

An analysis of building construction based on building permits statistics

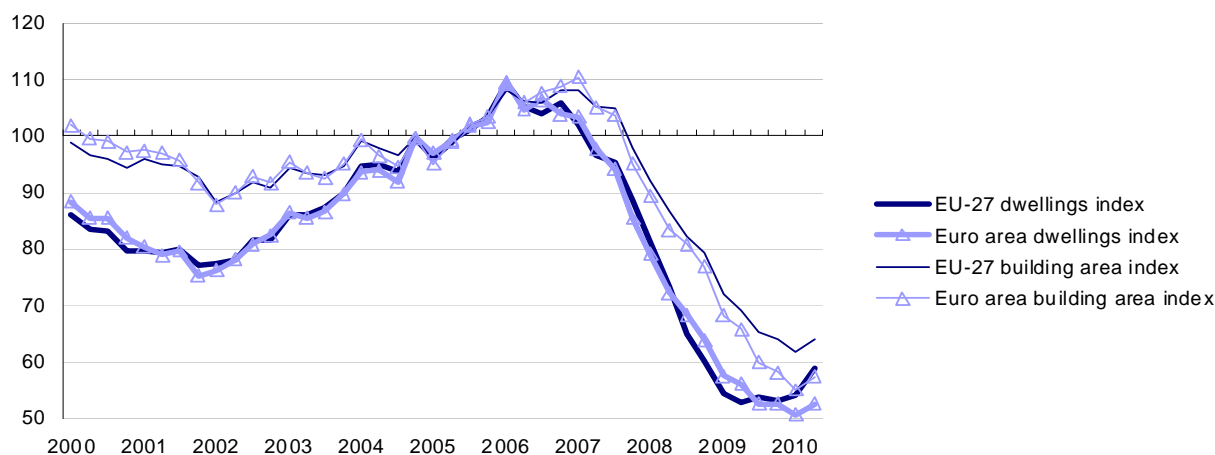
Economic and monetary union requires a broad range of statistics to measure developments within the euro area and for the common monetary policy. The core indicators, for this purpose, are the principal European economic indicators (PEEIs) established in 2002. A review in 2008 highlighted the lack of statistics on the housing market and as a consequence three housing related indicators were added to the list of PEEIs, including one on building permits.

A building permit is an authorisation to start work on a building project, and as such is the final stage of authorisation prior to the start of work. The objective of building permits indices is to assess the development of construction activity. Two building permits indices are required by the STS Regulation, one for the number of dwellings for which permits have been issued covering residential buildings, and the other for the useful floor area authorised which covers all types of buildings.

During the last ten years, the EU-27 building permits indices climbed from a low around the end of 2001/beginning of 2002 to peaks during 2006 and the first quarter of 2007, after which the indices fell. The index based on the number of dwellings recorded growth in most quarters during the second half of 2009 and the first half of 2010; the building area index recorded its first positive rate of change in the second quarter of 2010 following 12 consecutive negative quarter on quarter rates of change.

This overall development reflects the impact of the recent economic and financial crisis. The depth of the downturn since 2007 may be due to a combination of factors in different countries, for example the previous oversupply of construction, reduced consumer and business confidence delaying investment plans, constrained finance from credit lenders during the crisis to finance building work, and cuts in public spending.

Figure 1: Building permits indices, seasonally adjusted (2005=100)



Source: Eurostat ([sts_cobp_q](#))

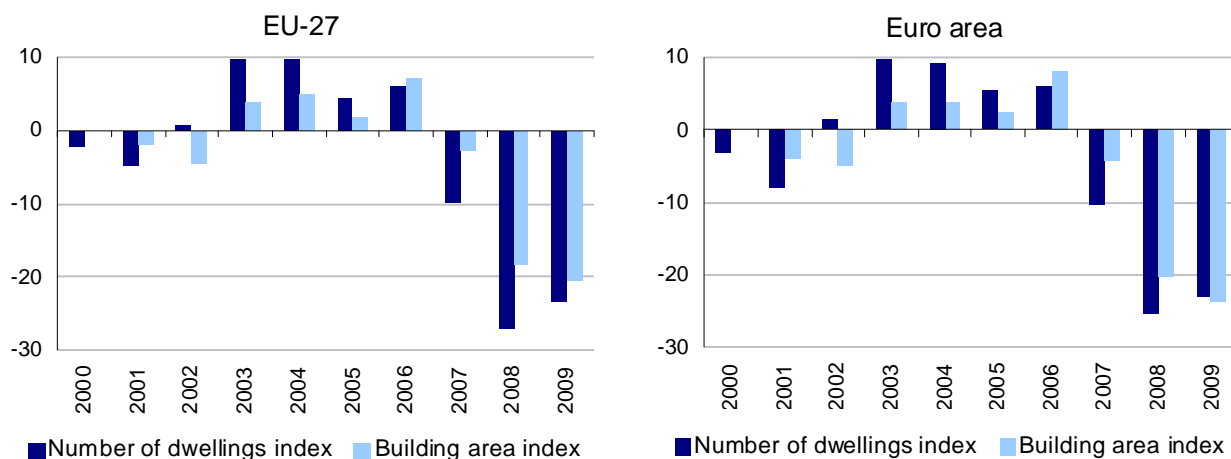
Developments of building permits during the construction business cycle

Particularly strong growth was recorded in the EU-27's number of dwellings index in 2003 and 2004, and between 2002 and 2006 overall growth of 34 % was recorded. In contrast the negative rates of change recorded in 2007, 2008 and 2009 together cut the level of this index in half.

Generally the building area index recorded a smaller annual rate of change than the number of dwellings index, regardless of whether the change was positive or negative. Nevertheless, for the EU-27, the rate of change for the building area index was larger in some years (2002 and 2006). The generally higher rates of the dwellings index may be due to its narrower coverage and/or to changes overtime in the average size of dwellings.

Certainly the coverage has an impact, as Table 1 shows that for the building area index the rates of change for residential buildings were greater than for non-residential buildings during this period. The EU-27 building area index shows a sustained period of year on year increases for residential buildings from 2003 to 2006, followed by three consecutive year on year decreases. In contrast, during the period from 2000 to 2009 the index for non-residential buildings was less regular, with more frequent changes between positive and negative rates of change. Although the rates of change for non-residential buildings were generally small, the subindex for office buildings was relatively volatile as annual rates of change were often in excess of +/- 10 %.

Figure 2: Building permits indices, rate of change compared with previous year, gross (%)



Source: Eurostat ([sts_cobpgr_a](#))

Table 1: Building area index, rate of change compared with previous year, gross (%)

		2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	
EU-27	Buildings	:	-2.0	-4.5	4.0	4.8	1.7	7.1	-2.9	-18.4	-20.5	
	Residential buildings		1.8	-4.2	0.0	9.9	8.2	4.0	5.3	-9.4	-26.4	-20.3
	One-dwelling		1.5	-4.5	-1.9	4.5	2.2	0.1	3.0	-11.7	-22.2	-18.8
	Two- and more dwellings		9.3	-4.3	2.0	16.8	14.6	7.6	9.9	-7.2	-26.4	-19.8
	Residences for communities	:	-9.1	-9.0	14.9	-0.4	-3.5	5.6	19.9	-6.8	-33.0	
	Non-residential buildings		0.2	2.0	-8.2	-2.0	1.4	-1.0	12.2	6.2	-12.2	-21.0
	Office buildings		13.0	12.0	-18.8	-4.6	-14.0	-6.6	25.9	11.4	-0.3	-32.5
	Other non-residential		-0.2	0.9	-7.0	-1.5	2.7	-0.8	11.7	5.8	-13.4	-18.6
Euro area	Buildings	:	-3.9	-5.0	3.8	3.7	2.5	8.0	-4.2	-20.3	-23.7	
	Residential buildings		2.5	-7.3	0.4	9.9	7.0	4.4	4.9	-10.2	-24.9	-22.6
	One-dwelling		5.5	-6.7	-0.4	6.7	3.1	2.4	2.9	-13.9	-18.6	-20.5
	Two- and more dwellings		6.7	-8.3	-0.5	12.3	9.0	4.6	9.8	-7.0	-25.7	-20.3
	Residences for communities	:	-11.1	-7.8	14.1	1.2	-5.2	4.7	23.4	-9.4	-31.9	
	Non-residential buildings		1.8	1.7	-9.6	-2.9	0.0	-0.4	15.8	5.8	-14.8	-23.9
	Office buildings		21.5	15.1	-21.5	-2.8	-16.5	-9.2	34.3	16.2	-1.4	-33.7
	Other non-residential		1.7	0.2	-8.2	-2.6	1.6	0.0	15.2	4.9	-16.2	-20.9

Source: Eurostat ([sts_cobpgr_a](#))

Table 2: Building permits indices, rate of change compared with previous year, gross (%)

	Number of dwellings index							Building area index						
	2003	2004	2005	2006	2007	2008	2009	2003	2004	2005	2006	2007	2008	2009
EU-27	9.6	9.7	4.5	5.9	-9.8	-27.1	-23.4	4.0	4.8	1.7	7.1	-2.9	-18.4	-20.5
Euro area	9.7	9.1	5.3	5.9	-10.3	-25.5	-22.9	3.8	3.7	2.5	8.0	-4.2	-20.3	-23.7
Belgium	7.9	15.1	14.2	3.3	-12.0	-3.5	-13.2	-7.0	21.5	3.8	1.5	2.4	-2.9	-7.7
Bulgaria	20.7	102.1	54.6	61.4	20.9	-23.1	-59.3	51.2	64.8	33.3	37.3	23.1	-16.9	-49.5
Czech Republic	12.9	4.7	4.9	8.7	2.1	0.2	-17.2	13.9	3.5	1.5	18.0	-1.1	-0.2	-26.4
Denmark	14.4	8.2	19.3	-1.5	-33.5	-37.0	-52.9	2.0	5.9	17.4	16.8	-20.1	-14.9	-38.3
Germany	8.2	-10.4	-10.5	2.4	-27.6	-5.4	3.0	1.5	-9.3	-7.5	7.0	-11.3	6.7	-9.9
Estonia	8.4	174.9	-2.7	40.4	-30.9	-38.7	-61.8	-4.2	77.9	5.5	31.8	-7.1	-17.7	-42.9
Ireland	13.2	29.5	-2.3	-20.7	7.2	-20.0	-40.1	4.5	24.3	6.8	-3.5	24.3	-30.0	-39.4
Greece	-0.5	-5.1	69.1	-39.7	-18.8	-23.2	-25.5	:	:	:	-28.1	-7.3	-18.3	-28.5
Spain	16.8	15.2	11.1	21.9	-15.1	-57.2	-51.0	12.8	10.5	8.3	21.1	-11.8	-48.3	-41.4
France	6.0	21.4	11.2	8.2	-4.2	-14.9	-18.5	1.9	7.2	10.0	7.3	-1.9	-18.4	-13.9
Italy	:	:	:	:	:	:	:	:	:	:	:	:	:	:
Cyprus	46.9	31.6	19.4	0.9	8.2	-2.0	-17.1	18.9	16.2	13.7	2.7	2.9	2.1	-15.1
Latvia	121.2	60.8	63.0	32.3	5.2	-61.0	-40.2	11.3	74.6	31.8	34.3	15.7	-42.5	-50.3
Lithuania	44.4	36.2	40.4	40.7	16.4	-17.3	-52.6	18.3	37.7	37.0	10.3	32.6	-14.0	-26.9
Luxembourg	11.5	18.2	21.3	-6.0	12.2	-18.7	-8.4	13.9	0.4	-19.0	24.6	-0.6	5.7	-11.7
Hungary	18.8	1.4	-9.8	-13.5	-0.3	-0.4	-34.1	21.3	-7.0	-3.2	-4.0	-9.7	18.1	-27.8
Malta	12.0	9.2	35.6	14.5	9.2	-40.0	-22.5	:	:	:	:	:	:	:
Netherlands	7.6	5.2	9.3	15.7	-8.7	-0.9	-16.7	5.2	5.4	5.0	18.0	8.8	-6.4	-27.2
Austria	-7.6	5.7	2.4	8.5	-7.8	-13.6	-9.3	:	:	:	9.2	-4.7	-11.2	-11.2
Poland	18.1	14.0	9.5	38.6	47.4	-7.0	-23.6	8.9	23.4	5.1	18.0	28.0	-2.3	-17.4
Portugal	-7.0	-12.9	-1.0	-4.2	-7.2	-27.5	-42.6	-15.0	-5.2	-1.4	-1.5	-3.7	-17.4	-34.6
Romania	-8.9	24.0	27.0	17.3	10.8	7.7	-20.1	10.8	18.1	29.6	36.2	28.0	12.8	-39.3
Slovenia	18.4	19.9	2.5	18.6	22.1	-18.7	-29.7	15.2	12.3	6.0	34.6	0.9	-22.0	-21.2
Slovakia	:	53.9	21.7	3.0	-9.8	59.7	-30.3	:	69.8	-5.6	9.6	10.6	21.7	-36.2
Finland	14.4	-1.1	6.3	-4.1	-7.2	-20.4	-1.5	5.7	-1.1	8.9	5.8	3.1	-15.3	-15.6
Sweden	36.0	19.5	18.5	39.2	-34.4	-15.6	-13.2	11.4	4.5	17.9	25.9	-13.6	-8.5	-23.6
United Kingdom	7.2	9.9	-0.5	1.5	-5.7	-35.2	-24.0	3.2	7.0	-3.6	0.4	2.5	-16.1	-8.7
Norway	-14.3	36.2	21.8	-4.6	-4.5	-26.4	-11.7	-6.3	10.8	25.1	4.1	9.5	-17.6	-15.6
Switzerland	11.6	14.4	6.6	-2.0	-4.4	8.4	-0.9	:	:	:	:	:	:	:
Croatia	8.6	-4.2	14.5	9.7	-3.2	-0.7	-31.8	14.1	2.3	13.9	7.8	7.2	-6.6	-21.8
Japan	0.8	2.5	4.0	4.3	-17.9	3.2	-27.9	:	:	:	:	:	:	:
United States	8.5	5.8	5.7	-12.9	-24.8	-33.3	-38.8	:	:	:	:	:	:	:

Source: Eurostat ([sts_cobpgr_a](#))

The large negative rates of change recorded in 2008 and 2009 for the EU-27 index were reflected to differing degrees in the indices of the individual Member States, with Slovakia the only Member State recording double digit growth in 2008, and Germany the only Member State recording any growth in 2009.

Among the EU-15 Member States (EU members before the enlargements in 2004 and 2007), the annual index of the number of dwellings for Germany and Portugal was on a downward trend throughout most of the last ten years, with occasional increases. The remaining EU-15 Member States recorded an upswing in the index peaking normally in 2006: the peak was two years earlier in Ireland, one year earlier in Greece and one year later in Luxembourg. During the upswing growth was particularly strong in Sweden and Spain, and also in Belgium, Denmark, Ireland, France and Luxembourg, while Greece recorded one exceptionally large increase in the index in

2005. Since the end of the period of growth, the falls in the index were particularly large in Spain and Denmark.

Looking at the last ten years, all of the Member States that joined the EU in 2004 or 2007 experienced an upswing in the index of the number of dwellings followed by a sharp reversal. The upswing in most of the newer Member States peaked later, mainly in 2007. The index peaked even later (2008) in the Czech Republic, Romania and Slovakia, while it peaked one year earlier in Estonia: the development of the index in Hungary was atypical in that it had already peaked in 2004. During the period of growth, Bulgaria, Estonia and Latvia recorded the greatest increases, while during the subsequent downturn the same countries recorded the largest falls in this index.

Developments over recent years

Figure 3a: Building permits indices, rate of change compared with previous quarter, seasonally adjusted, EU-27 (%)

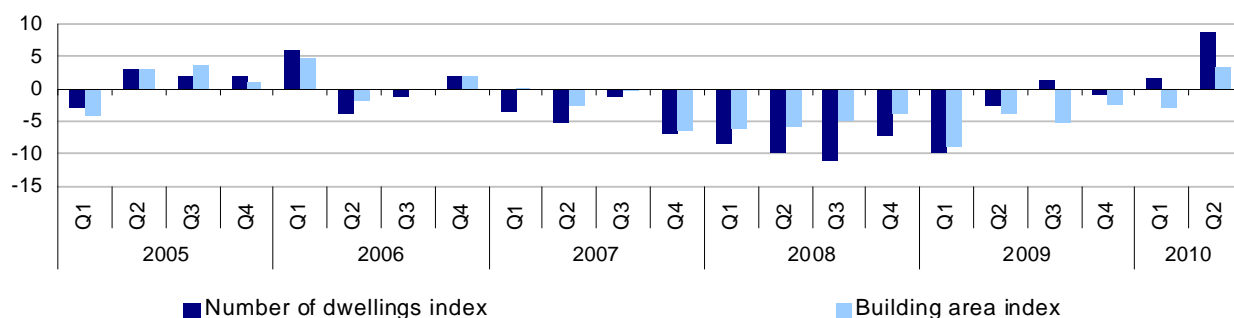
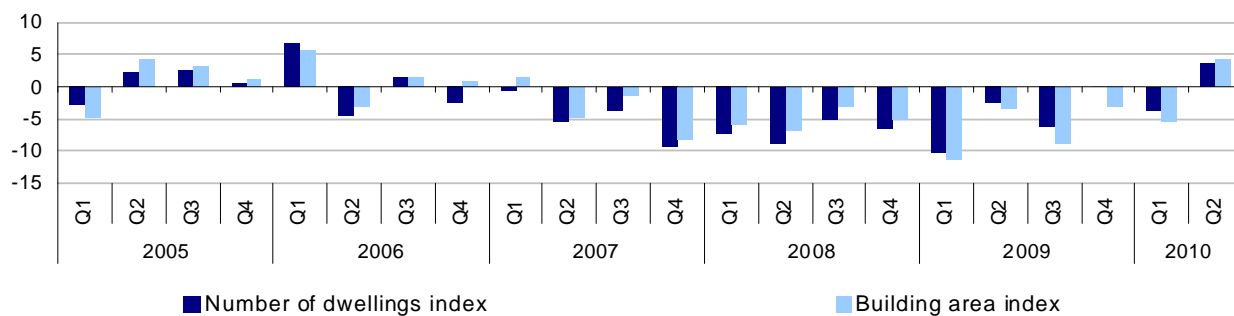


Figure 3b: Building permits indices, rate of change compared with previous quarter, seasonally adjusted, euro area (%)



Source: Eurostat ([sts_cobpqr_q](#))

Figure 4a: Building area and production indices, seasonally adjusted, EU-27 (2005=100)

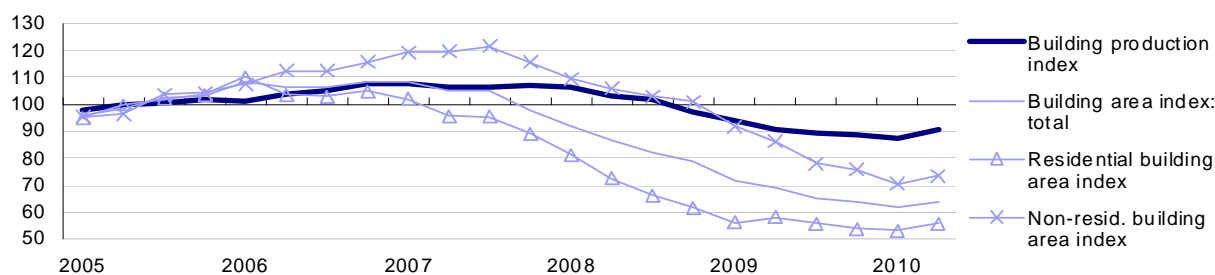
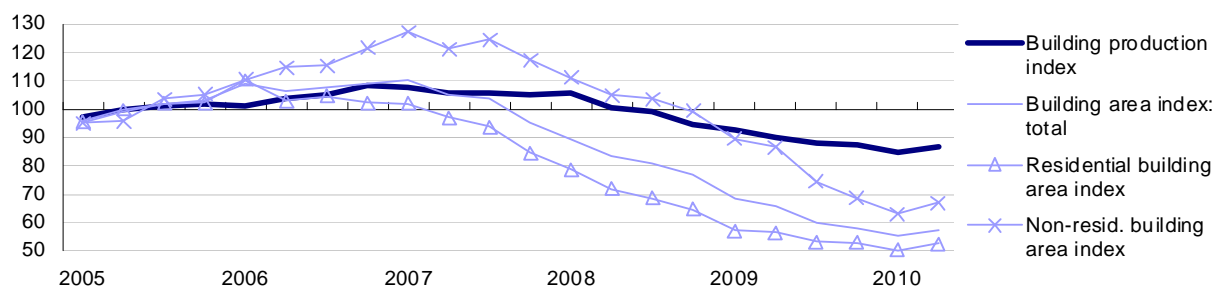


Figure 4b: Building area and production indices, seasonally adjusted, euro area (2005=100)



Source: Eurostat ([sts_cobp_q](#), [sts_copr_q](#))

Figures 3 and 4 present a shorter time series but on a quarterly basis. For the EU-27 the unbroken run of negative quarter on quarter rates of change started in the first quarter of 2007 for the permit index based on the number of dwellings and one quarter later for the index based on the building area. A comparison with the previous quarter shows the rate of decrease in the index was at its largest in the third quarter of 2008 for the index of the number of dwellings and in the first quarter of 2009 for the building area index.

As well as the building permits indices, Eurostat publishes an index of actual production in construction covering all buildings (Figure 4). In the EU-27 and the euro area the production index followed a similar path of contraction after a peak in the last quarter of 2006 and returned to growth in the second quarter of 2010.

Care has to be taken when interpreting building permits indices as an indicator of future output. It may be the case that a proportion of permits are not used or that there is a long time lag between the date when a permit is issued and the start of the building project. Alternatively, building permits may be required only for new work and major reconstructions, and so under-represent future construction activity in that they do not cover maintenance, repairs and modifications not requiring permits. In contrast, not all building projects for which permits are issued are constructed by units classified to the construction activity: householders may undertake their own construction work (self-build) as may some non-construction enterprises or institutions with their own construction or maintenance departments.

Table 3: Building area index, change compared with previous quarter, seasonally adjusted (%)

	Residential buildings						Non-residential buildings					
	2009				2010		2009				2010	
	Q1	Q2	Q3	Q4	Q1	Q2	Q1	Q2	Q3	Q4	Q1	Q2
EU-27	-8.9	3.3	-4.0	-3.3	-1.1	4.7	-9.2	-6.1	-9.5	-2.8	-7.0	3.9
Euro area	-12.1	-0.7	-6.0	-0.6	-4.9	4.6	-9.9	-3.7	-13.6	-7.9	-8.2	5.8
Belgium	-18.6	1.3	11.5	-7.9	17.1	:	30.4	-35.5	-12.0	16.0	9.0	:
Bulgaria	-28.1	-38.8	-9.0	-25.5	-2.2	19.8	-3.7	-32.7	1.1	-14.7	-5.0	-2.2
Czech Republic	3.6	-8.6	5.4	-20.7	-2.2	5.2	6.8	-26.2	-3.9	4.3	15.9	46.4
Denmark	-18.4	-8.0	8.1	-5.7	11.5	-7.8	3.5	-38.3	3.8	-8.5	-16.9	18.6
Germany	-3.7	11.3	4.2	2.9	-9.4	6.8	-9.7	-12.9	2.2	15.0	-13.6	2.5
Estonia	-48.6	-2.3	-12.1	34.1	26.0	-49.6	-26.7	-38.9	54.0	-8.6	-38.2	-5.8
Ireland	-7.6	-21.7	-24.4	-26.6	-7.1	-14.1	-16.8	-9.6	-6.3	-47.4	-21.8	64.6
Greece	3.1	-12.6	5.9	-13.5	21.2	:	-8.2	-16.6	-10.5	1.9	4.5	:
Spain	-21.6	-2.4	-18.5	-11.6	-9.1	-11.6	-5.2	12.8	-30.2	-30.0	-17.5	-4.6
France	-13.3	6.3	-6.6	8.6	4.7	0.1	-2.4	-15.0	-1.6	4.1	-4.9	0.0
Italy	:	:	:	:	:	:	:	:	:	:	:	:
Cyprus	-22.5	4.3	-3.4	-11.4	17.9	-11.1	-38.6	-1.4	46.7	-29.3	17.9	-14.5
Latvia	2.9	-28.3	-32.4	-13.4	-16.6	125.2	-62.3	185.4	-60.5	4.6	326.6	-75.0
Lithuania	-15.7	-12.6	-8.0	-5.9	1.0	1.0	11.0	-3.4	-13.3	34.9	-41.8	-22.9
Luxembourg	-11.8	10.8	2.7	-4.4	17.4	:	16.5	-23.8	32.6	-15.9	19.8	:
Hungary	-13.8	-6.7	-23.1	-10.4	5.7	-30.2	-4.1	-24.6	5.8	-9.8	20.1	-14.1
Malta	:	:	:	:	:	:	:	:	:	:	:	:
Netherlands	-14.3	-10.6	-4.1	8.7	-23.3	11.0	-13.1	-25.7	2.0	-13.3	-12.7	26.6
Austria	-12.8	0.2	10.9	-1.6	-11.5	20.6	23.0	-40.5	5.7	-19.6	-24.7	47.3
Poland	1.2	-12.4	-0.5	-3.6	-1.8	2.2	8.4	-10.2	-4.9	-1.6	7.6	0.5
Portugal	-10.4	-11.4	-2.2	3.5	-5.6	6.7	-8.9	1.9	-26.6	38.7	-9.6	-19.5
Romania	-10.4	-23.8	6.9	-6.2	-11.3	11.6	-5.4	-39.6	2.3	-14.1	32.2	-26.5
Slovenia	-28.4	-14.3	3.8	-7.8	10.0	-4.5	-7.3	7.8	-13.5	29.0	-27.0	25.5
Slovakia	-22.7	-17.1	-10.5	11.2	-6.4	-11.6	-36.3	-32.4	-14.6	-6.0	-17.3	-1.6
Finland	-24.1	24.0	35.2	28.4	-7.3	-21.3	-20.0	-6.3	-4.9	22.0	-9.5	-21.0
Sweden	-12.9	-5.2	16.3	6.7	9.2	-18.5	3.0	-14.1	-15.1	47.6	-20.5	-0.5
United Kingdom	6.4	17.7	2.2	-5.1	2.3	1.8	-7.7	-11.1	2.3	6.9	-3.5	-6.3
Norway	53.1	-13.0	14.7	16.2	-12.3	-5.8	23.2	-23.5	-11.4	61.9	-13.3	1.0
Croatia	-27.5	0.9	-14.5	-4.4	0.4	-5.8	-33.4	6.3	6.9	-53.8	12.2	32.8

Source: Eurostat ([sts_cobpqr_q](#))

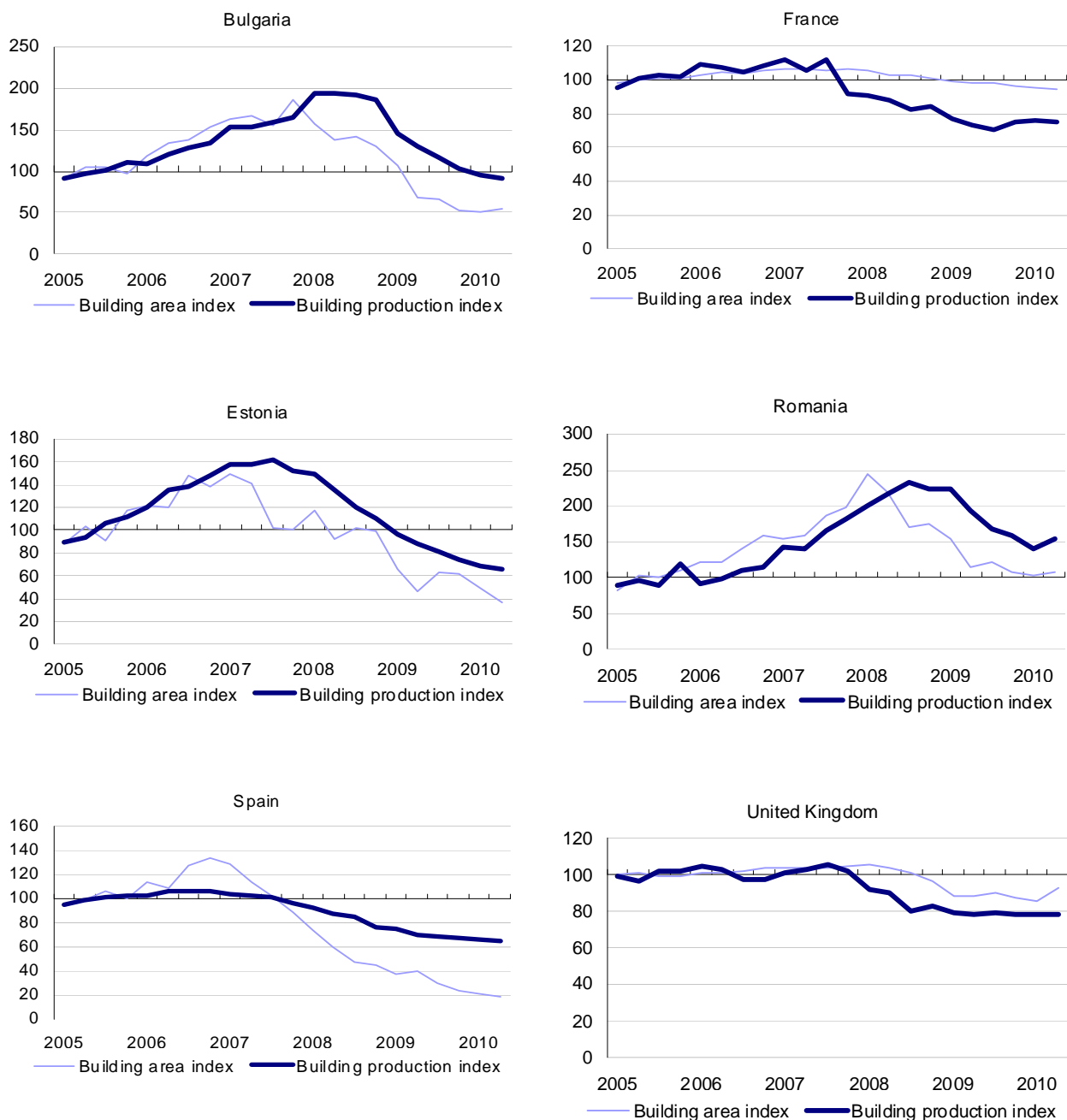
Figure 5 provides a simple analysis of the building production index and building area permits index for a selection of Member States: note that the individual graphs have different scales and so should be compared with care. In several cases the drop in building permits preceded the drop in construction activity.

Bulgaria recorded one of the strongest increases and subsequent decreases for the number of dwellings index, and this is clearly reflected in the production index (=all buildings). Neighbouring Romania shows a very similar development, as did

Estonia, although the Estonian indices peaked earlier.

The graphs for the three selected EU-15 Member States show more subdued growth leading up to the peak in output and permits, and a more restrained, though nevertheless substantial, fall in output since the peak. In France and the United Kingdom the building area indices fell less rapidly than their production indices from their most recent peak values. In contrast, the building area index in Spain fell much more rapidly than the production index, from 133.9 in the last quarter of 2009 to 18.8 by the second quarter of 2010.

Figure 5: Production and building permits indices, seasonally adjusted, selected Member States (2005=100)



Source: Eurostat ([sts_cobp_q](#), [sts_copr_q](#))

METHODOLOGICAL NOTES

Data sources

The source for all of the data presented in this publication is Eurostat's short-term business statistics (STS).

Definitions

The definitions of short-term statistics variables are laid down in [Commission Regulation \(EC\) No1503/2006](#) of 28 September 2006 ⁽¹⁾.

Building permits

A building permit is an authorisation to start work on a building project. As such, a permit is the final stage of planning and building authorisations, prior to the start of work.

Building permits: number of dwellings index

Indices of the number of dwellings are compiled for one-dwelling residential buildings and residential buildings with two and more dwellings. A dwelling is a room or suite of rooms and its accessories in a permanent building or structurally separated part thereof, which by the way it has been built, rebuilt, converted and so on, is intended for private habitation. It should have separate access to a street or to a common space within the building. Detached rooms or habitations which are clearly to be used as a part of the dwelling should be counted as part of the dwelling. A dwelling may thus be constituted of separate buildings within the same enclosure, provided they are intended for habitation by the same household.

Building permits: building area index

This index is compiled from the square metres of useful floor area of buildings for which permits have been granted. The useful floor area of a building is measured within its external walls, excluding construction areas, functional areas for ancillary use (for example, areas occupied by heating and air-conditioning installations or power generators) or thoroughfares (for example, areas of stairwells, lifts, escalators). Alternative volume measures may be used. This index is compiled for all types of buildings.

Building production index

The production index provides a measure of the volume trend in value added over a given reference period. The production index for construction is compiled for building and for civil engineering: the

division is based on the classification of types of construction. Dependent on the approximation method used (see below), the index of production should take account of:

- variations in type and quality of the commodities and of the input materials;
- changes in stocks of finished goods and services and work in progress;
- changes in technical input-output relations (processing techniques);
- services such as the assembling of production units, mounting, installations, repairs, planning, engineering, creation of software.

The data necessary for the compilation of such an index are generally not available on a sub-annual basis. In practice, suitable proxy values for the compilation of the indices are needed:

- input data (consumption of typical raw materials, energy or labour);
- output data (production quantities, deflated production values or deflated sales values).

Classifications

The classification of types of construction (CC) has been developed on the basis of the central product classification. The principal breakdown, at the Section level is between civil engineering and buildings. Below this level the CC differentiates primarily according to the technical design which results from the special use of the structure and, in particular for buildings, according to the main use. The publication of the CC contains many introductory remarks that provide definitions and classification guidelines. For more information on construction classifications see: CC, Eurostat, 14 March 1997.

Geographical coverage

The main geographical entities of this publication are the EU-27 and the euro area which are based on aggregates that are consistently composed of the 27 and 16 countries that (at the time of writing) participate in these respective areas.

Abbreviations

CC	Classification of types of construction
EU	European Union
PEEI	principal European economic indicators
STS	short-term statistics

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⁽¹⁾ Official Journal No L 281, of 12 October 2006.

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

More information about "Short-term business statistics"

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

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