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The sampling design effect on partial least squares algorithm

Hugo Serrato González1
Universidad Iberoamericana, México
hserrato@up.edu.mx

Ignacio Méndez Ramírez 2
IIMAS-Universidad Nacional Autónoma deMéxico, México
nacho@sigma.iimas.unam.mx

Odette Lobato Calleros 3
Universidad Iberoamericana, México
odette.lobato@ibero.mx

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Abstract

The objective of this article is to analyze the effect of the probability sampling's selection on the estimated results in Structural Equation Modeling (SEM) using the Partial Least Squares (PLS) algorithm.

The idea leading this work is to estimate the satisfaction level of government service users

[1] Universidad Iberoamericana Ciudad de México, Departamento de Ingeniería. Prolongación Paseo de la Reforma 880, Lomas de Santa Fé, Distrito Federal, CP 01210, México, Tel: (52-55) 59504000 ext. 4934; Fax: (52-55) 91774450. hserrato@up.edu.mx
[2] Instituto de Investigación en Matemáticas Aplicadas y Sistemas *(IIMAS-UNAM).*
nacho@sigma.**iimas**.unam.mx
[3] Departamento de Ingeniería, Universidad Iberoamericana, México. odette.lobato@ibero.mx

in a large and dispersed population, for which a sample design with an equal selection probability is not a feasible option. This study is based on the analysis of the sampling distributions of estimators under different sampling designs.

It is shown that the probability of selection of the units behind the sampling design affect the results of the PLS algorithm, both the scores of latent variables and the impacts between them.

To the author's knowledge, this issue has not been addressed before in the literature.

Key words: equal probability sampling design, partial least squares, sampling distribution, structural equation modeling, unequal probability sampling design.