



## Centraal Bureau voor de Statistiek

Division of Economic and business statistics and national accounts  
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### **REBASING NEW DWELLINGS; INPUT PRICE INDICES BUILDING COSTS, 2005 = 100 TO 2010 = 100**

*Summary: This document gives a description of the input price index of the building costs of dwellings. It describes the changes that were made as a result of the base shift and also contains the weighting scheme. The calculation method is not the scope of this document.*

*Keywords: Dwellings, rebasing, price index, input price index*

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## **Foreword**

Statistics Netherlands calculates the monthly the series New dwellings; input price indices building costs in order to monitor changes in the price level of new dwellings in the Netherlands. From January 2013 onwards the input price index is published with 2010 as the new base year. The new series will be calculated ex post from January 2008 onwards. Changes in the weights due to price developments and stricter regulations resulted in differences between the development of the old (2005 = 100) and the new (2010 = 100) series. This paper deals with the changes made in the rebasing process and the differences between the index series based on 2005 = 100 and the index series with base year 2010.

The first section briefly describes how the input price index was calculated on the basis 2005 = 100. Next, the changes made in the base shift to 2010 = 100 are discussed, as well as the effect on the input price index numbers. Finally there is an advice on how to link the old and new series.

### **1. Input price index for building costs of new dwellings**

An input price index is calculated on the basis of the price changes in the various cost components of the final product – in this case a new dwelling. The main cost components in the construction of a new dwelling are wages and materials. Other cost components such as energy and transport are not taken into account, because their influence on the final cost price is relatively modest. Land costs are also not included in the index. The wage and the materials component of the input price indices are calculated as follows.

#### **1.1 The wage component**

The wage component represents the cost development of wages in the building industry. The wage index is based on the development of the statistics on contractual wage costs 'Contractuele LoonKosten' (CLK) in construction. This is a monthly statistic representing the wage costs as established in the collective wage negotiations (CAO). The CLK statistics use a wage cost concept that fits well with the concept of an input price index. This because the employers share of the wage costs is included and because quality changes such as changes in personnel structure do not play a role.

#### **1.2 The materiaal component**

The materials component represents the price changes in certain product groups used to build a dwelling. Calculation is based on cost reviews of a total of eight construction projects of representative dwellings. Each project represents one of four dwelling types (apartments owner-occupied or rented, and houses owner-occupied

or rented). Measuring the price changes requires information about the building materials and about the cost ratios (prices and quantities) of the materials. This leads to a weighting scheme with weights per product group. A weighted index for the materials component per reference project is calculated with the weighting scheme and producer price indices (PPI) belonging to the product groups. Next, the project price indices are weighted to one materials index. The weights derive from the statistic on newly completed dwellings.

### **1.3 Total**

The materials and wage components are averaged with weights into a single input price index. The ratio of the two components is derived from the production statistics of the construction industry 1999, price updated to 2000.

In the publication we provide not only the input price index total, but also the separate indices of the materials and wage components.

## **2. Changes in the input price index**

Two changes were introduced with the rebasing of the input price index. These are discussed below. The last change – updating the weighting scheme – is standard practice in a rebasing.

### **2.1 New product classification**

The price information of the materials components are derived from the producer price indices (PPI). As of 2012 the figures are calculated according to the new product classification Prodcom 2010. Starting from 2013 these statistics are rebased to 2010 = 100 and are based on a new weighting scheme.

The new Prodcom classification has linked materials resulting in different product groups and different price components. The new weighting scheme is a result of new figures of domestic production and consumption of foreign building materials. This can cause price changes in product groups.

### **2.2 New weighting**

There are three areas in the input price index where weights were adjusted. The first one is the ratios of the materials used which leads to a new weighting scheme for the materials component. The second is that the ratio between the wage and the materials component is recalculated. The third is that the weights per type of dwellings are adjusted.

At Statistics Netherlands we made a weighting scheme for base year 2005 on the basis of cost reviews of a total of eight construction projects carried out in the year 2008. Each project represents one of four dwelling types (owner-occupied or rented apartments, and owner-occupied or rented houses), divided across three regions in

the Netherlands (West, Central-South, and North-East). For the Central-South region we only observed newly completed dwellings for the buyers market and for the North-East region only the newly completed dwellings for rent. This is because it is assumed that rental homes in North-East are representative for those in Central-South and the houses for sale in Central-South for those in North-East.

On inquiry it turned out that these projects are still representative for the dwellings built in 2012 provided that the projects meet current legislation. Therefore, the projects are adapted to the current building regulations laid down in the Building regulations and materials used. The prices are also updated to the price level of 2012. These alterations meant changes in the ratios between the materials which led to a weighting scheme per product group (see appendix). The consequences of these changes for the input price index will be discussed in the next paragraph.

The ratio of the wage and materials components is determined in terms of the project estimate. In these detailed estimates the labour costs are reported separately whereas the factor labour could be calculated (see table 1).

*Table 1: Ratio labour- and materials component per region and type of dwelling*

	wage	material
Region North-East and Central-South		
single-family dwelling		
rented	35,9%	64,1%
owner-occupied	36,1%	63,9%
apartment		
rented	34,3%	65,7%
owner-occupied	37,5%	62,6%
Region West		
single-family dwelling		
rented	38,3%	61,7%
owner-occupied	38,0%	62,0%
apartment		
rented	35,2%	64,8%
owner-occupied	34,7%	65,3%

region North-Eastt: Groningen, Friesland, Drenthe, Overijssel en Flevoland

region Central-South: Gelderland, Utrecht, Noord-Brabant en Limburg

region West: Noord-Holland, Zuid-Holland en Zeeland

The ratios of the eight reference projects are also adjusted. The share of these projects is calculated based on the number of new dwellings finished in 2011 per region, type of dwelling and kind of ownership for which a reference project is chosen, and that are reported to the Statistics Netherlands (for the statistics on newly completed dwellings). These shares are shown in table 2.

Table 2: Share type of dwelling per region

Region	rented house		owner-occupied house		total
	single-family	apartment	single-family	apartment	
North-East	3,4%	3,3%	10,1%	1,5%	18,4%
Central-South	7,6%	9,4%	19,6%	5,5%	42,2%
West	2,8%	12,3%	14,6%	9,7%	39,5%
Netherlands	13,9%	25,0%	44,3%	16,8%	100,0%

NB Detailed items in tables do not necessarily add to totals due to rounding

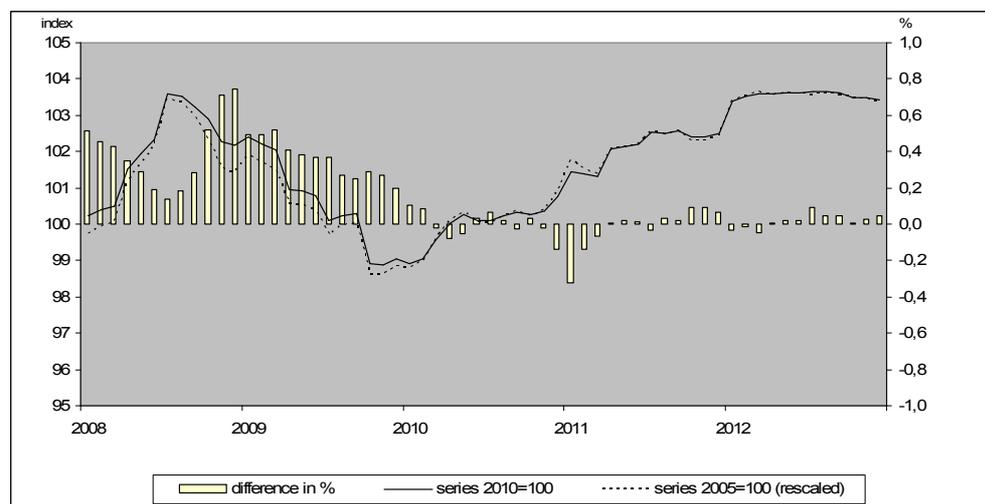
### 3. Results

The changes mentioned in section 3 lead to differences between the input price index based on 2010 = 100 and the old base year 2005. At this section we explain the differences, starting with the results for the materials component. Then we will look at the total input price index. The old series based on 2005 = 100 are all rescaled in such a way that 2010 = 100. The wage component is not mentioned here because it stays –with the exception of a rescaling- unchanged.

#### 3.1 Materials component

Figure 1 shows the price index of the materials component on the old and new basis. Also the differences in terms of percentage between the old and new index are represented.

Figure 1: Indices materials component, 2005 = 100 and 2010 = 100



Because the old series 2005 = 100 is rescaled to 2010 = 100, the differences between both series are made visible. Until 2010 the price index of the materials component on the old base is under the new series. This causes a difference of up to 0.7 percent. Starting from 2010, the series are rather similar to each other. The differences have two causes. First, until 2010 subsequent price information was stored in the database

but not used in the price indices. Now at the rebasing however, all available price information is included. Secondly, the weighting scheme with which the price indices are calculated is adapted (see 2.1). This affects the whole series. The differences from 2010 are much smaller (one month as exception). They are not more than 0.1 percent

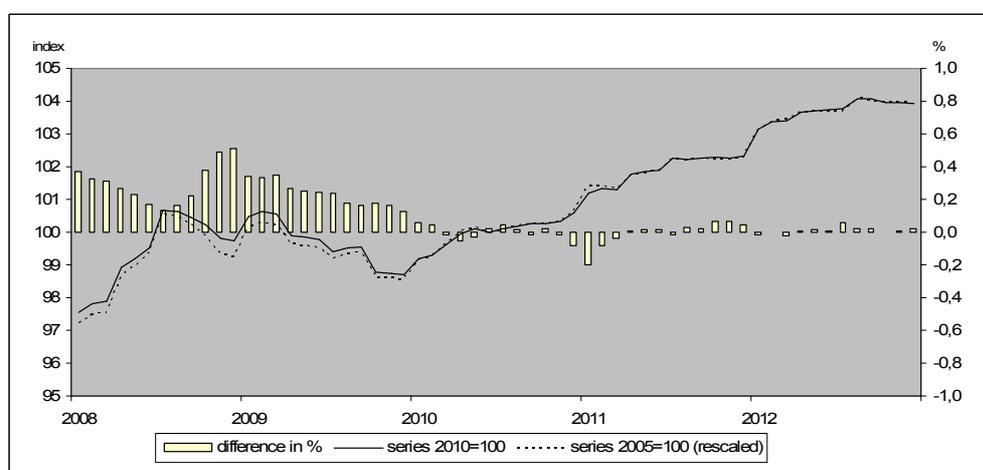
### 3.2 Wage component

Like the old base 2005 the new index 2010 = 100 is based on the contractual wage costs. Therefore this component remains unchanged. The series are only rescaled to 2010 = 100.

### 3.3 Total

Figure 2 shows the old and the new series of the total input price index total. Also here the mutations of the new series differ from the old series in the first two years. After 2010 is the new series is as good as equal to the old series. Because the wage component remained unchanged, the differences can be explained by the adjusted weights of materials and wage of the individual projects and the new weights of the projects themselves. The maximum difference between the two indices is 0.5 percent with an average of 0.1 percent.

Figure 2: Input price index Total, base 2005 = 100 and 2010 = 100



### 3.4 Switching from reference year 2005 = 100 to 2010 = 100

At the same time as the publication of the new figure for January 2013 the figures for the series 2005 = 100 were revised one last time based on the most recent producer price indices and the wage rates. After this, the old series is declared definitive and more recent figures can only be found in the series 2010 = 100.

Users have several options to use the results of the input price index of new dwellings for indexation purposes. Statistics Netherlands has the following advice:

- The calculation of price changes in a period starting in or after January 2005 and ending no later than December 2012 is based on the series 2005 = 100.

- The calculation of price changes over a period starting in or after January 2008 and ending after December 2012 is based on the series 2010 = 100.
- The calculation of price changes over a period starting between January 2005 and January 2008 and ending after December 2012 is based on the series 2005 = 100 and linked to the series 2010 = 100. The linking should occur in the last definitive month of the series 2005 = 100, i.e. December 2012.

Two basic assumptions form the basis for this advice, namely that the price developments are calculated within one published series as much as possible. Also adjustments ex post are avoided as much as possible.

For questions please contact the infoservice of Statistics Netherlands.

The new price indices based on 2000 = 100 can be found in table [New dwellings; input price indices building costs](#).

## Appendix: weighting scheme 2010

Weighting scheme of the material Input Price Index New Dwellings, 2010=100	
Prodcom Description	Weighting
23611200 Prefabricated structural components	12,3%
16231110 Windows and their frames of wood	12,1%
16231900 Builders' joinery and carpentry, of wood, n.e.c.	9,3%
25110000 Metal structures and parts of structures	6,2%
23320000 Bricks, tiles and construction products, in baked clay	4,6%
25210000 Central heating radiators and boilers	4,1%
23630000 Ready-mixed concrete	3,5%
2361X000 Sand-lime brick	3,4%
25120000 Doors and windows of metal	2,7%
23420000 Ceramic sanitary fixtures	2,6%
16231150 Doors and their frames and thresholds, of wood	2,6%
23120000 Glass	2,4%
25720000 Locks and hinges	2,1%
2825X000 Ventilator and heat exchanger	2,1%
31020000 Kitchen furniture	2,1%
23640000 Mortars	2,0%
24106210 Hot rolled concrete reinforcing bars	2,0%
16100000 Wood, sawn and planed	1,9%
2399X000 Non-metallic mineral products	1,8%
28220000 Lifts	1,7%
16210000 Veneer sheets and wood-based panels	1,7%
23140000 Glass fibres	1,6%
20301000 Paints, varnishes and similar coatings	1,5%
22212157 Rigid tubes, pipes and hoses of polymers of vinyl chloride	1,4%
23310000 Ceramic tiles and flags	1,3%
25930000 Wire products, chain and springs	1,3%
27330000 Wiring devices	1,2%
20520000 Glues	1,1%
23620000 Plaster products for construction purposes	0,9%
24422000 Semi-finished products of aluminium or aluminium alloys	0,9%
24442000 Semi-finished products of copper or copper alloys	0,6%
22214000 Other plates, sheets, film, foil and strip, of plastics	0,6%
23700000 Cut, shaped and finished stone	0,4%
08110000 Ornamental and building stone	0,3%
22290000 Other plastic products	0,3%
23611150 Products of cement, concrete or artificial stone	0,3%
08121190 Construction sands	0,3%
2223X000 Windows and their frames of plastic	0,3%
20302X00 Other paint	0,3%
24107140 Basic iron and steel with open sections	0,2%
23520000 Lime and plaster	0,2%
2611X000 Solar collector	0,2%
24430000 Products of lead, zinc and tin	0,2%
22210000 Plastic profiles	0,2%
24330000 Cold formed or folded products	0,1%
22213000 Plastic plates	0,1%
31010000 Office and shop furniture	0,1%
1623X000 Prefabricated structural components of wood	0,1%
22190000 Rubber products	0,1%
27320000 Other electronic and electric wires and cables	0,1%
27120000 Electricity distribution and control apparatus	0,1%
13990000 Other textiles n.e.c.	0,1%
23650000 Fibre cement	0,1%
24200000 Tubes, pipes, hollow profiles and related fittings, of steel	0,1%
24340000 Cold drawn wire	0,1%