Fifteenth International Conference Zaragoza-Pau on Mathematics and its Applications Jaca, September 10–12th 2018

Statistical splicing of economic series by smoothing quadratic splines

L. Pedauga¹, E. Delgado–Márquez¹, M.L. Márquez², M. Pasadas²

SUMMARY

In this work we present a new method to solve the statistical difficult when economic series are spliced.

Therefore, we discuss the scope of some splicing tools in the literature, namely the splicing by variation and the linear interpolation methods.

These methods carry on some problems of non-linearity. In this way, certain internal inconsistency or structural incongruity can appear when the economic series are spliced. This is a serious problem for the System of National Accounts.

We introduce an approximation method for statistical splicing of economic series by smoothing quadratic splines. The proposed technique is linear and thus structurally congruent.

Finally, we show the effectiveness of our method by the results of the splicing of the GDP (Gross Domestic Product) of Venezuela between 1950 and 2012, and the corresponding economics activities.

Keywords: Splicing, economic series, quadratic spline, smoothing spline, GDP, structural congruence, Venezuela

AMS Classification: 62M10,62P20,91B82,65D07,65D10

¹Department of Economics and Stathistics University of León, Spain email: luis.pedauga@unileon.es, elvira.delgado@unileon.es

²Department of Applied Mathematics University of Granada, Spain email: mmarquez@ugr.es, mpasadas@ugr.es