

## 1. EXPLANATION OF THE INDUSTRY MONITOR GRAPH: DEFLATED TICKET PRICES IN EUROPE

1. Harmonised Indexes of Consumer Prices (HICP) retrieved on EUROSTAT are used to calculate the evolution over time of *real* Ticket Prices at EU level to be published each month in the STATFOR Industry Monitor and other STATFOR reports.

HICPs are harmonised inflation measures required by the EU to facilitate international comparisons of consumer prices inflation, and they are used as important indicators for the management of economic policies. In order to make the international comparison easier, HICPs are produced every month<sup>1</sup> at national and EU-level; they measure the prices of goods and services available for purchase in each Member State and EU taking the same year as base year<sup>2</sup>.

The HICP main index is a price index grouping all goods and services covered by the HICP; it is used as an indicator for inflation in EU. Sub-indices of HICP are also produced on any set of goods and services covered by the HICP such as transport, clothing, food, etc...; they are used as inflation indicators for each set of goods and services covered.

2. The HICP on Passenger Transport by air is used as a proxy for air ticket prices' inflation at EU-level. The corresponding HICP Classification is CP0733 – Passenger Transport by air: Transport of individuals and groups of persons and luggage by aeroplane or helicopter. This is a survey-based statistic provided by individual States reflecting the cost of travel in the month indicated (rather than the cost of buying tickets in that month for travel at another time).
3. STATFOR then calculates a 'deflated' the air ticket price index by dividing the HICP on air transport passengers by the HICP on all Consumer Prices.

$$(1) \text{ HICP ratio}_{m,y} = \frac{HICP_{CP0733,m,y}}{HICP_{CP00,m,y}}$$

Where  $HICP_{CP0733}$  is the HICP on Passenger Transport by air,  $HICP_{CP00}$  is a price index grouping all goods and services covered by the HICP,  $m$  is the month and  $y$  is the year. The change in prices is then calculated to analyse the evolution over time as shown in the equation below:

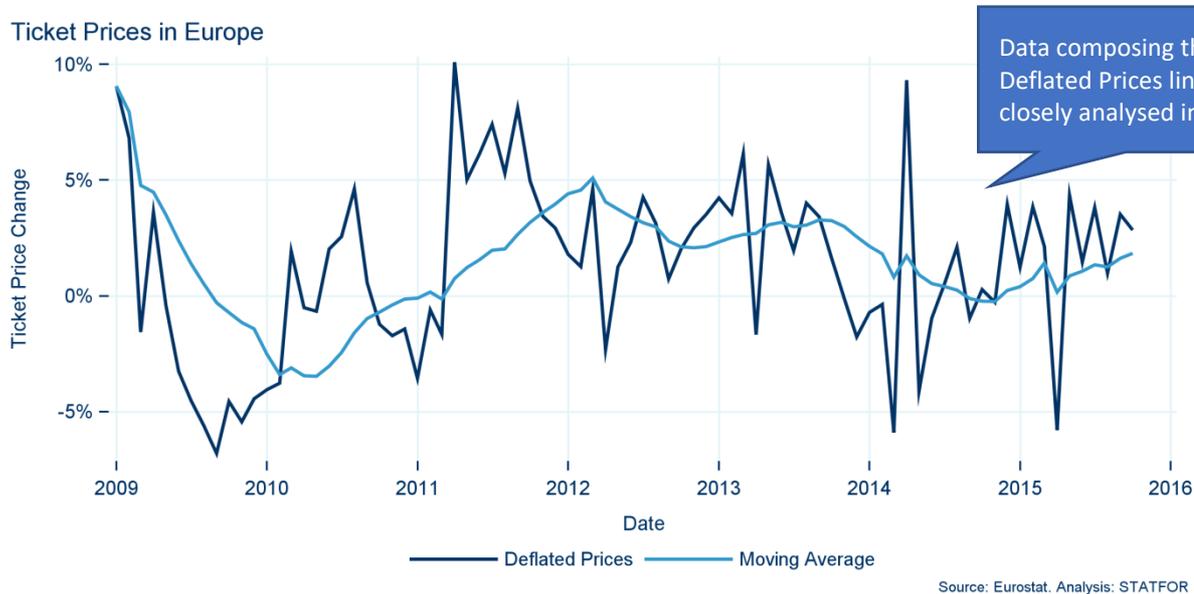
$$(2) \text{ Deflated Ticket Prices} = \frac{HICP \text{ ratio}_{m,y}}{HICP \text{ ratio}_{m,y-1}} - 1$$

Where the *HICP ratio* is defined in the equation (1) above,  $m$  is the month and  $y$  is the year.

<sup>1</sup> Some Member States report with a 2-month lag.

<sup>2</sup> Regulation (EC) No 1708/2005 sets the reference year for the HICP index at 2005 = 100; it will be repealed by Regulation (EU) 2015/2010 which sets the reference year of the HICP index at 2015 = 100 as of 25 February 2016.

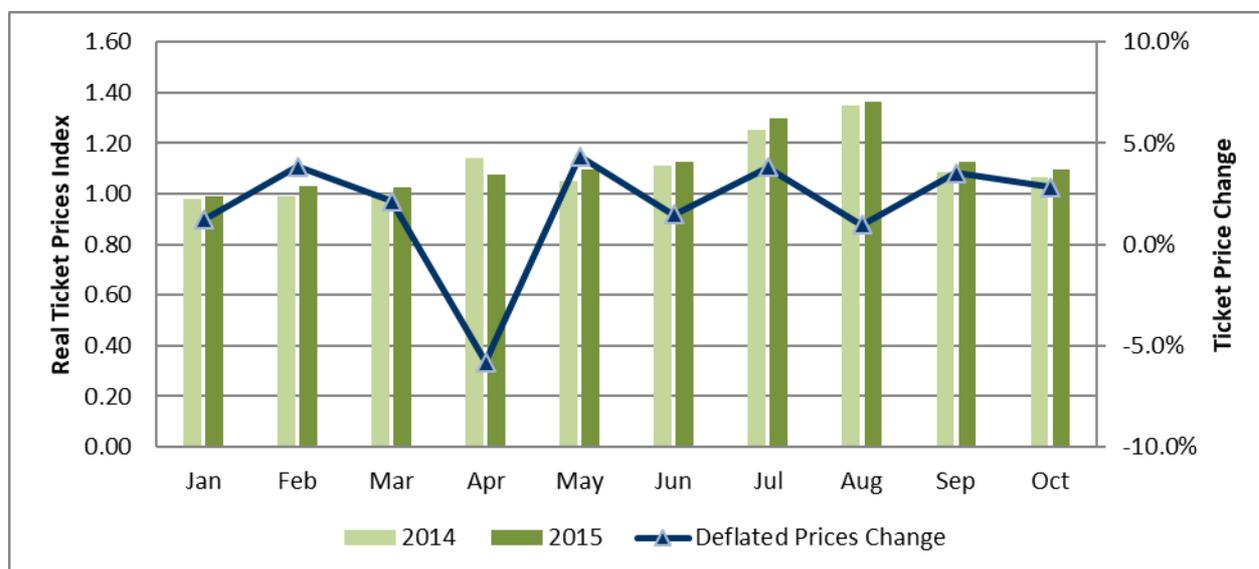
Taking the example of the Tickets Prices in Europe graph published in the Industry Monitor, the Deflated Ticket Prices in EU is reproduced in Figure 1 below.



**Figure 1 Deflated ticket prices in EU**

The Deflated Prices line shows how much faster (or slower) ticket price inflation is than overall inflation. Therefore, a value of 2% deflated ticket price change means that air ticket prices are increasing 2% quicker than the price of all goods and services covered by the HICP; more specifically it describes the yearly change of inflation in the EU Ticket Prices on a monthly basis in percentage terms (i.e. the value related to a month represents the year-on-year change in inflation of Ticket Prices).

Figure 2 reports the evolution of the HICP ratio (equation 1) for 2014 (light green bars) and 2015 (dark green bars), as well as the related “Deflated price change”.



**Figure 2 Zoom for the 2015 deflated ticket prices for EU**

In order to calculate the value of Deflated price change in January 2015, the January 2015 (0.991) and January 2014 (0.979) HICP ratios are used.

By applying equation (2):

$$\text{Deflated Ticket Prices} = \frac{0.991}{0.979} - 1 = 1.2\%$$

The value of 1.2% for January 2015 means that the EU Ticket Prices were 1.2 percentage points higher than in January 2014, after allowing for growth of overall prices. Inflation in air ticket prices have increased by 1.2% in January, 3.8% in February, and -5.8% in April. The sharp negative value in April indicates a significant year-on-year reduction in air ticket prices; this reduction can mainly be explained by the Easter holiday effect. Holidays can influence ticket prices making flying in that period more expensive than other time in the year. Easter holidays in 2014 (April) happened to be later than Easter holidays in 2015 (March), air ticket prices were more expensive for a longer period in April 2014 than in April 2015. The Easter holiday effect, as well as other factors increase the variability of the *Deflated Prices* line.

4. In order to reduce the variability of the *Deflated Prices* line and smooth it, the light blue line "Moving Average" is plotted in Figure 1. It is a 12-month moving average of the *Deflated Prices*. The average is calculated by taking into account the 12 months preceding each value. It is used to identify the underlying trends characterising the change of inflation in air ticket prices and to smooth the effect of the monthly variation. For instance in January 2015, the deflated price change in tickets (1.2%) was higher than the last 12-month average deflated price change (0.4%) indicating accelerating inflation, whereas in April 2015, the deflated price change in tickets (-5.8%) was lower than the last 12-month average deflated price change (0.2%).

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