

# HICP at constant tax rates

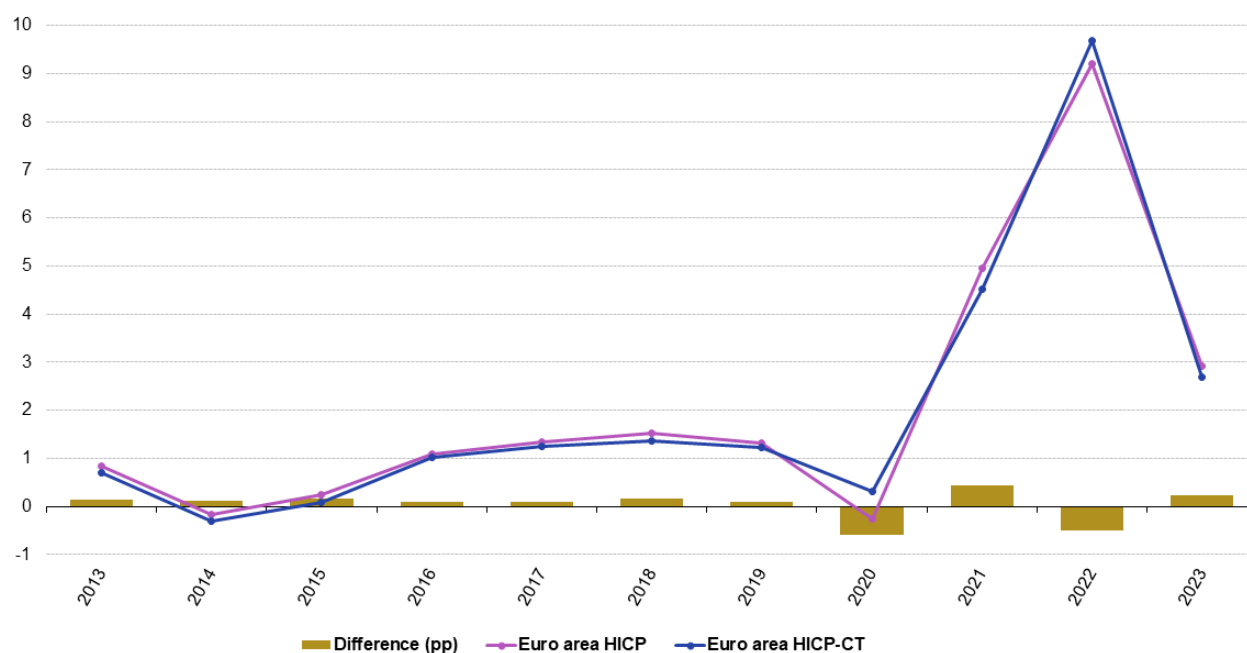
Statistics Explained

Data extracted in February 2024

Planned article update: February 2025

**"In 2023, the annual rate of change of the Harmonised Index of Consumer Prices (HICP) was on average 0.3 percentage points higher than the HICP at constant tax rates (HICP-CT) annual rate in the EU and 0.2 percentage points higher in the euro area."**

**Euro area HICP and HICP-CT - December annual rate and differences, 2014-2023**  
(% and percentage points)



Source: Eurostat (online data code: prc\_hicp\_midx; prc\_hicp\_cind)

eurostat

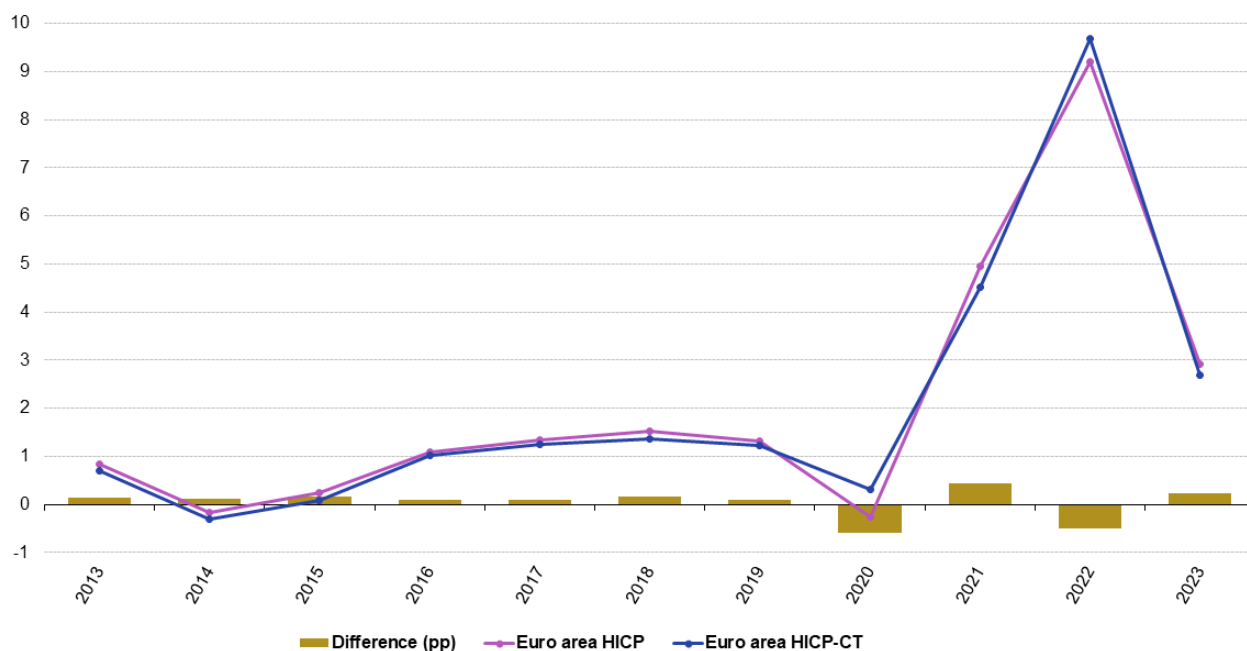
**Euro area HICP and HICP-CT December annual rates and differences, 2014-2023 (% and percentage points)**  
**Source: Eurostat (prc\_hicp\_midx) and (prc\_hicp\_cind)**

The Harmonised Index of Consumer Prices at constant tax rates (HICP-CT) is a variant of the [HICP](#) that measures inflation without the impact of changes in [taxes on products](#), such as [value added tax \(VAT\)](#), excise duties, etc. It thus aims to assess the contribution to inflation of changes in taxes on products. This article analyses HICP-CT data for the [euro area](#) and the [European Union \(EU\)](#) and outlines the methodology underlying these statistics.

## General overview

Figure 1 shows the euro area HICP and HICP-CT December annual rates and differences (percentage change of the index value in December of the observation year 'y' compared with December of the previous year 'y-1') from 2014 to 2023. The HICP-CT is calculated by keeping the tax rates from the previous year's December constant, and, in the event of a tax change, the difference between HICP and HICP-CT rates indicates its effect on prices, assuming that the full tax change is passed on to the consumer instantaneously. Consequently, when HICP rates are higher than HICP-CT rates, this means that, overall, taxes on products have increased. Conversely, HICP rates that are lower than HICP-CT rates generally imply a decrease in taxes on products (see 'Limitations' under section Data sources and availability ).

**Euro area HICP and HICP-CT - December annual rate and differences, 2014-2023**  
(% and percentage points)



Source: Eurostat (online data code: prc\_hicp\_midx; prc\_hicp\_cind)

eurostat

**Figure 1: Euro area HICP and HICP-CT December annual rates and differences, 2014-2023 (% and percentage points)** Source: Eurostat (prc\_hicp\_midx) and (prc\_hicp\_cind)

## Trends in the euro area

### Headline HICP and HICP-CT

When looking at the last decade, the difference between the [annual rate](#) of change in the HICP and the HICP-CT in the euro area has been on average 0.0 [percentage points](#) (pp). That indicates no change in [taxes on products](#) over time. In 2014, the annual rate of change of the HICP-CT was lower than the HICP rate and the difference has further narrowed in the years that followed. In 2020, the trend was reversed, with the HICP-CT higher than the HICP. In 2021, the HICP was higher by 0.4 pp while in 2022, the HICP-CT was higher than the HICP by 0.5 pp. In 2023, the HICP was again higher than the HICP-CT by 0.2 pp.

## Trends in the EU Member States

During the period 2014-2023, 13 EU Member States recorded average increases in taxes on products (see Table 1). In Germany, Spain, Croatia, Italy, Cyprus, Austria, Poland, Romania, Portugal, Slovenia and Slovakia the HICP-CT rate was, on average, lower than the HICP. The average rates of the HICP and HICP-CT for Bulgaria, Denmark, and Hungary have generally been similar during the last ten years, while those for Czechia, Greece, France, the Netherlands, and Sweden have exhibited a difference of only 0.1 pp. By contrast, Romania at -0.5 pp, Belgium and Latvia, both at 0.3 pp, had the largest differences between the HICP and HICP-CT annual rates.

Looking at individual years, Belgium in 2023 at 2.5 pp, as well as Germany in 2021 and Greece in 2015, both at 1.9 pp, had the largest positive differences between the HICP and HICP-CT annual rates (HICP was higher).

Conversely, the HICP-CT showed the largest differences with the HICP in Romania in 2015 at 3.0 pp and in Poland and the Netherlands in 2022 at 3.1 pp and 2.8 pp, respectively. In 2023, the differences narrowed, and the HICP-CT annual rate was a maximum 0.5 pp higher than the HICP (in Portugal).

**HICP and HICP-CT December annual rates and differences, 2014-2023**

(% and percentage points)

	Average HICP annual rate (%)	Average HICP-CT annual rate (%)	Average difference HICP-CT/HICP annual rate (pp)	Difference between HICP and HICP-CT annual rate in December (percentage points)									
				2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
European Union	2.5	2.5	0.0	0.2	0.1	0.0	0.1	0.1	0.1	-0.5	0.4	-0.6	0.3
Euro area	2.2	2.2	0.0	0.1	0.2	0.1	0.1	0.2	0.1	-0.6	0.4	-0.5	0.2
Belgium	2.6	2.3	0.3	-0.3	0.5	0.6	0.2	0.1	0.1	-0.4	0.7	-1.4	2.5
Bulgaria	3.1	3.1	0.0	0.0	0.0	0.3	0.2	0.2	0.0	-0.7	0.0	-0.6	0.2
Czechia	4.0	3.9	0.1	0.1	0.2	0.0	0.0	0.1	0.0	-0.1	-0.9	1.5	0.2
Denmark	1.6	1.6	0.0	0.2	-0.1	0.0	-0.3	0.0	0.0	0.6	0.1	0.1	0.1
Germany	2.4	2.5	-0.1	0.1	0.0	0.0	0.0	0.0	0.0	-2.1	1.9	-0.2	0.1
Estonia	4.3	4.0	0.3	0.2	0.3	0.7	0.9	0.5	-0.2	-0.2	0.1	0.0	0.1
Ireland	1.8	1.6	0.2	0.1	0.2	0.2	0.1	0.1	0.6	-1.0	1.0	-0.5	1.1
Greece	1.6	1.5	0.1	-0.4	1.9	0.7	0.6	0.1	-1.4	-0.9	-0.1	0.0	0.0
Spain	1.9	2.0	-0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.0	-0.8	-0.3	-0.3
France	2.0	1.9	0.1	0.5	0.2	0.2	0.2	0.6	0.1	0.3	0.0	-0.5	-0.1
Croatia	2.6	2.8	-0.2	0.5	0.4	0.1	0.0	0.2	-0.8	-0.2	0.2	-1.7	0.0
Italy	1.9	2.0	-0.1	0.1	0.0	0.0	0.1	0.0	0.1	0.1	-0.5	-0.4	0.3
Cyprus	1.4	1.6	-0.2	1.1	0.0	0.0	0.0	0.0	-0.2	-0.5	0.0	-0.6	-0.3
Latvia	3.7	3.4	0.3	0.1	0.2	0.6	0.1	0.5	0.1	0.3	0.2	0.1	0.1
Lithuania	4.1	3.9	0.2	0.1	0.1	0.2	0.9	0.0	0.0	0.4	-0.3	-0.1	0.2
Luxembourg	2.2	2.0	0.2	0.2	1.1	0.1	0.1	0.1	0.1	0.1	0.5	0.3	-0.2
Hungary	5.0	5.0	0.0	0.0	0.1	-0.1	-0.6	-0.4	0.2	0.1	0.4	0.0	0.6
Malta	2.0	1.8	0.2	0.1	0.3	0.3	0.3	0.3	0.3	0.0	0.0	0.0	0.0
Netherlands	2.6	2.5	0.1	0.2	0.3	0.1	0.0	0.5	1.2	0.1	0.1	-2.8	1.6
Austria	2.9	3.0	-0.1	0.1	0.0	0.2	0.0	0.0	0.0	-1.5	0.0	0.8	0.0
Poland	3.8	3.9	-0.1	0.4	0.0	0.0	0.0	0.0	0.0	0.2	0.2	-3.1	1.4
Portugal	1.8	1.9	-0.1	0.1	0.2	-0.4	0.1	0.0	0.0	0.1	-0.1	-0.6	-0.5
Romania	3.8	4.3	-0.5	0.7	-3.0	-1.9	-0.6	-0.1	0.3	0.1	0.0	0.2	0.2
Slovenia	2.3	2.4	-0.1	0.6	-0.2	0.0	0.2	-0.2	0.1	-0.2	0.0	-1.3	1.3
Slovakia	3.4	3.5	-0.1	0.0	0.0	-0.4	0.1	0.0	0.1	-0.3	0.3	0.1	-0.4
Finland	1.7	1.5	0.2	0.5	0.3	0.2	0.0	0.4	0.2	0.3	0.2	-0.3	0.3
Sweden	2.6	2.5	0.1	0.0	0.2	0.1	0.3	0.1	0.1	0.1	0.0	0.0	0.1
Norway	3.1	3.0	0.1	-	-	0.5	0.2	0.4	0.1	-0.5	-0.2	0.1	0.4
North Macedonia	3.3	0.0	0.1	-	-	-	-	-	0.3	0.1	-0.2	0.0	0.6
Serbia	4.1	0.0	-	-	-	-	-	-	0.3	0.3	0.6	-0.1	0.9

(-) data not available

Source: Eurostat (online data code: prc\_hicp\_mindx; prc\_hicp\_cind)

eurostat 

**Table 1: HICP and HICP-CT December annual rates and differences, 2014-2023 (% and percentage points).png** Source: Eurostat (prc\_hicp\_cind)

## Data sources and availability

Starting from December 2002, HICP-CT all-items and special aggregates are available for most EU Member States. From December 2012 onwards, detailed HICP-CT data by COICOP categories are available for all EU Member States and Norway. From December 2015 onwards, detailed HICP-CT data are also available for North

Macedonia and Serbia in the [Eurostat database](#) .

## Methodology

The HICP-CT is defined as an HICP index where tax rates are kept constant in the observation period compared with the reference period, i.e. through time. Hence, in the event of a tax rate change, the difference between the current HICP-CT and HICP theoretically would indicate the effect of the tax rate change on price changes. The tax rate may be a certain percentage of the price, or an absolute tax amount levied on a physical unit.

The HICP-CT is a [Laspeyres](#) -type price index which reflects the average change of  $g$  item prices  $p_{i,t}$  from the price reference period  $t_0$  (previous year's December) to month  $t_n$  . The expenditure shares are denoted as  $w_i$  . HICP-CT uses HICP [expenditure](#) shares. All product-related taxes, which may be merged in vectors  $\tau_{i,t}$  , are part of the prices observed (and refer to the same periods as the prices).

$${}_L CTP_{t_0, t_n} = \sum_{i=1}^g \frac{p_{i, t_n}(\tau_{i, t_0})}{p_{i, t_0}(\tau_{i, t_0})} \cdot w_i$$

The notation  ${}_L CTP$  (Laspeyres-type Constant Tax Price index) indicates that prices in  $t_0$  and  $t_n$  refer to tax rates from the same period  $t_0$  . Whereas the prices  $p_{i, t_0}(\tau_{i, t_0})$  are observable in the base period  $t_0$  , the prices  $p_{i, t_0}(\tau_{i, t_n})$  are not directly observable. They have to be calculated using the reporting period's purchaser prices  $p_{i, t}$ , the product-related tax rates  $\tau_{i, t_n}$  as well as the tax rates of the base period  $\tau_{i, t_0}$  . For more details on the methodology applied, please refer to [HICP-CT manual](#) .

As explained previously, the HICP-CT is useful for analysis only if it is compared with the HICP, e.g. where tax rate changes occur in the observation period, the effect of these changes on prices will be seen by comparing the HICP-CT with the HICP.

## Tax coverage

The taxes falling within the scope of the HICP-CT are taxes on products relating to final monetary consumption expenditure and taxes directly linked to the level of final consumption (see Table 2). The [European System of Accounts \(ESA\) 2010](#) classifies taxes on products in economic terms.

## ESA 2010 D.21 Taxes on products – relevance for the HICP-CT

Code	Definition	Relevance for HICP-CT
D.211	Value added type tax	In scope
D.212	Taxes and duties on imports excluding VAT	Out-of-scope
D.2121	Import duties	Out-of-scope
D.2122	Taxes on imports, excluding VAT and import duties	Out-of-scope
D.2122a	Levies on imported agricultural products	Out-of-scope
D.2122b	Monetary compensatory amounts levied on imports	Out-of-scope
D.2122c	Excise duties and special taxes on certain imported products	In scope
D.2122d	General sales taxes	Out-of-scope
D.2122e	Taxes on specific services	In scope
D.2122f	Profits of public enterprises exercising a monopoly over the imports of some goods or services	Out-of-scope
D.214	Taxes on products, except VAT and import taxes	Out-of-scope
D.214a	Excise duties and consumption taxes	In scope
D.214b	Stamp taxes	Out-of-scope
D.214c	Taxes on financial and capital transactions	Out-of-scope
D.214d	Car registration taxes	In scope
D.214e	Taxes on entertainment	In scope
D.214f	Taxes on lotteries, gambling and betting	Out-of-scope
D.214g	Taxes on insurance premiums	In scope
D.214h	Other taxes on specific services	In scope
D.214i	General sales or turnover taxes	Out-of-scope
D.214j	Profits of fiscal monopolies	Out-of-scope
D.214k	Export duties and monetary compensatory amounts collected on exports	Out-of-scope

Source: ESA 2010



**Table 2: ESA 2010 D.21 Taxes on products - relevance for the HICP-CT. Source: Eurostat**

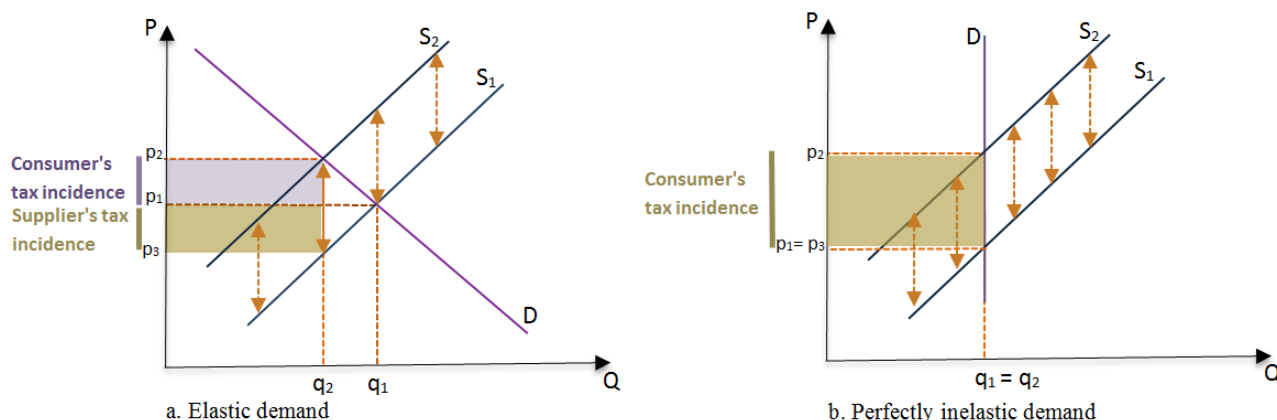
However, some taxes in the scope of the HICP-CT are small in terms of tax revenue and hence a tax rate change would be unlikely to influence the HICP. Therefore only relevant taxes are kept constant for calculating the HICP-CT (for more information, see [HICP-CT reference methodology](#)). **Limitations**

The HICP-CT assumes that changes in tax rates are passed on to the consumer instantaneously and fully. Since most of the time that is not the case, the HICP-CT tends to provide an indication of the upper limit of the impact of tax changes on inflation. In real life, taxes are not always passed on to consumers at the same time as they are introduced. Retailers can adjust the prices of their products to reflect tax changes later on or they can anticipate the rate change and adjust their prices before the new tax rate is applied. It is also possible that retailers will change their prices less than expected or even keep prices constant. Thus the HICP-CT might overestimate a price increase, e.g. if stock is sold at the 'old' price.

The price elasticity<sup>1</sup> of supply and demand determines to some extent how taxes will influence prices. The less price-elastic the demand, the larger the share of tax that consumers have to pay. In the case of more price-elastic demand, the retailers have to bear a larger part of the tax burden (see Figure 2a).

<sup>1</sup> Responsiveness of the quantity demanded of a product to a price variation.

Hence, the assumption that changes in tax rates are passed on to the consumer fully is true only in the case of perfectly inelastic demand, while in other cases the burden of the tax rate change is shared between consumer and retailer (see Figure 2b).



**Figure 2: Incidence of tax changes in consumers and suppliers** Source: Eurostat

Where:

- $D$  – demand
- $S_1$  – supply function before tax change
- $S_2$  – supply function after tax change
- $q_1$  – quantity purchased before tax change
- $q_2$  – quantity purchased after tax change
- $p_1$  – price before tax change
- $p_2$  – price after tax change
- $p_3$  – price recorded by HICP-CT

As shown in Figure 2, whenever a tax rate changes, the supply curve shifts upwards (or downwards, depending on whether the change is positive or negative) by the distance equal to the difference between the new and old tax rates ( $\tau_2 - \tau_1$ ), assuming that changes in tax rates are passed on instantaneously and fully. There is then a new equilibrium point with a price  $p_2$  and a quantity  $q_2$ . Only in the case of perfectly inelastic demand is the consumer's tax incidence equal to the tax rate change, i.e.,  $p_1$  equals  $p_3$ . In other cases, although the HICP-CT records the price  $p_3$ , the actual price with constant taxes would be  $p_1$  (ceteris paribus: assuming there are no other changes). Since cases of perfectly inelastic demand are rare in real life, generally the HICP-CT just gives an indication of an upper limit of the changing tax rate's influence on inflation.

In case the change of taxes creates second round effects, that effect is not captured by the HICP-CT. Additionally, changes to indirect tax policy that affect the base of the tax and not the rate are not covered by HICP-CT.

Therefore, the HICP-CT is an important tool for analysing the causes of inflation, but it cannot be used as an accurate assessment of the impact of tax policy changes on consumer prices.

## Other articles

- [HICP methodology](#)
- [Inflation in the euro area](#)
- [Tax revenue statistics](#)

## Database

- [Harmonised Indices of Consumer Prices at constant tax rates \(HICP\)](#) , see:

HICP at constant tax rates ( [prc\\_hicp\\_ct](#) )

HICP at constant taxes — monthly data (index) ( [prc\\_hicp\\_cind](#) )

HICP at constant taxes — monthly data (annual rate of change) ( [prc\\_hicp\\_cann](#) [prc\\_hicp\\_cann](#) )

HICP at constant taxes — monthly data (monthly rate of change) ( [prc\\_hicp\\_cann](#) [prc\\_hicp\\_cmon](#) )

## Dedicated section

- [Harmonised Indices of Consumer Prices \(HICP\)](#)

## Methodology

- [HICP at constant tax rates](#)
- [Reference methodology - April 2011](#)
- [Indicator - Difference between monthly rates of the HICP and the HICP at constant taxes - June 2019](#)