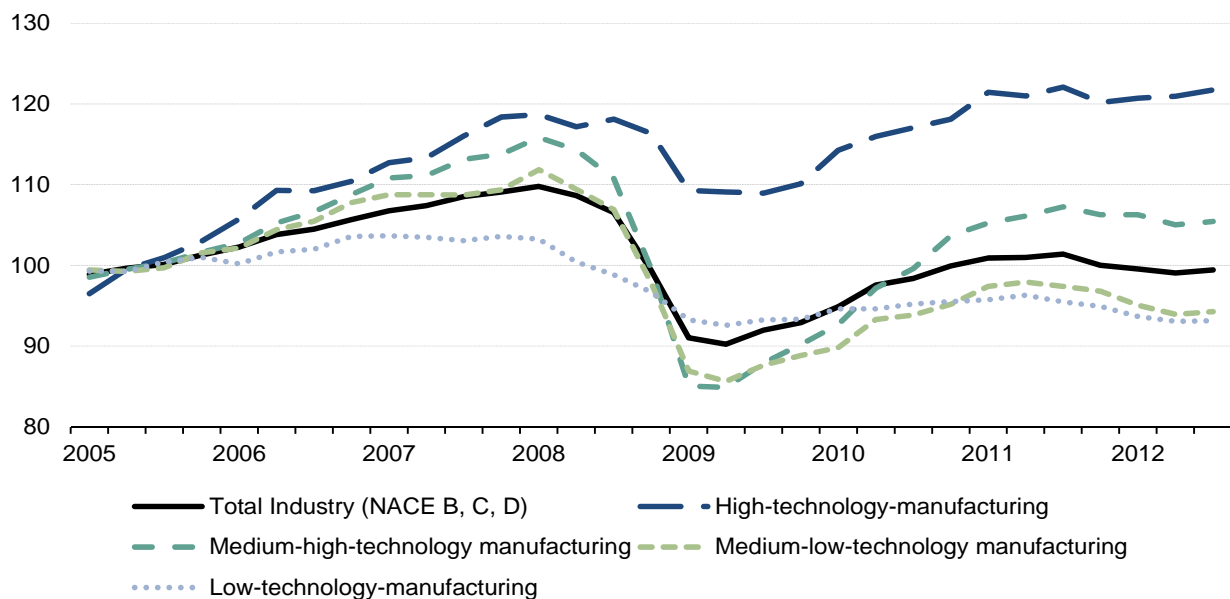
High-technology industries up by 26 % since first quarter of 2005, low-technology industries down by 6 %.

Since 2005 the industrial production index and other short-term statistics (STS) indicators developed much more favourably for EU-27 high-tech manufacturing than for industry as a whole. Despite the financial and economic crisis, high-technology manufacturing production increased by 26 % between the first quarter of 2005 and the third quarter of 2012. In contrast for industry as a whole the level of production in 2012 is almost the same as in 2005. Medium-low-technology and low-technology production even shrunk during the period under observation (-5 % and -6 %). Medium-high technology industries increased by 7 %.

This publication presents industrial production, price and labour input data from short-term business statistics (STS). Data for industrial manufacturing are grouped into four levels of technological sophistication: high-technology, medium-high-technology, medium-low-technology and low-technology. The four technology groups are defined on the basis of the R&D intensity of economic activities, i.e. R&D expenditures in relation to value added. (For more details see the methodological notes.)

Figure 1: Index of production for total industry and main technology groups in manufacturing, EU-27, 2005-2012

seasonally adjusted (2005=100)



Source: Eurostat (online data code: [sts_inpr_q](#))

Fall in production during crisis in high-technology manufacturing only half as large as in total industry

Figure 1 presents the evolution of total industrial production in the EU-27 and a breakdown according to the technological level of manufacturing. Total industrial production dropped by almost 20 percentage points during the financial and economic crisis between the first quarter of 2008 and the second quarter of 2009. Afterwards the index increased until it had regained, in 2011, the level of 2005. Since 2011 industrial production has remained rather stable.

The development of high-technology industries was more favourable. The fall during the crisis was less pronounced (less than 10 percentage points) and the recovery quicker. The European production level of high-technology industries in the third quarter of 2012 is more than 21 percentage points higher than in 2005 and more than 12 percentage points higher than during the crisis.

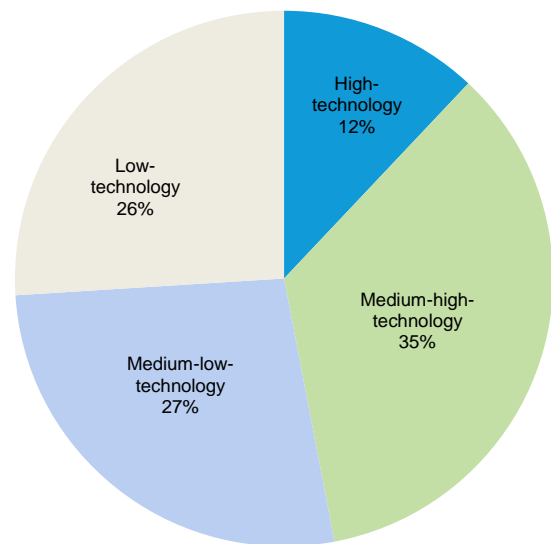
For medium-high-technology manufacturing and for medium-low-technology manufacturing the fall between the first quarter of 2008 and the second quarter of 2009 was stronger than for industry as a whole (31 percentage points and 26 percentage points). Afterwards production in medium-high-technology industries increased quite dynamically. The production in medium-low-technology industries has not yet regained its 2005 level.

For low-technology industries the general development was somewhat different from the other areas. Growth between 2005 and 2008 was much slower than for total industry but the decline during the crisis was comparatively moderate. Since then however no significant recovery has

taken place and the production level in the third quarter of 2012 is still very close to the deepest level during the crisis.

In order to assess the effects of the developments Figure 2 gives an overview of the size of the four technology levels in the value added at factor costs of total manufacturing for the EU-27 in 2010.

Figure 2: Share of different technology levels in total manufacturing, value added at factor costs, EU-27, 2010



Source: Eurostat (online data code: [sbs_na_sca_r2](#))

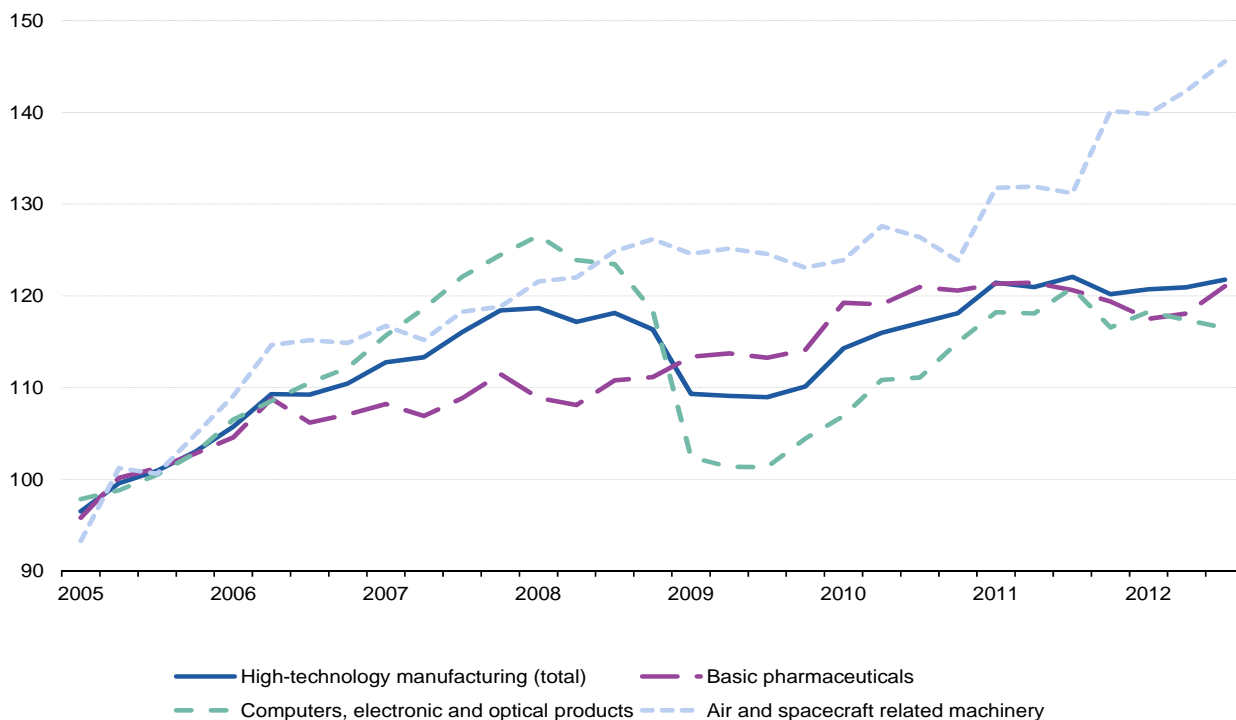
Recovery in high-technology manufacturing driven by pharmaceuticals and air and spacecraft machinery

Figure 3 presents a breakdown of the index of production in high-technology manufacturing into its components. The decline in the production of high-technology businesses between the second quarter of 2008 and the first quarter of 2009 was mainly due to a fall in the production of computers, electronic and optical products which constitute almost 48 % of high-technology manufacturing in the EU-27. The production of air and spacecraft machinery (almost 12 % of high-technology manufacturing) remained fairly constant during this period. The production of pharmaceutical products (accounting for more than 40 % of high-

technology production) even increased during the crisis.

Since the first quarter of 2011 (for pharmaceutical products even since the second quarter of 2010) the production in high-technology industries has not shown a very dynamic trend. In the last quarter of 2011 production in these industries even started to fall but recovered recently. An exception to this trend is the development in the air and spacecraft industry. Between the last quarter of 2010 and the last quarter for which data are available (3rd quarter 2012) production in this area increased by more than 17 %.

Figure 3: Index of production for high-technology activities, EU-27, 2005-2012
seasonally adjusted (2005=100)



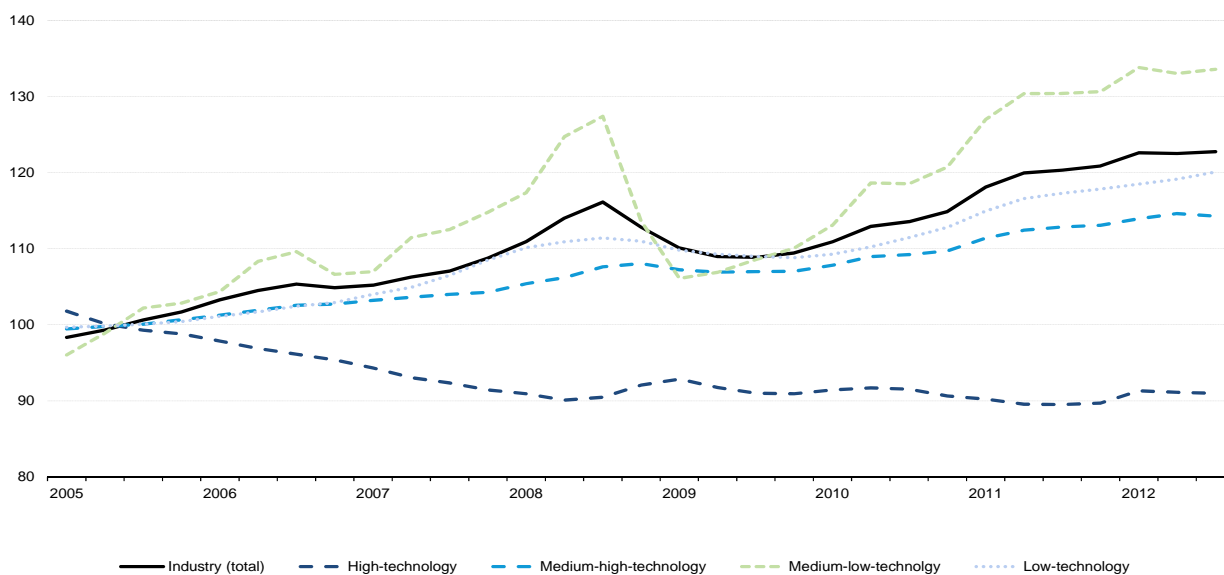
Source: Eurostat (online data code: [sts_inpr_g](#))

High-technology producer prices decrease against general trend

Prices for high-technology products steadily decreased between 2005 and the second quarter of 2008 and since then have been stable (Figure 4). Prices for medium-high-technology and low-technology products show a relatively steady increase since 2005 (with the exception of 2009). The producer price level for medium-low-

technology goods (which is mainly determined by the developments for petroleum and coke products and for basic metals) increased dynamically between 2005 and the third quarter of 2008. Afterwards the index dropped by more than 20 percentage points within only two quarters and since then has again been on a rapid increase.

Figure 4: Industrial Producer prices (total) according to technological level, EU-27, 2005-2012
gross (2005=100)



Source: Eurostat (online data code: [STS_inpp_g](#))

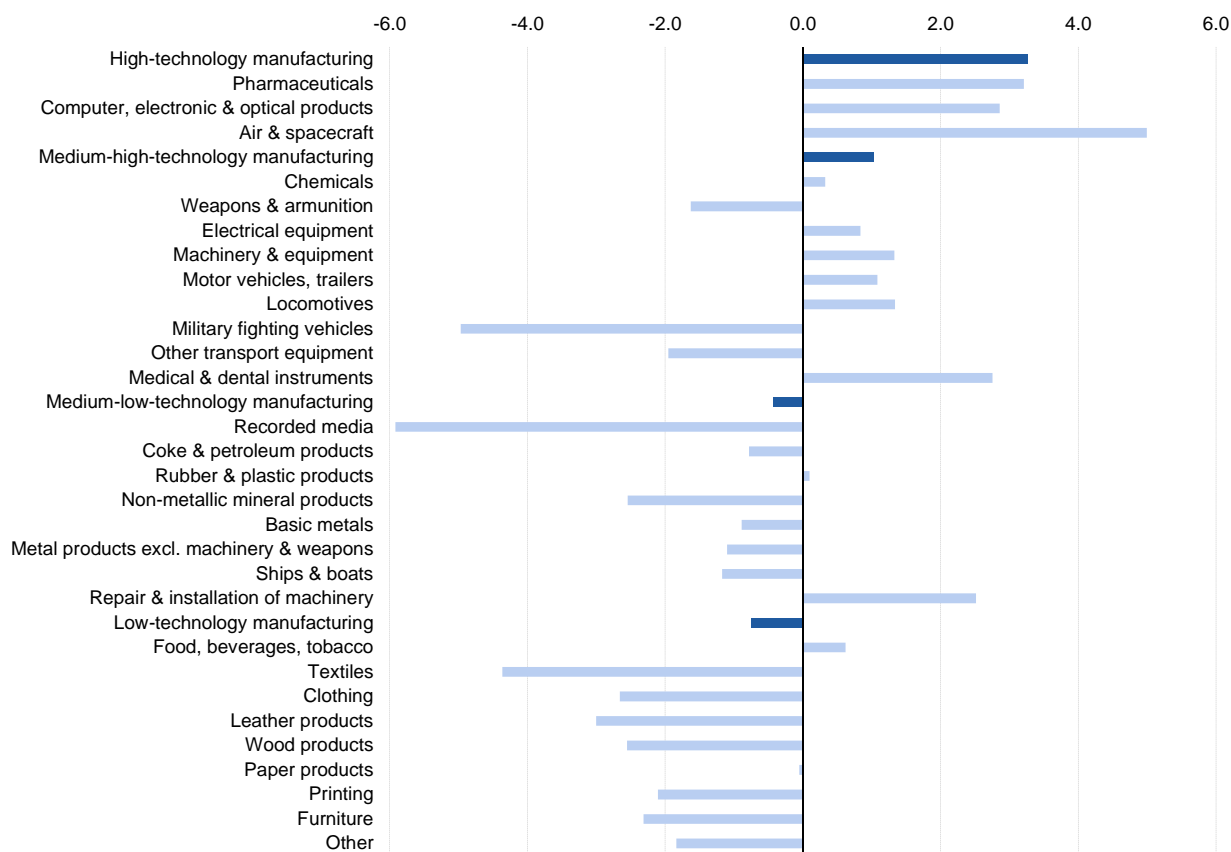
Declining production in most low- and medium-low-technology industries

Figure 5 presents the annual average growth rates for the various technological manufacturing levels in the EU-27 together with a breakdown into the NACE divisions and groups of which these technological levels are composed. All components of high-technology manufacturing displayed positive average growth rates between 2005 and 2011.

For medium-high-technology manufacturing growth rates were generally also positive – with the exception of weapons, military vehicles and other transport equipment (which together constitute only around 1.5 % of medium high-technology manufacturing).

Most activities which constitute medium-low technological manufacturing developed negatively between 2005 and 2011. The only exceptions to this general trend were rubber and plastic products and the repair and installation of machinery which make up 27 % of all manufacturing at this technological level. In low-technology manufacturing the growth in food, beverages and tobacco products (47 % of low-technology production) somewhat compensated the high average reductions in the other low-tech areas, notably in textiles and clothing.

Figure 5: Index of production, annual average growth rates 2005-2011, EU-27
working day adjusted



Source: Eurostat (online data code: [sts_inpr_a](#))

Higher technology levels more resilient during crisis in most EU countries

Table 1 indicates the annual average growth of the different industries in the Member States of the EU for the years 2005 – 2011.

Apart from a few exceptions (Greece, Italy, Portugal and the United Kingdom) high-technology industries displayed positive average rates of growth for these years. This implies that any losses during the financial and economic crisis were more than balanced by a recovery after the crisis. For the EU-27 an average growth of 3.3 % was reached, for the euro area average growth was 3.8%.

For medium-high-technology industries overall growth was also positive but much smaller than for the technologically more sophisticated areas (1.0 % for the EU-27 and 0.7 % for the euro area). In seven EU countries production in medium-high-technology manufacturing fell between 2005 and 2011.

The production of medium-low technology industries has on average declined since 2005 (-0.4 % for the EU-27 and -0.8% for the euro area). Almost half of the EU countries recorded a reduction of production. The main exception to the general trend was Poland which recorded a growth of 6.9 %.

In the area of low-technology manufacturing only six countries (Latvia, Poland, Romania, Belgium, the Netherlands, and Austria) achieved a positive growth rate; in Germany low-technology production remained almost constant. The average decline for the EU-27 was -0.7 %, for the euro area -1.0 %.

Table 1: Industrial production according to level of technology, annual average growth rates (%) 2005-2011
working day adjusted

	Technology level			
	High	Medium-high	Medium-low	Low
EU-27	3.3	1.0	-0.4	-0.7
EA-17	3.8	0.7	-0.8	-1.0
Belgium	5.1	0.6	0.4	1.0
Bulgaria	1.9	3.8	-0.1	-1.4
Czech Republic	5.4	7.3	1.5	-1.4
Denmark	1.4	1.4	-3.1	-3.2
Germany	6.6	2.3	1.8	0.1
Estonia	35.1	6.8	-0.1	-1.4
Ireland	3.6	3.4	-7.4	-1.1
Greece	-2.6	-5.7	-5.3	-4.9
Spain	1.5	-2.5	-5.0	-2.9
France	1.4	-1.7	-1.8	-1.1
Italy	-0.4	-2.2	-2.7	-1.8
Cyprus	-	-	-	-
Latvia	0.8	9.9	1.0	3.5
Lithuania	5.2	7.2	1.3	-0.1
Luxembourg	-	-	-	-
Hungary	4.6	4.0	1.0	-1.1
Malta	-	-	-	-
Netherlands	3.6	1.8	1.3	0.6
Austria	6.8	3.5	2.1	0.4
Poland	14.5	8.4	6.9	3.0
Portugal	-6.1	-3.1	-0.4	-1.5
Romania	1.7	12.7	3.5	1.7
Slovenia	-	-	-	-
Slovakia	-	-	-	-
Finland	2.1	1.1	-0.5	-1.4
Sweden	3.0	-0.7	-1.3	-1.1
United Kingdom	-0.7	-0.6	-1.2	-0.6

Source: Eurostat (online data code: [sts_inpr_a](#))

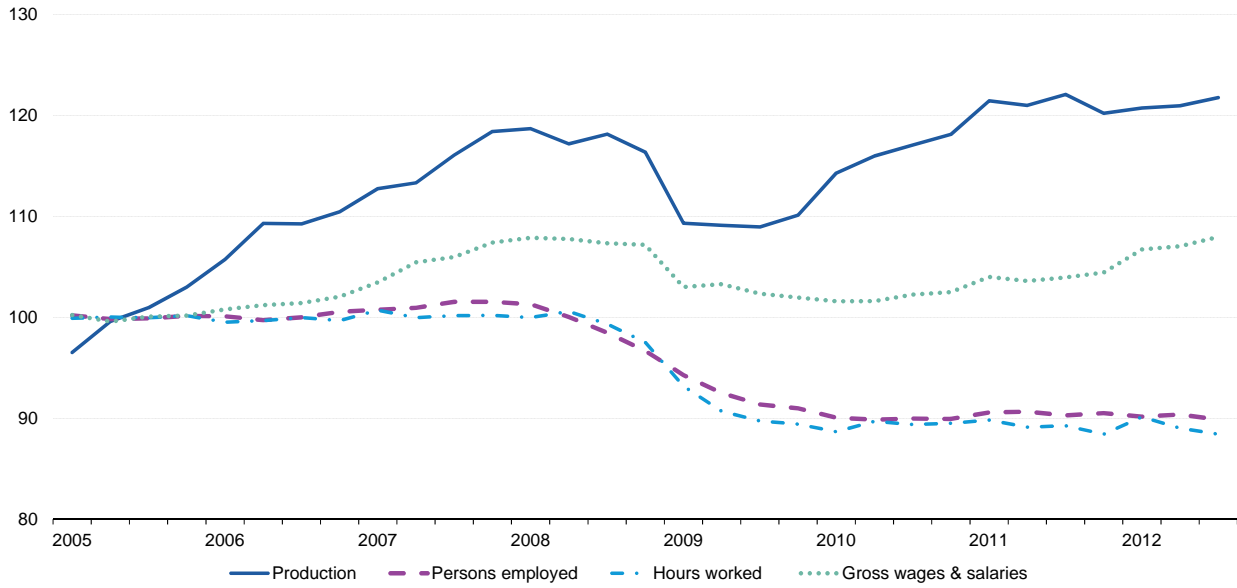
Medium-technology manufacturing reduces workforce with a delay in crisis

Figure 6 compares the development of production and labour input for high-technology manufacturing. In line with the strong decrease in production the number of persons employed, the hours worked and also the sum of gross wages and salaries declined during the financial and economic crisis. Note however that the labour input indicators did not pick up with the recovery of production. The number of persons employed and also the hours worked have remained almost constant since the second half of 2009. Gross

wages and salaries have increased only to a moderate extent.

The general trend for labour input indicators is rather similar between the years 2005 – 2012. There is however a difference in that for medium technological levels the working hours were first reduced with the onset of the crisis and then a reduction of the employment level followed with a time lag of between one and two quarters. For high- and low-technological manufacturing such a time lag can hardly be observed (Figure 7).

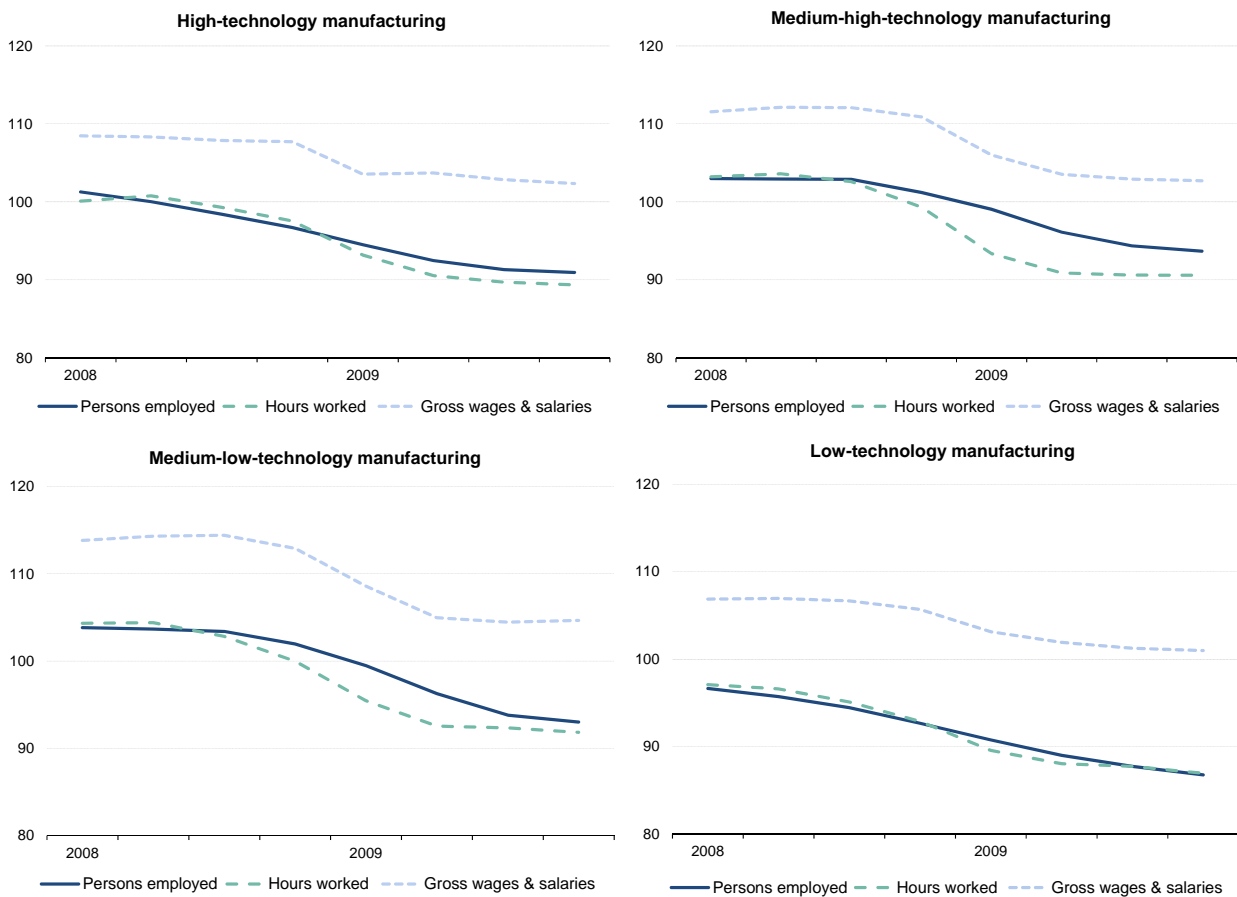
Figure 6: Production and labour input indicators for high-technology manufacturing ⁽¹⁾, EU-27, seasonally adjusted (2005=100)



(1) Defined at two-digit level.

Source: Eurostat (online data code: [sts_inpr_q](#) and [sts_inlb_q](#))

Figure 7: Evolution of labour input indicators during the crisis (2008/2009), EU-27 seasonally adjusted (2005=100)



Source: Eurostat (online data code: [sts_inlb_q](#))

METHODOLOGICAL NOTES

Short-term statistics (STS)

The legal base for STS is [Council Regulation No 1165/98 of 19 May 1998](#)¹ concerning short-term statistics and its subsequent amendments. STS provide information on a wide range of economic activities within the business economy. STS provide indicators for production, turnover, labour input and prices. The EU-27 and euro area (EA-17) aggregates are based on a consistent composition of the countries that participate in these areas.

The **industrial production index** measures changes in deflated output. The indicator reflects volume developments in value added. Where data needed to compile such an index are not available on a short-term basis, suitable proxies (e.g. sales or hours worked) are used.

The **industrial producer price index** reflects the changes in trading prices of the products of an industry. Prices are defined from the point of view of the producer, e.g. excluding VAT.

The **number of persons employed** is defined as the total number of persons who work in the observation unit (inclusive of working proprietors, partners working regularly in the unit and unpaid family workers) and persons who work outside the unit who belong to it and are paid by it; excluded are agency workers and persons on indefinite leave.

The **hours worked** index (volume of work done) represents the aggregate number of hours actually worked for the output of the observation unit during the reference period. Excluded are hours paid but not worked such as annual leave, holidays, sickness, meal breaks and travel between home and work. Normal and additional working hours are included as well as short periods of rest.

The index of **gross wages and salaries** is defined as the total remuneration, in cash or in kind, payable to all persons counted on the payroll (excluding agency workers), regardless of whether it is paid on the basis of working time, output or piecework and whether it is paid regularly. Included are social contributions, income taxes, etc. payable by the employee even if they are withheld by the employer and paid on behalf of the employee. Not included are social contributions payable by the employer, reimbursed expenses, training and other labour-related costs.

High-technology manufacturing²

Division 21 Pharmaceuticals
Division 26 Computers, electronic & optical products
Group 30.3 Air spacecraft

Medium-high-technology manufacturing

Division 20 Chemicals
Group 25.4 Weapons & ammunition
Division 27 Electrical equipment
Division 28 Machinery
Division 29 Motor vehicles
Division 30_X_30.1_30.3 Transport equipment excluding ships, boats, excluding air & spacecraft
Group 32.5 Medical & dental instruments

Medium-low-technology manufacturing

Group 18.2 Reproduction recorded media
Division 19 Coke and petroleum products
Division 22 Rubber and plastic products
Division 23 Other non-metallic mineral products
Division 24 Basic metals
Division 25_X_25.4 Fabricated metal products excluding machinery
Group 30.1 Ships and boats
Division 33 Repair & installation machinery

Low-technology manufacturing

Division 10 Food
Division 11 Beverages
Division 12 Tobacco
Division 13 Textiles
Division 14 Clothing
Division 15 Leather products
Division 16 Wood products
Division 17 Paper products
Division 18.1 Printing
Division 31 Furniture
Division 32_X_32.5 Other manufacturing excluding medical and dental instruments

For labour input the technological levels can only be defined at 2-digit level in STS. This means e.g. that NACE Group 30.3 (air spacecraft) is not defined as part of high-technology manufacturing but as a part of NACE division 30 it is subsumed under medium-high-technology manufacturing.

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¹ [Official Journal No L 162 of 5 June 1998, p. 1-15.](#)

² *Numbers of Divisions and Groups refer to NACE Rev. 2*

Further information

Eurostat website: <http://ec.europa.eu/eurostat>

Data on short-term business statistics:

http://epp.eurostat.ec.europa.eu/portal/page/portal/short_term_business_statistics/data/database

Further information about short-term business statistics:

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