What factors drove the rise in euro zone public debt from 1999 to 2019?

by [Pierre Aldama](#)

Between 1999 and 2019, the eve of the Covid-19 pandemic, the public debts of the 11 oldest euro zone members had risen by an average of 20 percentage points of GDP. This increase in public debt is commonly attributed to structural budget deficits, particularly those in the pre-crisis period and in the "South". But how much of the stock of public debt in 2019 can be attributed to structural deficits, and how much to GDP growth, interest payments or cyclical deficits? In this post, we use the December 2020 edition of the OECD's Economic Outlook *to break down the changes in public debt into its main factors: structural and cyclical primary balances, the interest burden, nominal GDP growth and stock-flow adjustments. This shows that the structural deficits generally contributed less than is commonly assumed, and that the increase in public debt over the period was largely the result of the direct and indirect consequences of the double-dip recession in the euro zone.*

On the eve of the Covid-19 crisis, the 11 oldest euro zone countries had an average level of public debt (in the Maastricht sense) of 92% of GDP. Between 1999 and 2019, the public debt in these 11 countries increased by an average of 20 percentage points of GDP, although with considerable heterogeneity (Figure 1). On the one hand, a group of so-called virtuous countries — Germany, the Netherlands, Austria, Finland and Ireland — reduced their debt ratios to their 1999 level of 60% of GDP or even lower. In contrast to this were the countries whose public debt increased — France, Spain, Greece and Portugal — or remained at a high level — Belgium and Italy. Can we simply deduce from this that there are some countries that acted like the proverbial ant and others like the grasshopper? Probably not.

Indeed, not all countries entered the European Monetary Union (EMU) with the same level of debt: their starting point therefore biases observation insofar as it does not inform about the structural or cyclical factors or to the interest burden associated with the fiscal policy in place from 1999 to 2019. Is the rise in public debt in the "grasshopper" countries largely attributable to the accumulation of structural deficits, or on the contrary, to cyclical factors and the impact of the recessions in the euro zone (2008-2010 and 2011-2013)?

This post uses the December 2020 edition of the

OECD's *Economic Outlook* to break down the *changes* in public debt into the main components: structural
and cyclical primary balances, the interest burden, nominal GDP growth and
stock-flow adjustments. This shows that the contribution of structural deficits
is generally lower than commonly assumed and that the increase in public debt
over the period largely results from the direct and indirect consequences of
the double-dip recession in the euro zone.

The accounting decomposition of public debt dynamics

The change in public debt (as a percentage of GDP) between year *t* and year *t-1* can be broken
down into five main factors, using the following equation:

$$\Delta d_t = \frac{r_t}{1+y_t} d_{t-1} - \frac{y_t}{1+y_t} d_{t-1} + sp_t^{cyc} + sp_t^{struc} + afs_t$$

where r_t / $(1+y_t)$ d_{t-1} is
the effect of the interest burden, $-y_t$ / $(1+y_t)d_{t-1}$ is
the effect of nominal GDP growth (and the sum of the two terms is the infamous
snowball effect[1] of public debt), sp_t^{cyc} is
the cyclical component of the primary budget balance (excluding the interest
burden), sp_t^{struc} is
the structural primary balance (adjusted for the output gap) and afs_t represents
the stock-flow adjustments, i.e. transactions on the assets and liabilities of
general government that are not accounted for in the primary

balance.

By aggregating each of these terms, we calculate
the contributions to the total change in public debt between
1999 and 2019
(Figure 2) and year by year (Figure 3). Finally, Figures 4A
and 4B present breakdowns
of the public debt similar to Figure 2 but over two sub-
periods: 1999-2008 and
2008-2019.

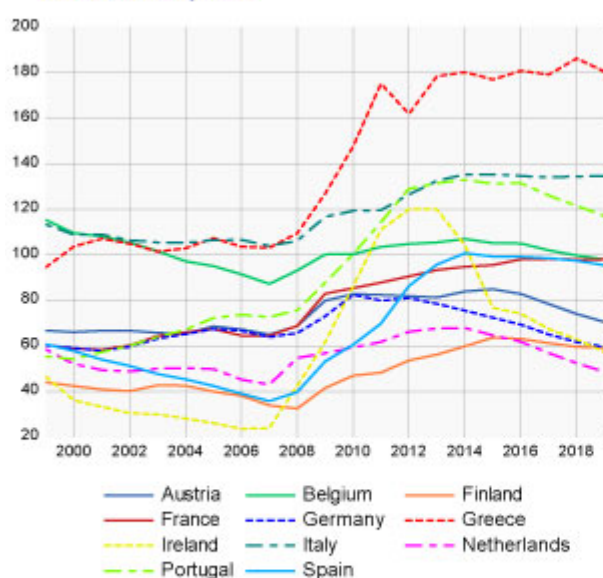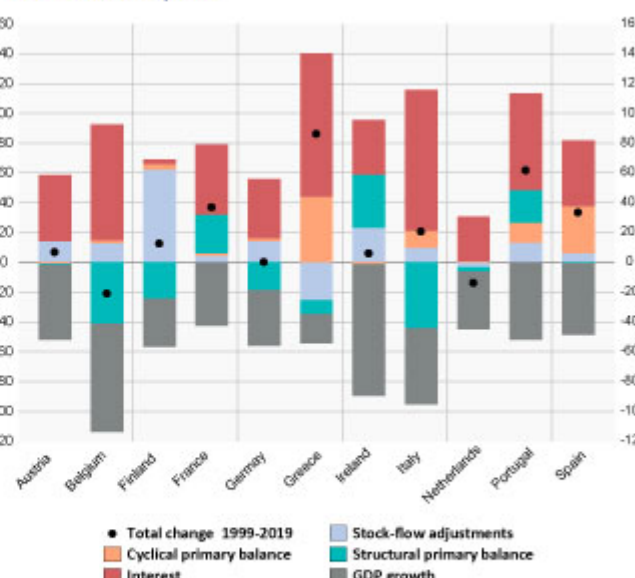Figure 1. Public debt/GDP in the Maastricht sense from 1999 to 2019, in GDP points

Figure 2. Breakdown in the change in public debt from 1999 to 2019, in GDP points

Notes: For each country, the total change from 1999 to 2019 in the public debt/GDP ratio is broken down between the effects of the interest burden, of GDP growth, of cyclical and structural primary surpluses (+) and deficits (-), and finally of stock-flow adjustments (i.e. of transactions on the assets and liabilities of general government that are not accounted for in the primary balance).

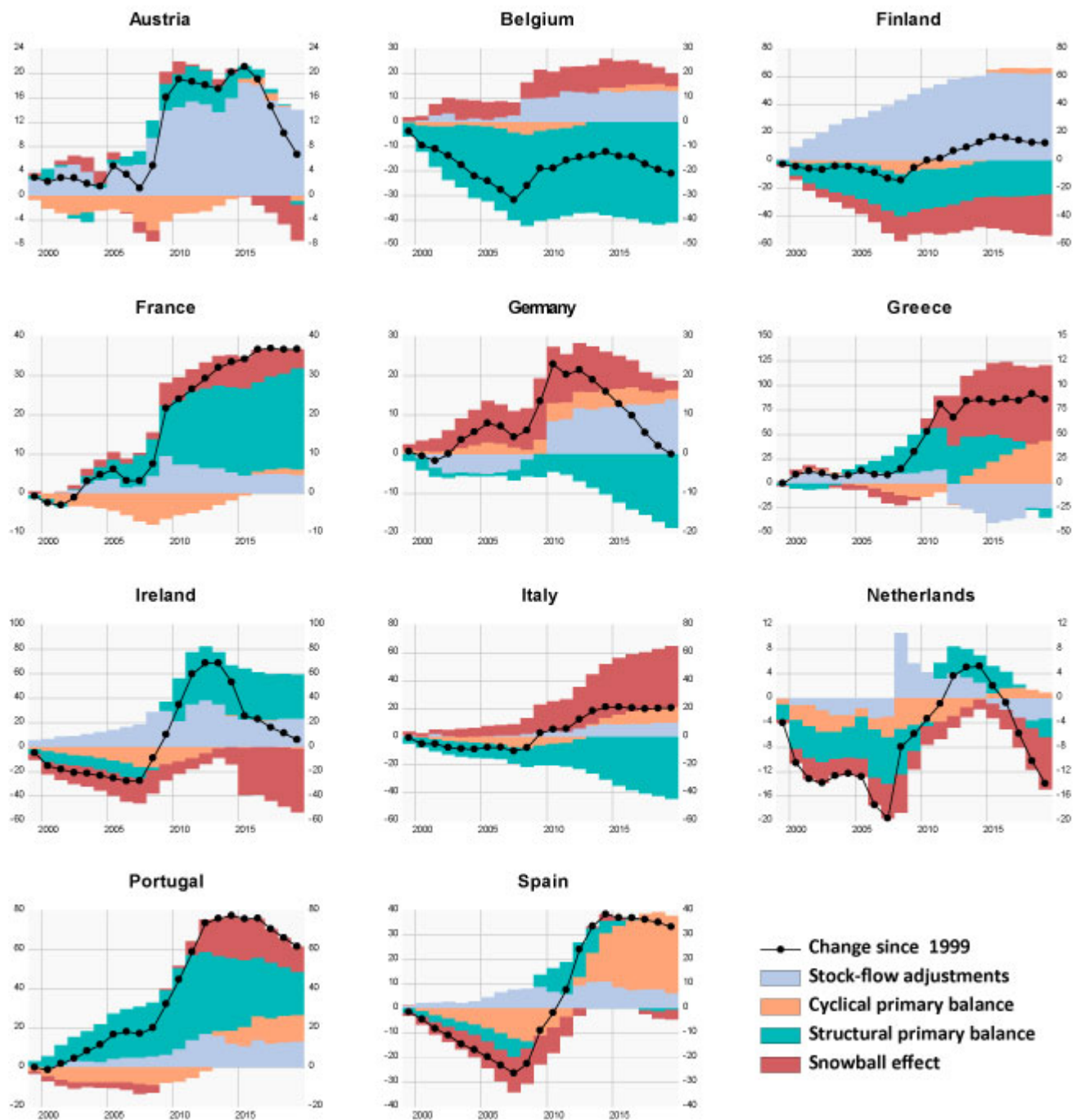*Source :* OECD Economic Outlook 2020/2, author's calculations.

The scars of the double recession of 2008-2010 and 2011-2013 in the euro zone

The rise in public debt in the EMU is largely
explained by the cyclical effects of the double recession of
2008-2010 and
2011-2013 (Figure 3). Between 2008 and 2019, in the three
countries with the
largest increases in public debt (Greece, Spain, Portugal),
the rise in debt is
due largely to cyclical primary deficits and the snowball
effect. Greece is a

striking example: the snowball effect accounts for almost 3/5 of the increase
in public debt between 1999 and 2019, and this is concentrated mainly between
2008 and 2019, with the collapse of the level of GDP. In contrast, the apparent
Irish "miracle" is actually due to massive nominal growth in 2015, which in
turn is explained by [the relocation of existing intangible assets in
Ireland by multinationals](#).

Moreover, any positive contribution of *structural* deficits to debt growth during the 2008-2010
crisis is in fact an optimal countercyclical response of fiscal policy during
the recession, and cannot be interpreted as a lack of fiscal seriousness *per
se*. This was the case, however, in fewer than half of the countries
studied: Spain, the Netherlands, France, Austria, and Ireland, and for the
other countries this largely reflects the pro-cyclical character of
discretionary fiscal policies in the euro zone over the period
[(Aldama and Creel, 2020)](#).

Notes: For each country, the total change from 1999 to 2019 in the public debt/GDP ratio is broken down between the effects of the interest burden, of GDP growth, of cyclical and structural primary surpluses (+) and deficits (-), and finally of stock-flow adjustments (i.e. of transactions on the assets and liabilities of general government that are not accounted for in the primary balance).

Sources: OECD Economic Outlook 2020/2, author's calculations.

Finally, in general, the contribution of the stock-flow adjustments increases sharply after the 2008 crisis, mainly due to the banking
sector rescue plan. In the case of Greece, the negative contribution of these
adjustments largely corresponds to the 2012 default.

Northern surpluses *vs.* Southernstructural

deficits in the euro zone?

Over the period 1999-2019, it appears that only
three countries (France, Ireland and Portugal) showed a
positive contribution
of structural primary deficits to the rise in public debt.
Remarkably, both
Greece and Italy stand out from these countries with a
negative contribution
due to their structural primary surpluses, as shall be seen
later, due in
particular to the structural fiscal adjustment carried out
since 2010 in the
case of Greece. Belgium, which was heavily indebted at the
time of its entry
into the EMU (114% of GDP), is also characterised by the
strong negative
contribution of its structural primary balance to debt growth.

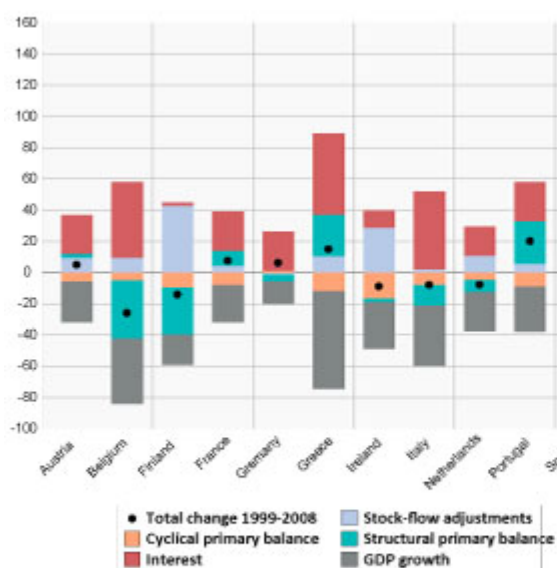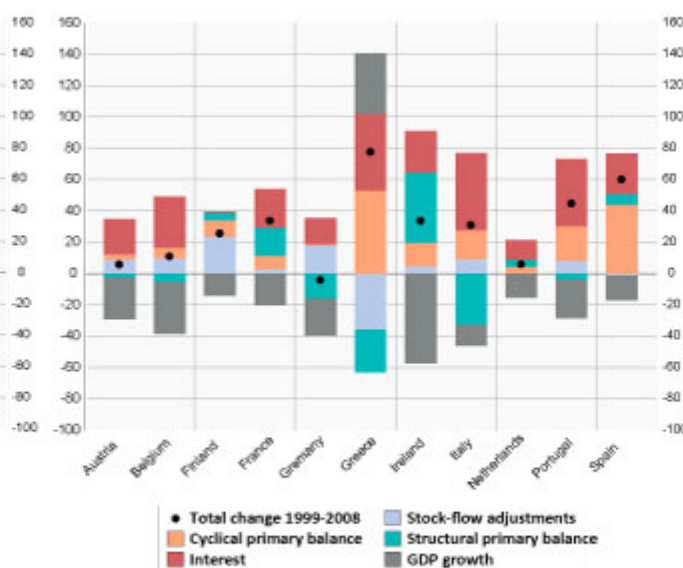Figure 4A. Breakdown in the change in the debt between 1999 and 2008, in GDP points

Figure 4B. Breakdown in the change in the debt between 2008 and 2019, in GDP points

Notes: For each country, the total change from 1999 to 2019 in the public debt/GDP ratio is broken down between the effects of the interest burden, of GDP growth, of cyclical and structural primary surpluses (+) and deficits (-), and finally of stock-flow adjustments (i.e. of transactions on the assets and liabilities of general government that are not accounted for in the primary balance).

Sources: OECD Economic Outlook 2020/2, author's calculations.

In the case of Greece, we observe in particular the
sharp decline in the contribution of the structural primary
balance, which even
becomes negative in 2019: in other words, by 2010 Greece has

more than offset
the effect of its previous structural primary deficits. Even more remarkably,
Italy has pursued a very tight fiscal policy *over the entire period*, in so far as the (negative) contribution
of its structural primary surplus has steadily increased in absolute terms.
Portugal lies in between, and started to run structural primary surpluses,
without cancelling out the effect of its pre-2010 deficits. Ireland, sometimes
presented as the "good pupil" in the euro area following the 2010
crisis, did not have post-crisis structural surpluses that offset the
structural deficits run up during the crisis (the contribution to the change in
debt was stable).

Focusing on the pre-2008 period (Figure 4A) and the
so-called Southern countries, again only Greece and Portugal saw a positive
contribution of their structural deficits to debt growth, while the
contribution of the primary structural surpluses in Ireland, Italy and Spain was
negative.

On the Franco-German side, the divergence is clear.
German fiscal rigour appears almost extreme: even following the 2008-2010
crisis, the federal government's primary structural balance did not contribute
positively to debt growth, reflecting a very weak countercyclical discretionary
policy (the German structural balance increased by 1 GDP point in 2010).

Conversely, in the case of France, a large part of the variation in public debt
can be explained by the structural deficits recorded *both before and after* 2008 (Figures 4A and 4B), although this slowed down
in the second half of the 2010s (Figure 3). Thus, of the 37 GDP points of
public debt accumulated since 1999, almost 26 points came from structural
deficits accumulated over the period.

Of course, the distinction between the structural balance
and the cyclical balance is critically based on the estimation of the level of
"potential" GDP, i.e. of full utilization of production factors,
without inflationary pressures. This measure is subject to great uncertainty,
and there have been many criticisms, such as that it is too sensitive to the
macroeconomic cycle and to demand shocks ([Coibion *et al.* 2018](); [Fatas and Summers 2018]()). Some studies suggest that the level of potential
activity may be underestimated. This likely bias in potential GDP estimates points
to the need for a note of caution about any definitive interpretation of the
structural *vs.* cyclical nature of budget deficits or surpluses. [[2]]()

***

While public debt has increased overall in the euro zone since 1999, a large part of this growth is explained by the direct and
indirect consequences of the 2008 crisis, through cyclical deficits, the
aggravation of the snowball effect and the *structural* weakness

of growth in certain Southern European countries.

On the contrary, most of the more indebted
countries today ran high primary structural surpluses over the period, such as
Italy and Belgium. Greece has even more than offset the positive contribution
of its past structural deficits. This is the reason why a reading grid that is
still overly used, that of the North versus the South, or of fiscal strictness versus
fiscal leniency, cannot stand up to a simple accounting analysis of the
dynamics of public debt.

---

[1] The snowball effect of public debt is the effect of the differential between the interest rate paid on the accumulated stock of debt and the economy's growth rate. If this differential is positive, then for a given primary budget balance public debt tends to increase mechanically; conversely, if it is negative, public debt tends to decrease mechanically.

2] However, using *the OECD Economic Outlook*
has the advantage of providing a homogeneous approach across countries, and
therefore a relatively uniform bias between them. Moreover, the measure of
potential GDP used by the OECD is less cyclical than the measures used by the IMF and
the European Commission.