

**Benchmarking in primary health care: An application of the stochastic frontier analysis and the grades of membership approach to Portuguese family health units**Catarina Neves¹, Pedro Barros¹, Alexandre Lourenço²¹Nova School of Business and Economics, Lisboa, PORTUGAL²ACSS, ACSS, Lisboa, PORTUGALContact: ppbarros@novasbe.pt

Objectivos (Objectives): This work aims at (1) quantifying and ranking family health units in terms of cost efficiency, through stochastic frontier analysis (SFA), and at (2) establishing benchmarks (in the form of goals regarding performance) for them to follow, using the grades of membership (GoM) method.

Metodologia (Methodology): we use cross sectional information on 110 family health units in Portugal in 2009. A stochastic cost frontier is estimated. Efficiency scores are computed for the 110 family health units. Next, we employ a grade of membership (GoM) approach. The GoM approach allows for the delivery of a score g_{ik} measuring the degree of similarity of unit i to the k th extreme profile of FHUs. These scores are obtained through maximum likelihood estimation.

Resultados (Results): Results show how the inefficiency element makes the most part of e_i . The null hypothesis of no inefficiency is rejected. The distribution of $1/(Eff_i)$ is reported, where $1/(Eff_i)$ is the inverse of the cost-efficiency score. As to the establishment of benchmarks, both $1/(Eff_i)$ and g_{ik} are taken into account. The most efficient FHUs within the k th group (i.e. presenting $g_{ik} > 0.9$) are thought of as reference units in terms of pure profiles.. As to recommendations for performance improvement, the analysis points specific values for each FHU to achieve in terms of a set of performance indicators

Conclusões (Conclusions): The definition of concrete targets is delivered as the final output of this work, which should help FHUs enhance their performance in terms of cost efficiency. This can be thought of as a valuable instrument in the context of an increasing proportion of national income being devoted to health expenditures. Caution should however be exercised when following these benchmarks: Both SFA and GoM present some limitations. As to SFA, the effect of some variables explaining costs is not statistically significant and the use of other variables may affect efficiency scores and ranking positions. On the GoM approach, the choice regarding the division of variables into classes is an arbitrary one and division into different classes would most likely affect the grades of membership scores. Also, the statistical programme used does not allow testing for the optimal number of extreme profiles. Finally, it is suggested that future research in this area should use more observations and other explanatory variables, reinforcing the case for quality and variety of data collected on FHUs.