**Report on Manuscript 2096 "Are linear models really unuseful to describe business cycle data?" by Artur Silva Lopes and Gabriel Florin Zsurkis submitted to *Economics***

*Summary*

The paper challenges the idea that time series representing the business cycle are nonlinear. To do so, the authors apply various econometric tests to the quarterly change in real GDP for 29 countries and the euro area. They find that linearity cannot be rejected in many cases.

*Main Comments/Suggestions*

Overall, I feel that the contribution of the paper in its current form is very limited. The existing literature on nonlinearity in business cycles is extensive and the authors should spend much more effort to convince the reader that their paper adds something to this literature. My impression is that most parts of the paper are nothing else than lengthy descriptions of well-known and nowadays widely used econometric testing procedures. The presentation of the results in Sections 3 and 4 is also somewhat exhausting. In addition, the paper is not clear in writing terms. Some parts, e.g. the abstract, are poorly drafted and need a careful revision. The following comments and suggestions may also help to increase the quality of the paper.

*Minor Comments/Suggestions*

- The sample period ends in 2013 for most countries (for the euro area even in 2011). Why is that? Given the low power of some econometric tests, the authors should extend the sample to also include the most recent observations.
- Similarly, the authors should also make use of the cross-sectional dimension of their dataset. Instead of applying the econometric tests separately to each country, the authors could for instance consider (non-)linear panel unit root tests. Such a proceeding could be an interesting contribution to the literature and also would help to reduce the number of results.
- The quarterly real GDP is an important, but probably not the best, business cycle indicator. The authors could extend their analysis to indicators other than GDP that are also available at monthly frequency, such as production, hours, or employment.
- I am not sure if Figure 1 is really needed because most readers know how real GDP growth looks like. Besides, what is the unit of measurement here and why is the scaling different for the euro area? And is the series for India really seasonally adjusted?