



Journal of Applied Statistics >

Volume 42, 2015 - [Issue 3](#)

3,772 195

Views | CrossRef citations to date | Altmetric

5

Original Articles

# Collinearity: revisiting the variance inflation factor in ridge regression

C.B. García, J. García, M.M. López Martín & R. Salmerón

Pages 648-661 | Received 28 Nov 2013, Accepted 22 Oct 2014, Published online: 02 Dec 2014

Cite this article

<https://doi.org/10.1080/02664763.2014.980789>



Sample our  
Mathematics & Statistics  
Journals



>> **Sign in here** to start your access  
to the latest two volumes for 14 days

Full Article

Figures & data

References

Citations

Metrics

Reprints & Permissions

Read this article

Share

## Abstract

Ridge regression has been widely applied to estimate under collinearity by defining a class of estimators that are dependent on the parameter  $k$ . The variance inflation factor (VIF) is applied to detect the presence of collinearity and also as an objective method to obtain the value of  $k$  in ridge regression. Contrarily to the definition of the VIF, the expressions traditionally applied in ridge regression do not necessarily lead to values of VIFs equal to or greater than 1. This work presents an alternative expression to calculate the VIF in ridge regression that satisfies the aforementioned condition and also presents other interesting properties.

Keywords:

collinearity

ridge regression

variance inflation factor

linear regression

covariance matrix

# Acknowledgments

We would like to thank referees for their detailed, encouraging and constructive reviews of our paper which clearly contributed to improving both the structure and the content of this manuscript.

# Disclosure statement

No potential conflict of interest was reported by the authors.

# Funding

This paper has been partially supported by the project ‘Valoración de proyectos gubernamentales a largo plazo: obtención de la tasa social de descuento’, reference: P09-SEJ-05404, Proyectos de Excelencia de la Junta de Andalucía and Fondos FEDER.



# Related research

People also read

Recommended articles

Cited by 195

## Information for

Authors

R&D professionals

Editors

Librarians

Societies

## Opportunities

Reprints and e-prints

Advertising solutions

Accelerated publication

Corporate access solutions

## Open access

Overview

Open journals

Open Select

Dove Medical Press

F1000Research

## Help and information

Help and contact

Newsroom

All journals

Books

## Keep up to date

Register to receive personalised research and resources by email

 Sign me up

