

**FGV IIU Flash Notes**

**Monitoring the Return to Normality in Six European Countries IV:  
The Persistence of a Fat Tail**  
(week ending on June 7, 2020)



**FGV IIU International Intelligence Unit**

Rio, June 12, 2020.

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## 1. Introduction: never dismiss a fat tail.

During the end-week of this Note, France, once again, changed completely its original data, especially the daily new cases information. As a result, analysis of the new cases' ratios has been completely disturbed, while the last results display very high values, probably meaningless, making it impossible to say something about the decline of the epidemic. Revisions had already occurred<sup>1</sup>, as well as with the daily deaths statistics, recently plagued with outliers and negative values.

In the same vein, Portugal apparently continued its systematic testing policy and, thanks to this, ratios now are steadily higher than one, rendering senseless any inference.

In the remaining countries, decline moves –as in the previous issues of this Monitoring- rather slowly, confirming the asymmetry of the daily new cases curve and the very smooth decrease of its right-hand side, the fat tail side.

Even daily deaths, in some of the countries at stake, are somewhat stable, while, but for Spain, falling modestly in the other ones.

All this reminds that *control* and *extinction* are different things in an epidemic. In all six countries, with reasonable certainty, the epidemic seems to be under control, but in most of them, in a low-key fashion, it progresses.

The recent results for our two monitoring proposals [put forward in Flôres (2020)<sup>2</sup> and exploited, since FGV IIU (2020a)<sup>3</sup>, in all previous “Monitorings”] are discussed in section 2; section 3 concludes. All data, as usual, come from the *worldometers.info* public site.

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<sup>1</sup> A first major revision had already been made during the second half of May.

<sup>2</sup> *Corona Data Analyses: Looking for Signs of Recovery in Italy and Spain*, FGV IIU Discussion Papers DP 02/20, R. G. Flôres Jr., with the assistance of L. Garnitskiy, 2020; Rio de Janeiro: FGV International Intelligence Unit.

<sup>3</sup> *The 19th Week Effect: Prospects for Flexibilization in Six European Countries*. FGV IIU Flash Notes; May 7, 2020. Rio de Janeiro: FGV International Intelligence Unit.

## 2. Evidences from ratios of new daily cases and new daily deaths.

As mentioned and explained in the previous (Monitoring) Flash Notes, the ratio of new daily cases, at a *basic evolution period of the epidemic*, may be assumed a function of two parameters, deeply related to the dynamics of the process. Ratios have been systematically computed, using 14 days as the “basic evolution period of the epidemic”.

A second complementary indicator tries to perceive a trend (decrease) in daily deaths. The 21 more recent observations are used and a straight line fitted to them. The regressions must fulfil minimal goodness-of-fit criteria: a  $R^2$  of at least 0.45, and coefficients significant at least at 5 per cent.

For each country, a so-called pessimistic line is computed by subtracting two standard errors to the intercept and adding two to the angular coefficient. The point this line cuts the horizontal axis gives an idea of when a notional zero deaths day will be observed<sup>4</sup>.

This time, such a day will take place, for all countries, between end of June and early August, Spain having already experienced two days with zero deaths.

Exhibits 1-6 show the two indicators for the six countries - France, Germany, Belgium, Italy, Spain and Portugal- for the period from April 24 to June 7.

The *series of daily (two-week) ratios* has a last observation on May 24 (two weeks ahead lies June 7); in each graph, five-days moving median is shown together with the crude ratios. In those of the daily deaths, outliers have sometimes been removed and, together with the basic trend-line, the “pessimistic” one is drawn.

Analysis of each country follows; the first graph always refers to the ratios and the second one to the fitted straight lines<sup>5</sup>. Comments come after each pair of graphs.

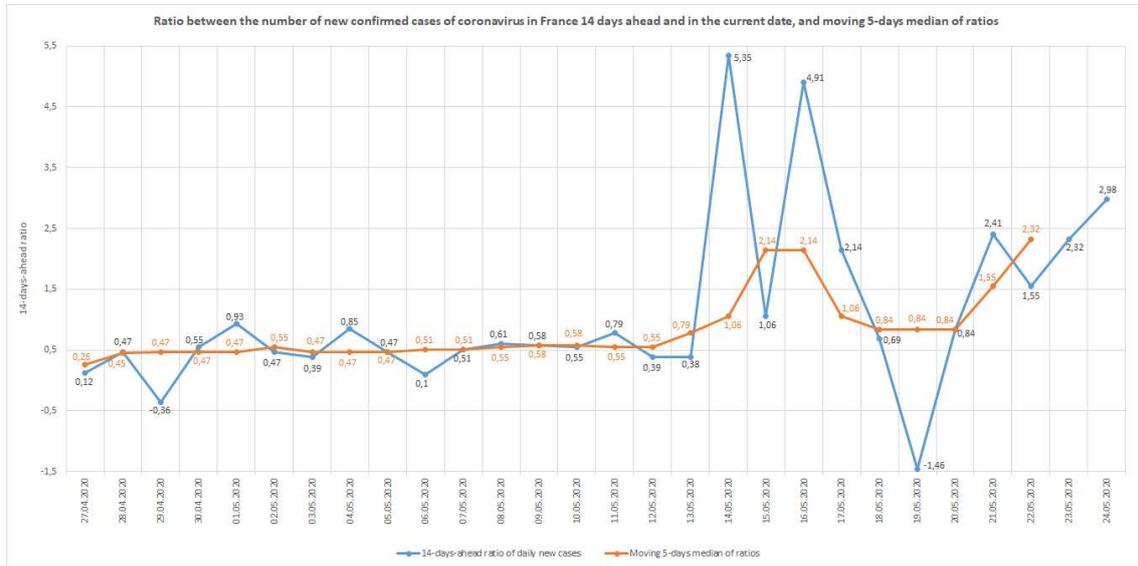
Exhibit 1: France.

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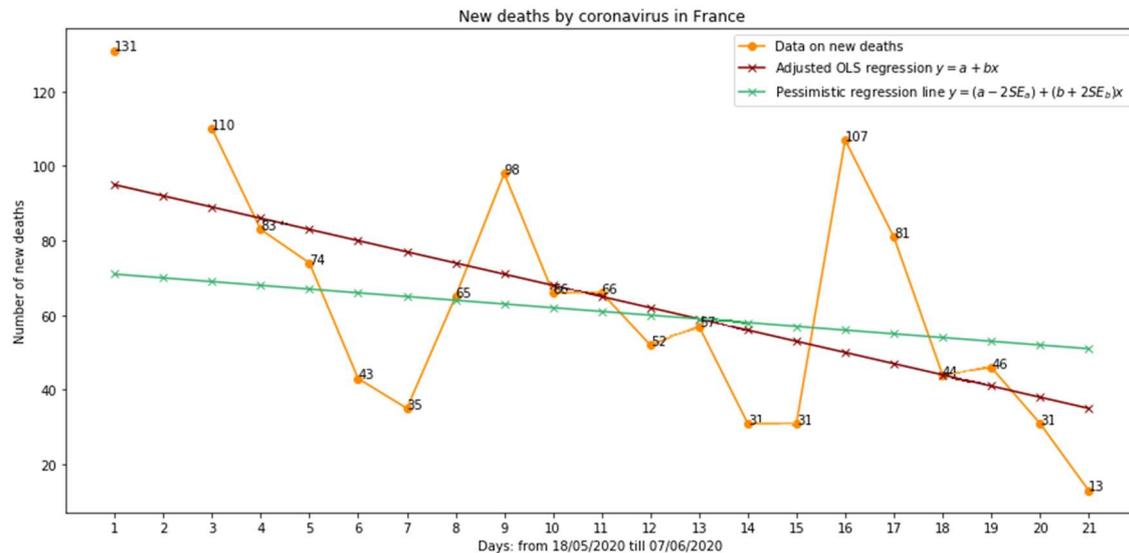
<sup>4</sup> For more on this see the reference in footnote 2. The adjective ‘notional’ is important, because this is a mere extrapolation from the curve: it provides a date when things will be better.

<sup>5</sup> Basic statistics on the regression results may be demanded at [npjii@fgv.br](mailto:npjii@fgv.br).

1.a) The ratios.



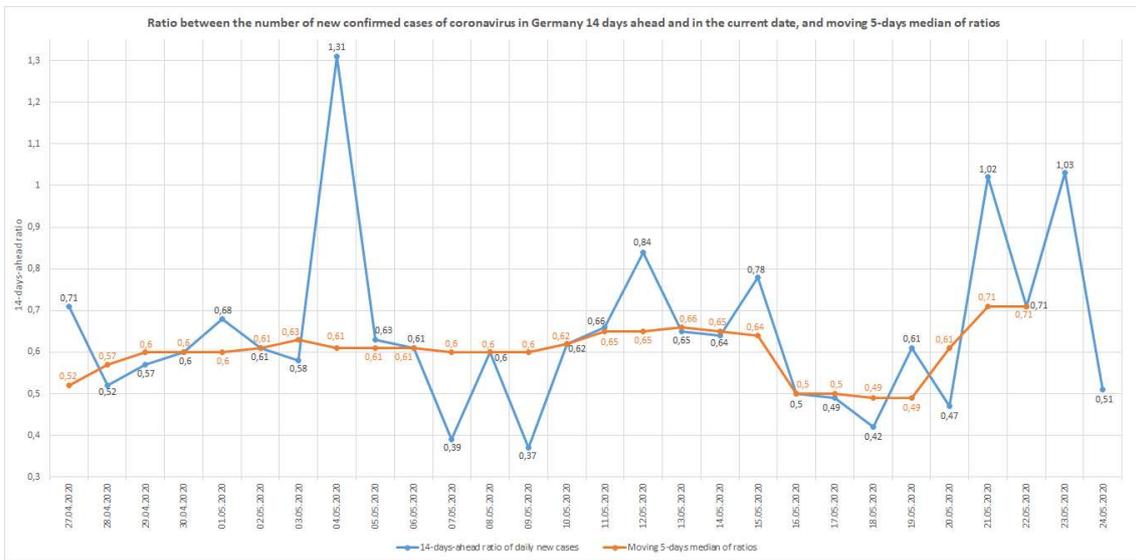
1.b) The straight lines.



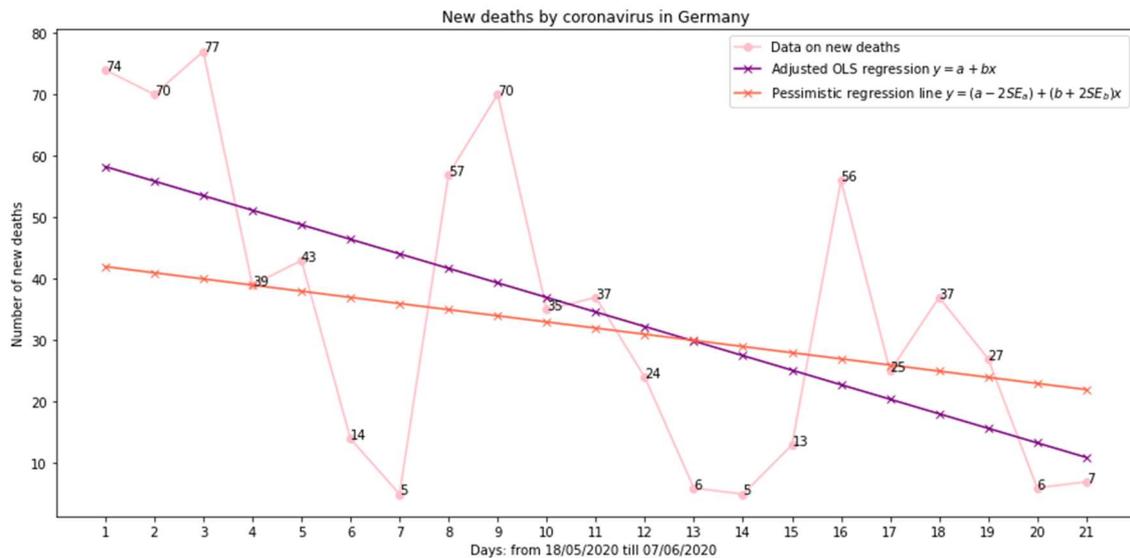
As mentioned in the Introduction, the ratios series –nearly totally changed- allows no conclusions at all. As for the deaths, the notorious -217 outlier (see previous Flash Notes), now in the second observation, has been removed and the trend is close to stable. The average deaths during the last five days is 43.

Exhibit 2: Germany.

2.a) The ratios.



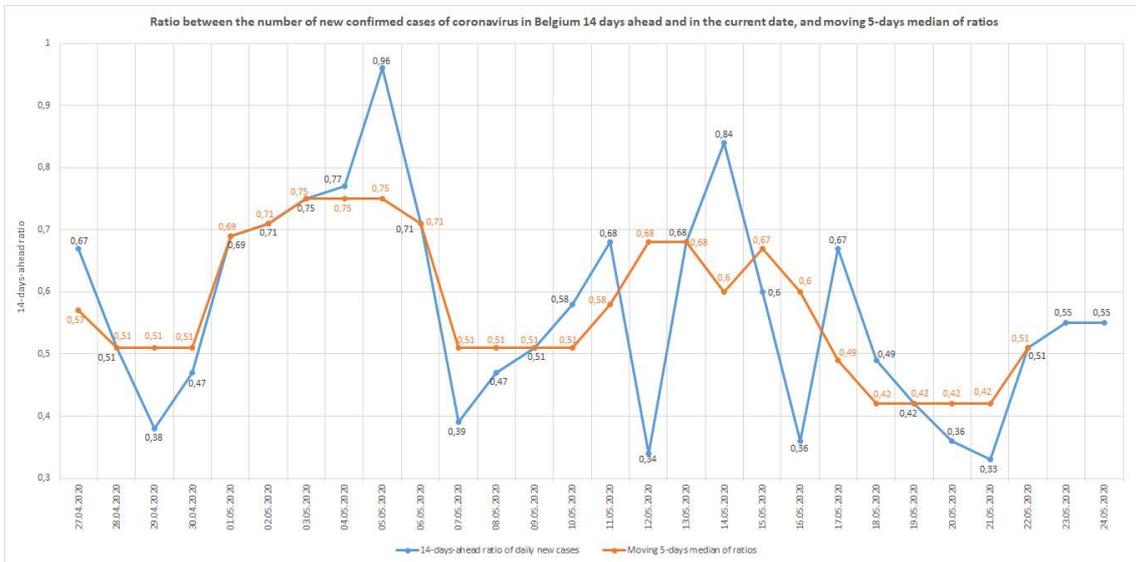
2.b) The straight lines.



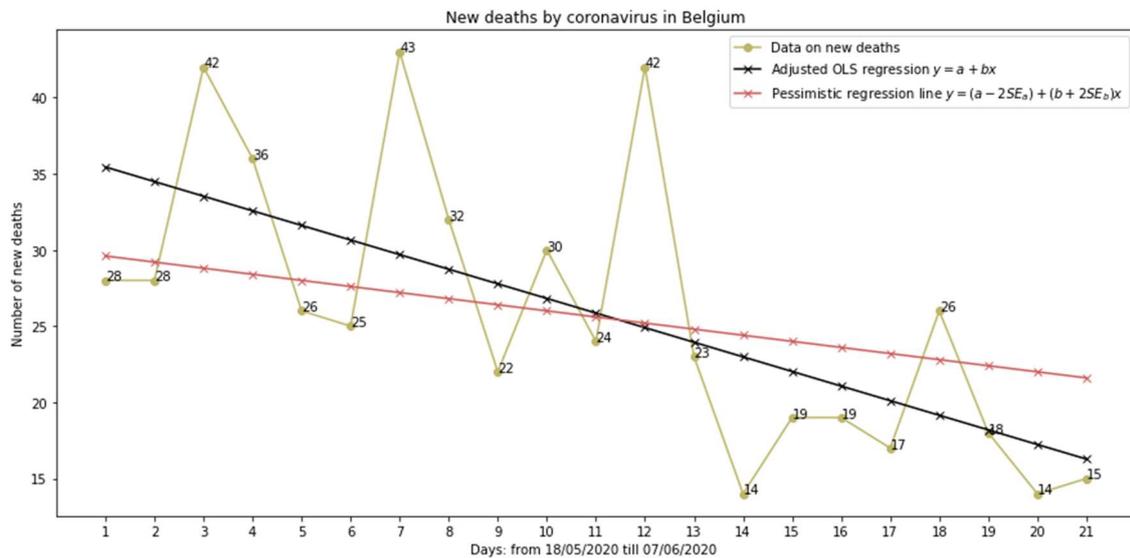
The German ratios seemed to stabilise and then returned to higher values in the last three observations. We guess the actual ratios may be floating around 0.5, a still high though not-bad value. The daily deaths data show a slightly decreasing trend but the week-end effect in German data must not be disregarded (observations pairs numbers 6-7, 13-14 and 20-21 refer to a Saturday-Sunday), when values decrease (due to what ...?). The five last days' average of 20.4 has been somewhat stable.

Exhibit 3: Belgium.

3.a) The ratios.



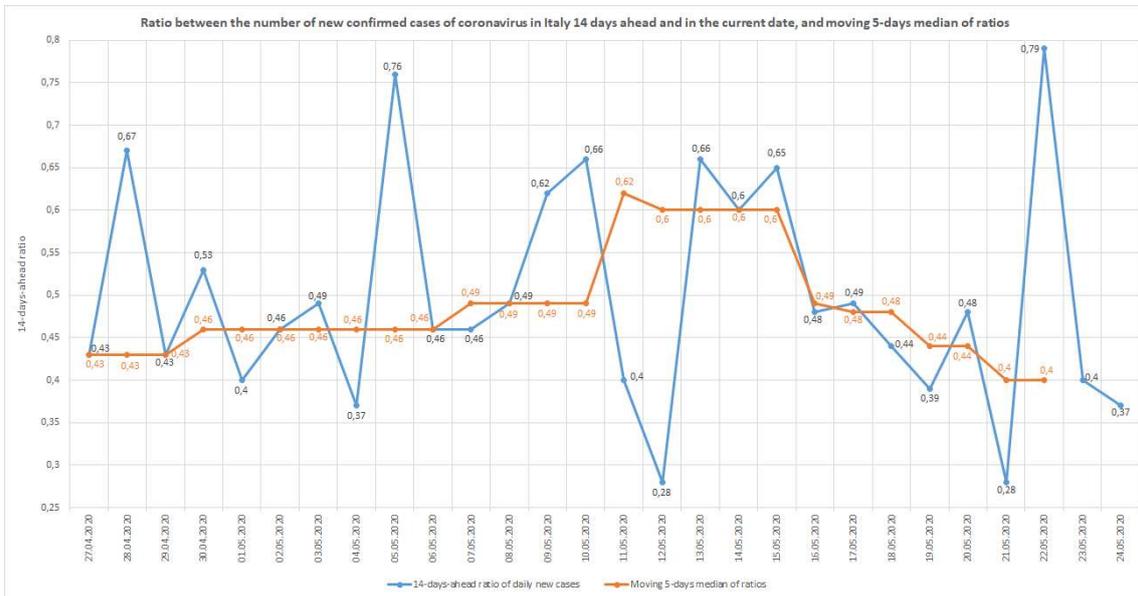
3.b) The straight lines.



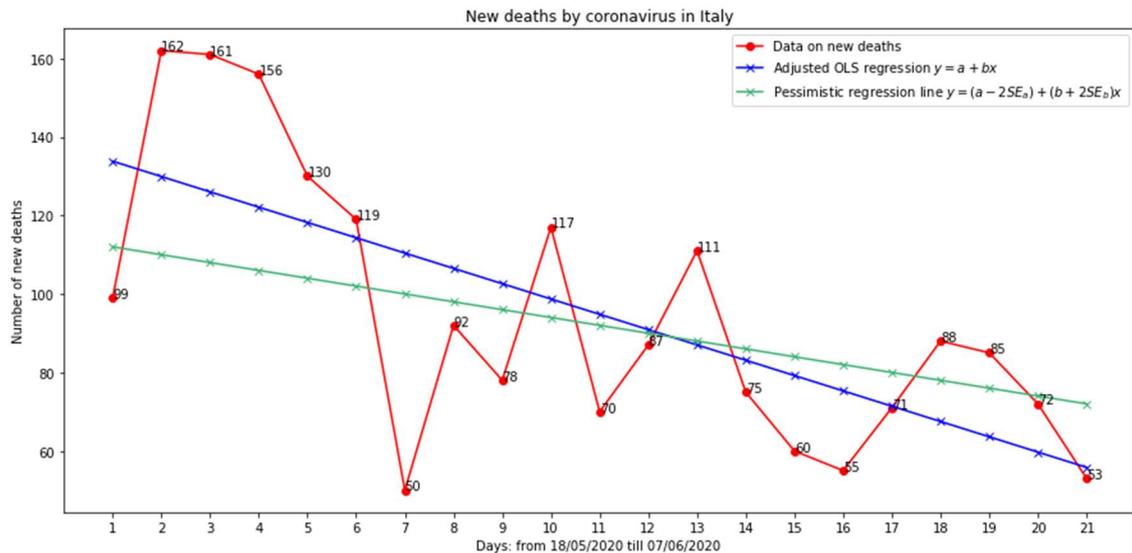
In the case of Belgium, the ratios seem to start to stabilise, being not too far-fetched to guess they must lie closer to 0.42. Daily deaths decrease slowly, the last five values presenting an average of 18.

Exhibit 4: Italy.

4.a) The ratios.



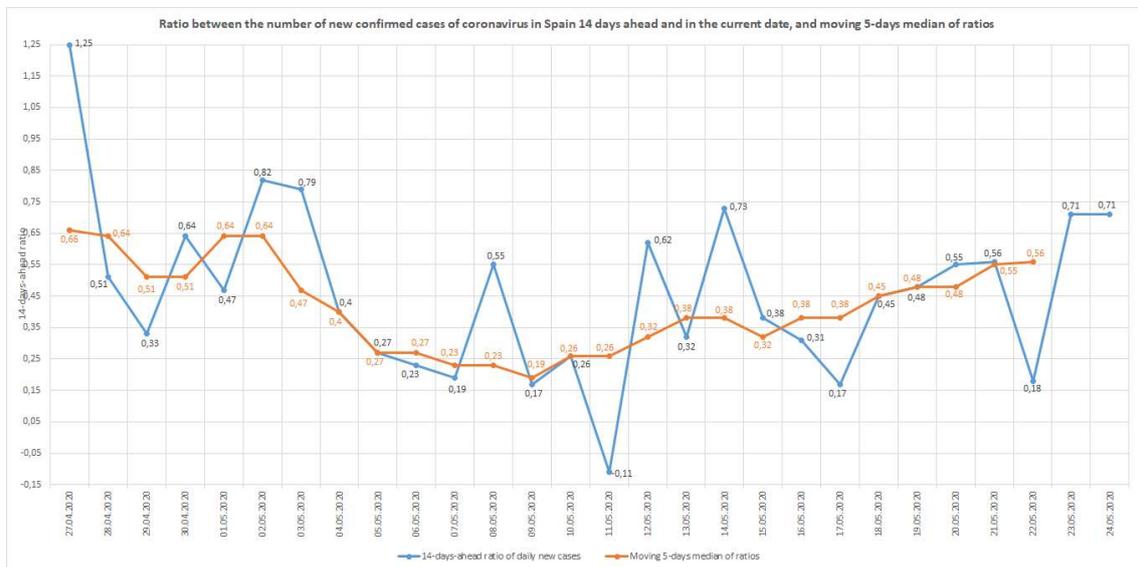
4.b) The straight lines.



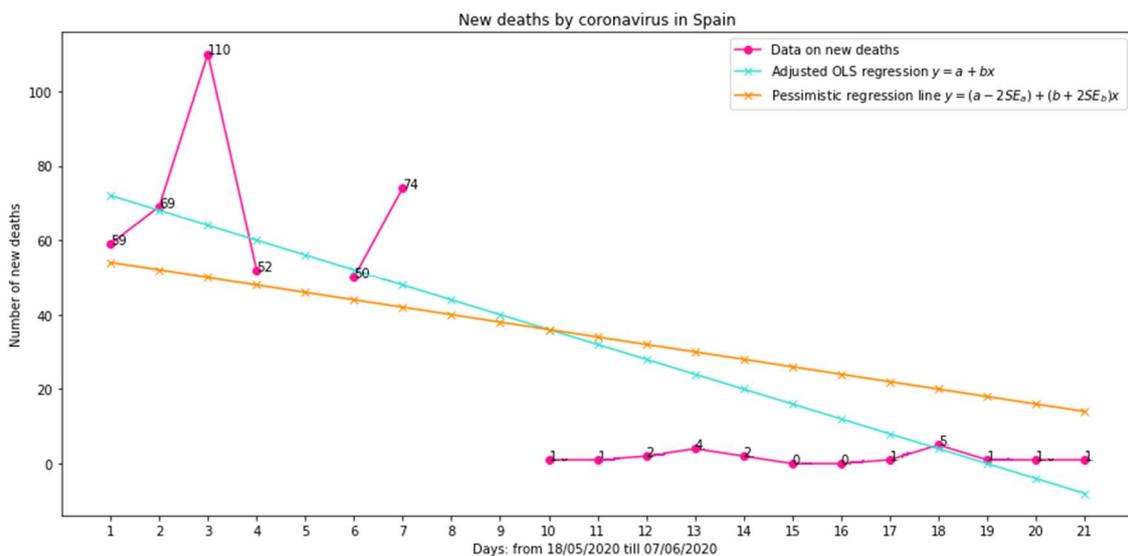
Together with Spain, despite a few disturbances, Italy keeps a more positive and reasonable pattern. Noticing a high outlier on May 25, the ratios continue to decrease and are back to the more auspicious 0.40 value. The decrease in daily deaths follows suit; the average number of deaths of the last five days is still high (73.8) since the series is coming down from higher values.

Exhibit 5: Spain.

5.a) The ratios.



5.b) The straight lines.

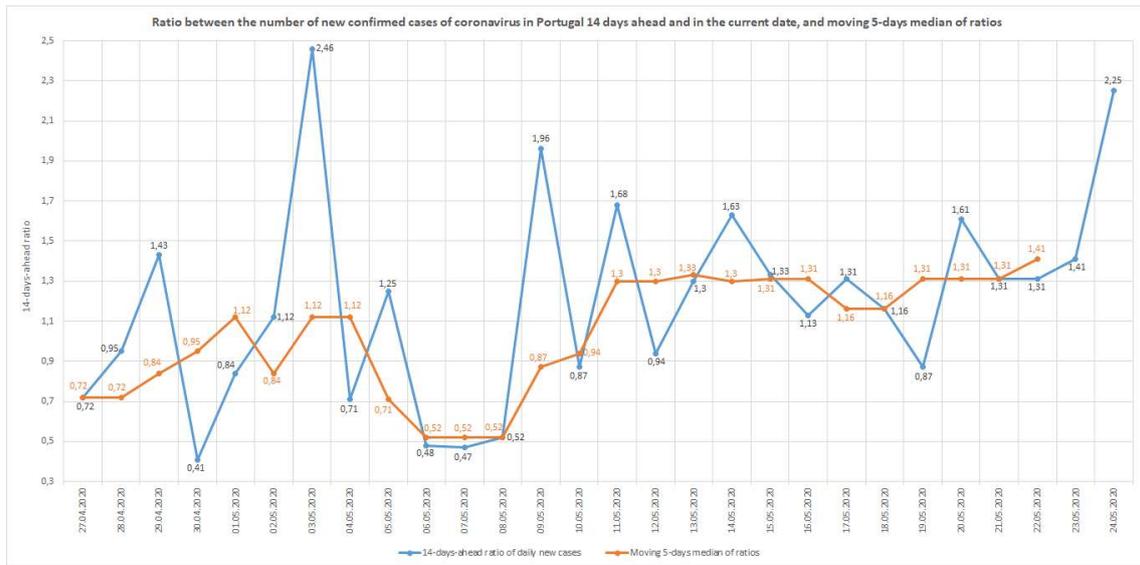


Unfortunately, the increasing trend suggested in the previous Note continued, and a slight reversal in the virtuous decline of the ratios took place. In a country where they had touched (promising) values below 0.20, the upwards trend –without sign of reversal- is now above 0.50. Such reversal may be due to a final widespread testing policy, distorting these latest results. The small numbers for the daily deaths data (from where the three

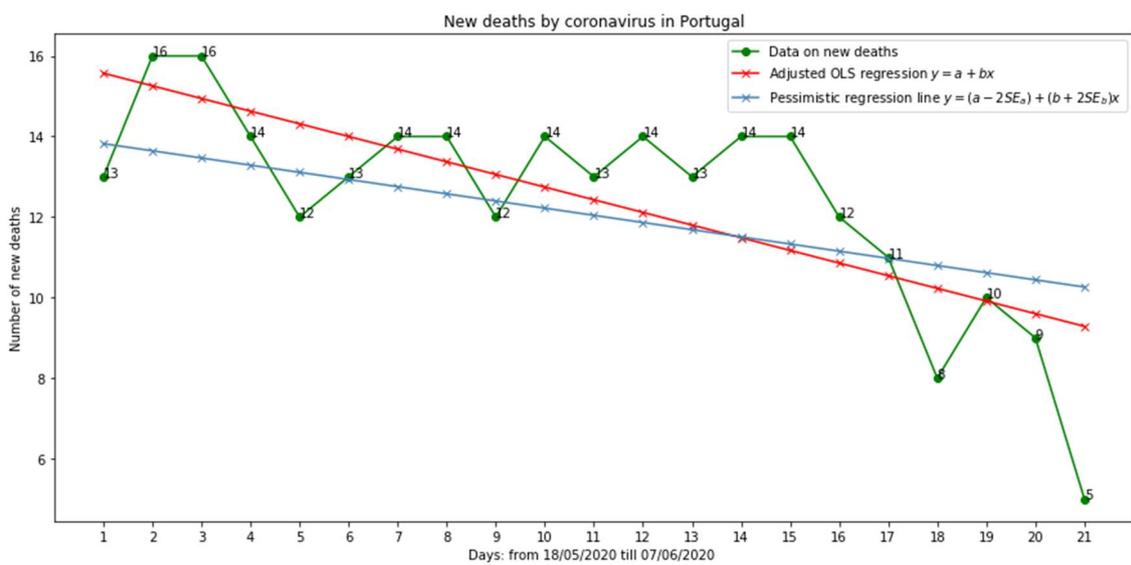
prominent outliers were excluded), with already two days of zero deaths and six with one, reinforces the better prospects.

Exhibit 6: Portugal.

6.a) The ratios.



6.b) The straight lines.



The Portuguese data continue to baffle the analyst. The ratios series is now completely out of control. Despite still hoping that continued testing and a few revisions explain its odd behaviour, one starts to wonder whether a slight reprisal of the epidemic has not taken place. The deaths series however points out that very likely an administrative issue is at stake, as the 12–14 deaths “tunnel” has been crossed and a significant decrease is present, with a last five days average of 8.6 .

### **3. Conclusions.**

In all six countries, despite some serious data problems in about half of them, there remains evidence that the epidemic is taking its time to fade off. With the exception of Spain -and perhaps though not sure, Portugal-, because of this, a small number of daily deaths will accordingly linger on.

Given that it is likely that the period of aggressive testing policies is over, next week’s results will be crucial for a more conclusive statement on the opening process of the lockdown.