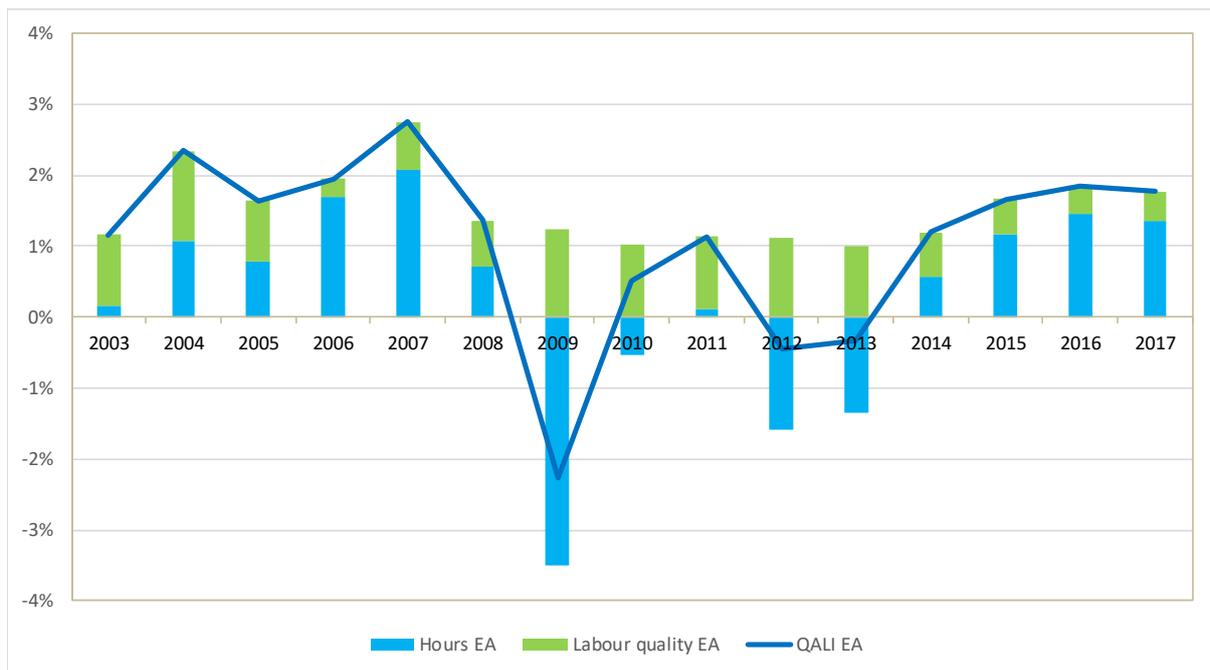
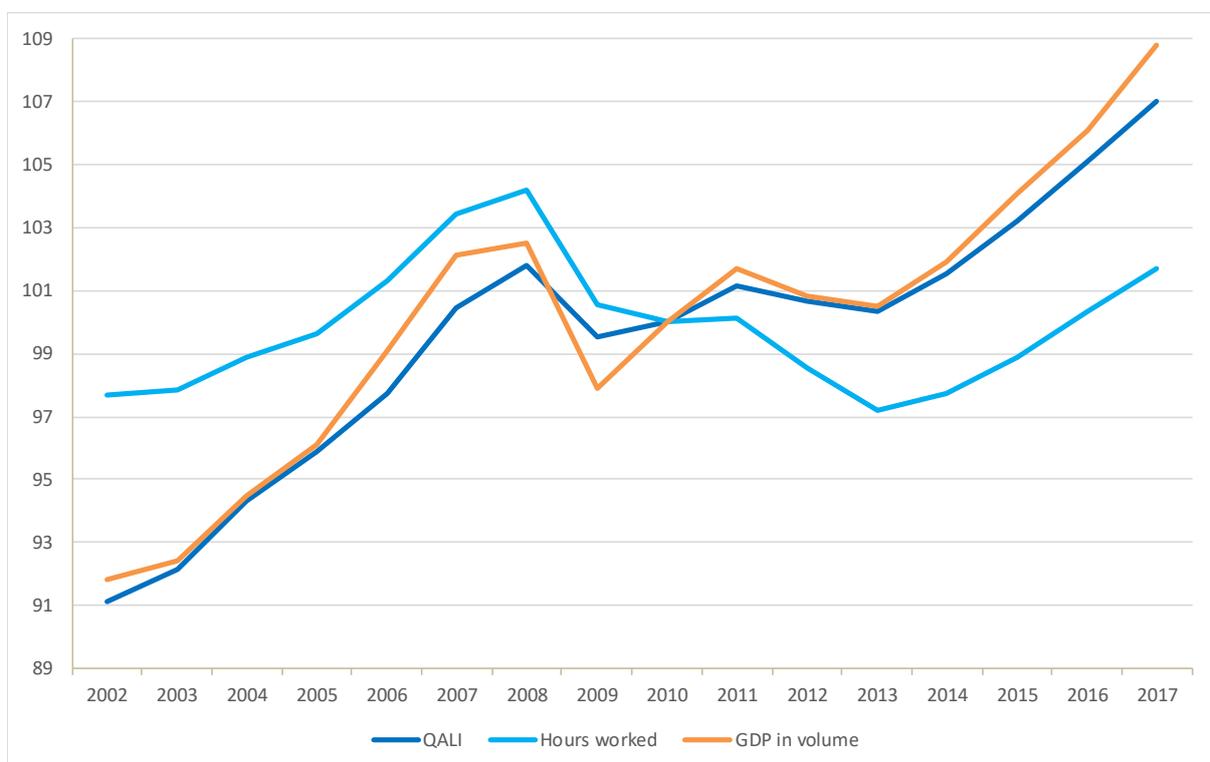


**Figure 1: Annual changes (%) in QALI, in Hours worked and in Labour quality in the euro area**



Source: Eurostat

**Figure 2: Comparison between GDP, Hours worked and QALI in the euro area (index 2010= 100)**



Source: Eurostat

Figure 1 compares annual changes in QALI and in hours worked. The difference between the two can be interpreted roughly as the annual changes in the quality of the workforce.

In the euro area in 2003—2017, QALI increased more than hours worked as the composition of the workforce started becoming more and more productive. This is evident in particular for 2009, 2012 and 2013, when hours worked decreased and labour quality growth counterbalanced this change (See Figure 1).

In this approach, the earnings of workers are used to estimate workforce productivity: the more workers are paid, the more productive they become. In many industries, it also means that the workforce is ageing (more experienced).

GDP index (chain-linked volumes) is more similar to QALI than to hours worked (see Figure 2). In other words, GDP changes appear to be correlated more closely with QALI changes than with changes in hours worked. This similarity has been more pronounced in recent years (from 2011 onwards).

As a result, multifactor productivity (which is a residual in theory) would be smaller and better estimated.