



# Adjusting Swiss GDP for the impact of major international sporting events

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May 31, 2018

## Background

Several major international sports associations are based in Switzerland, including the International Federation of Association Football (FIFA), the Union of European Football Associations (UEFA) and the International Olympic Committee (IOC). In accordance with the applicable international standards, specifically the European System of Accounts (ESA 2010), the value added from Switzerland-based companies, institutions and associations contributes to Swiss gross domestic product (GDP). In the case of international sports associations, their revenue and intermediate consumption are connected to the organisation and marketing of major sporting events.

From the point of view of the national accounts, this income from intangible assets (licences, rights, patents) is not a special case and plays a key role in many sectors, for example the income earned from licences and patents in the pharmaceutical industry. In light of this, licence income that is generated from the marketing of major international sporting events is not to be treated any differently from income generated from other licences and patents.

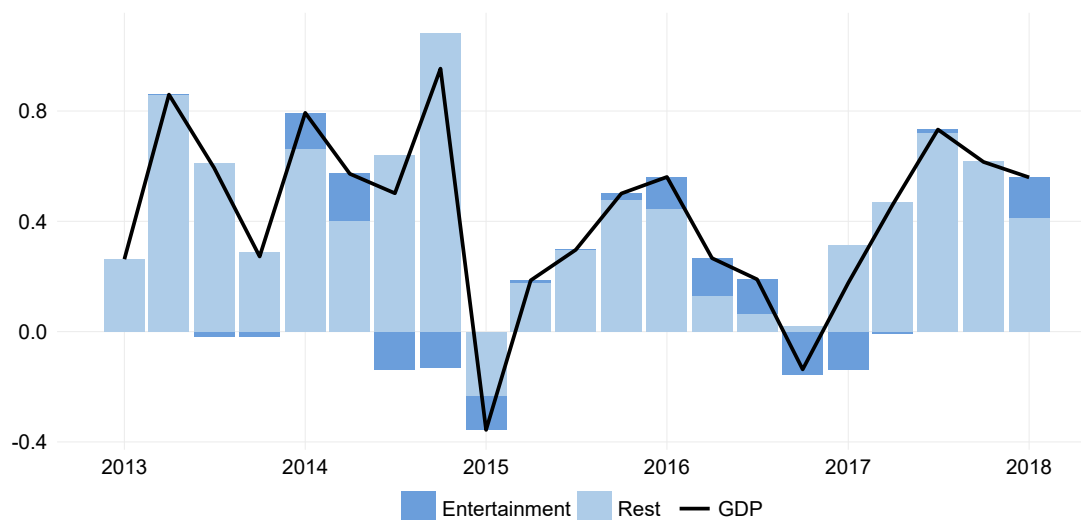
However, from the point of view of business cycle analysis, the fluctuations caused by major sporting events can complicate matters. This is not because the associated value added contributes to GDP but because these major events do not take place every year. The Olympic summer and winter games, the European Football Championship and the FIFA World Cup are held every four years. This multiannual cycle is also reflected in the entertainment industry's<sup>1</sup> value added and, hence, in GDP. In years with major sporting events, GDP growth is positively affected (e.g. in 2014, when Olympic winter games and the FIFA World Cup took place, or 2016, when Olympic summer games and the European Football Championship took place) but then falls in subsequent years as the value added associated with such events disappears (see Fig. 1). This multiannual cycle can make it difficult to analyse, model and forecast business cycle developments.

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<sup>1</sup>NOGA 90-96, "Arts, entertainment, recreation and other services".

**Figure 1: Gross domestic product**

Real, seasonally and calendar adjusted, change to previous quarter in %, growth contributions in percentage points



## Adjusting for sporting events: the methodology

To facilitate the interpretation of the data from a business cycle perspective, SECO is now publishing additional time series, which adjust for the effects of these major international sporting events. The evening out or adjustment of regular and predictable fluctuations is an internationally standard procedure to simplify business cycle analysis. This applies for example in the case of seasonal patterns which may mask the business cycle development during the year, or for so-called calendar effects (the impact of where Easter falls, the number of working days or a leap year). Unlike seasonal adjustment, calendar adjustment also takes account of cycles which last longer than one year. For example, the estimated impact of a leap year is spread across the four-year cycle using calendar adjustment. So if value added increases by 100 million in February of a leap year, for example, this additional value added is divided into 25 million each February by calendar adjustment.

The value added associated with major international sporting events can, by extension, be interpreted as a type of calendar effect, since the value added always increases in even years and falls in odd years. Similar to seasonal and calendar adjustment, these fluctuations are repeated at regular and known intervals. It therefore makes sense to adopt a method of adjustment that is similar to calendar adjustment. Since the summer and winter Olympic games, the European Football Championship and the FIFA World Cup are held every four years, the same method of adjustment can be used as for leap years, which also follow a four-year cycle.

Adjusting for sporting events involves two steps. First, the estimated additional value added generated by the sporting events is spread across the four-year cycle for each quarter. This is simply a temporal shift of value added. If you add up the value added over the relevant four-year period, the data adjusted for sporting events is identical to the raw data. Second, since the resulting series has a seasonal pattern, a standard seasonal adjustment procedure is conducted. Since seasonality can change over time, the annual seasonally adjusted figures do not correspond exactly to the annual raw figures. As a result, the values adjusted for both seasonality and sporting events differ slightly from the raw data, even if they have been added up over the same four-year period.

## Adjusting for sporting events: the impact

Adjusting for sporting events has a major impact on the nominal value added of the entertainment industry (Fig. 2). However, this sector only makes up a small proportion of GDP. As a result, considering the nominal GDP level, there is hardly any difference between the seasonally adjusted time series and

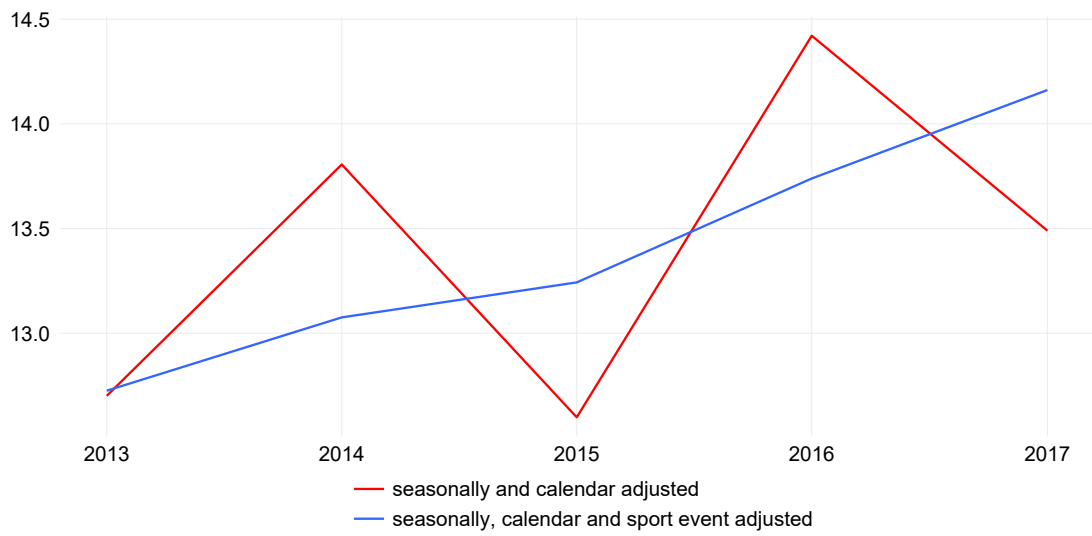
the time series that is both seasonally adjusted and adjusted for sporting events (Fig. 3). By contrast, the difference in growth rates is not negligible (Fig. 4 and 5). In individual quarters, the growth rate looks very different once the impact of major international sporting events has been evened out. This illustrates how important it is to adjust for sporting events when it comes to interpreting individual GDP growth rates from a business cycle point of view. However, the importance of major sporting events is too small as to affect the overall economic situation to any great extent. As shown in Fig. 5, the economic slowdown during 2016 is still clearly visible in the figures adjusted for sporting events, for example. The adjustment simply results in a slight temporal shift: when adjusted for sporting events, the GDP growth rates fall more rapidly in 2016 because the underpinning effect of the European Football Championship and the Olympics is evened out, while they rise a little more sharply in early 2017 because the disappearance of the additional value added from major sporting events is also evened out.

**Further Information:**

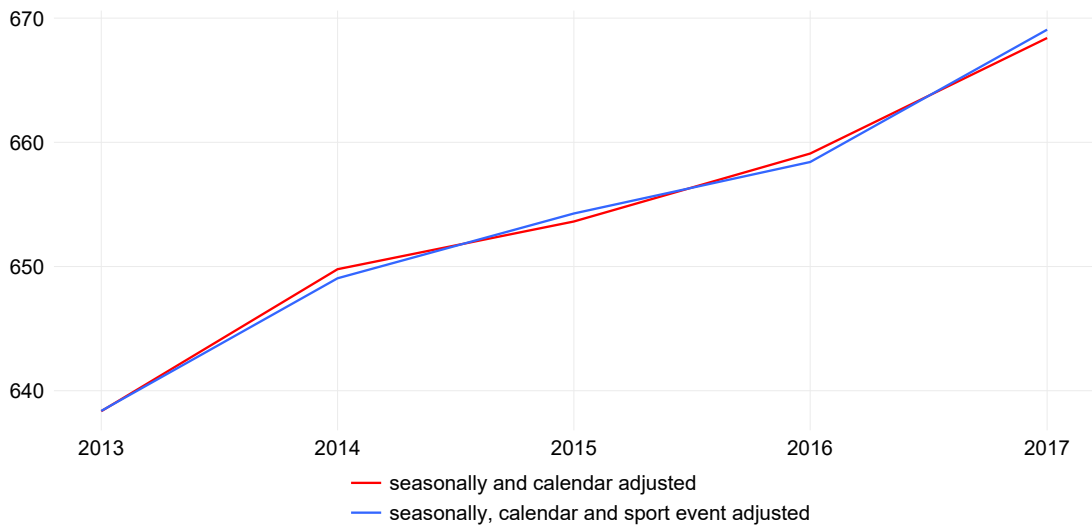
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**Figure 2: Entertainment industry**  
Nominal gross value added, in billion CHF

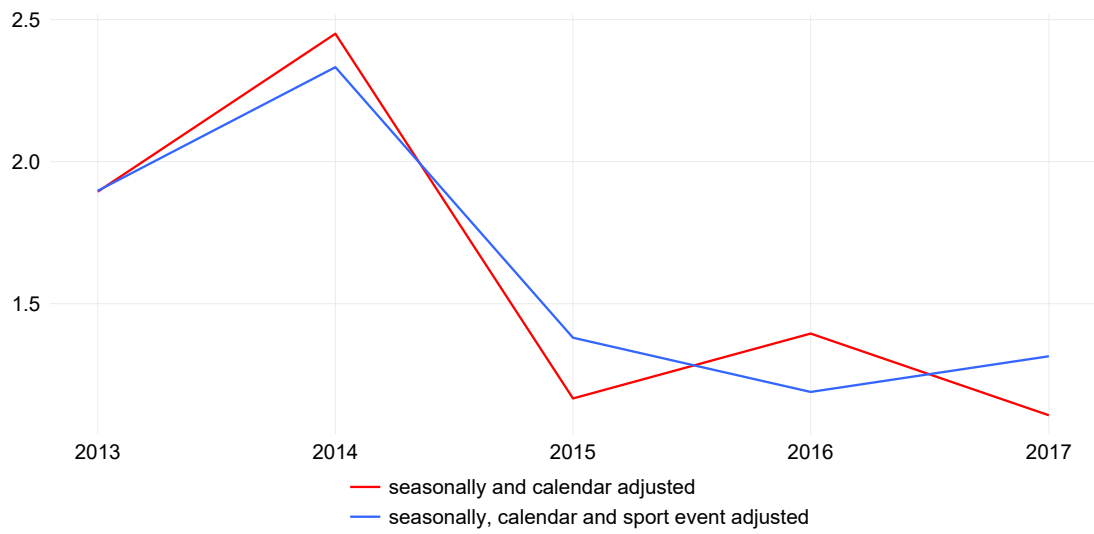


**Figure 3: Gross domestic product**  
Nominal, in billion CHF



**Figure 4: Gross domestic product**

Real, change to previous year in %



**Figure 5: Gross domestic product**

Real, change to previous quarter in %

