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# Efficiency of the Brazilian Credit Unions: A Joint Evaluation of Economic and Social Goals

Emmanuel Sousa de Abreu , Herbert Kimura , Luiz Medeiros de Araújo Neto & Yaohan Peng

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## Abstract

We examine the efficiency of Brazilian credit unions through DEA and its relationships with classification groups using Tobit regressions. We applied a traditional analysis model for banks and another approach for cooperatives. We also analyzed the productivity, efficiency and technology changes by applying an Adjacent Malmquist. The main results indicate that the link between cooperative members is not determinant for efficiency; nevertheless, free admission cooperatives tend to be less efficient than those that have admission restrictions. It is also noteworthy that the contrasting results generated by the models point to the need for specific models that consider outputs relevant to cooperatives.

RESUMEN

Examinamos la eficiencia de las cooperativas de crédito brasileñas a través del análisis envolvente de datos (DEA - Data Envelopment Analysis) y sus relaciones con los grupos de clasificación, usando las regresiones Tobit. Aplicamos el modelo analítico tradicional y otro enfoque para las cooperativas. También analizamos la productividad, eficiencia y cambios tecnológicos, en base al índice Adyacente de Malquist. Los resultados más importantes indican que la eficiencia no es un factor determinante del vínculo existente entre los miembros de las cooperativas. Sin embargo, las cooperativas con admisión libre, suelen ser menos eficientes que aquellas que imponen restricciones a su admisión. También es de interés mencionar que los resultados contrastantes generados por los modelos señalan la necesidad de contar con modelos específicos que tomen en cuenta resultados importantes para las cooperativas.

## RESUMO

O presente trabalho estudou a eficiência das cooperativas de crédito brasileiras, através da DEA e suas relações com grupos de classificação, usando as regressões Tobit. Foi empregado um modelo de análise tradicional para os bancos e outra abordagem para as cooperativas. Também foram analisadas a produtividade, a eficiência e as mudanças tecnológicas, com o uso do índice Adjacent Malmquist. Os principais resultados indicam que a vinculação entre os membros cooperados não é um fator determinante para a eficiência; no entanto, as cooperativas com admissão livre tendem a ser menos eficientes do que aquelas com restrições à admissão. Também cabe ressaltar que os resultados divergentes, gerados pelos modelos, indicam a necessidade de modelos específicos que estudem resultados relevantes para as cooperativas.

Keywords:

Credit unions

data envelopment analysis

efficiency

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