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A dynamic model of the impact of e-government on the level of corruption

Jan Luhan[a], Bernard Neuwirth[a], Veronika Novotná[a*], Stanislav Škapa[b]

[a] Brno University of Technology, Faculty of Business and Management, Department of Informatics, Kolejní 2906/4, 612 00 Brno,Czech Republic
[b] Brno University of Technology, Faculty of Business and Management, Department of Economics, Kolejní 2906/4, 612 00 Brno,Czech Republic

Abstract

Purpose of the article Corruption, which we can perceive as the misuse of powers entrusted in order to gain undeserved personal benefit, is a big problem in today's world. In our paper, we present a dynamic model of corruption in terms of e-government, represented by a common differential equation with a delayed argument. We then analyse the behaviour and interpret the implications as possible consequences for a democratic society.

Methodology/methods Methods of analysis and synthesis and methods of mathematical analysis (methods of solving functional differential equations) were used to achieve this goal. The model solution is illustrated in the article by a practical task including a graphical interpretation of solutions with the support of specialised software.

Scientific aim The scientific objective is to describe the impact of changes in the level of e-government on the level of corruption and to assess the influence of the model's individual parameters on its behaviour.

Findings Following the inclusion of real sociological data, the behaviour of the system was tested to achieve various system parameter values and its stability could be assessed. It can be stated that the system under investigation has a definitely complex dynamic behaviour and, based on the analysis of the above-mentioned solutions of systems of differential equations with delays, we can state that change to the system parameters has a significant influence on the overall stabilisation of the system as a whole.

Conclusions The authors of the article conclude that the level of e-government has a significant influence on the level of corruption and therefore becomes a potentially extremely useful tool by which corruption can be significantly reduced. The results described in this article can then be used to further investigate the impact of the development of e-government on today's society, because if we are able to estimate changes in the model parameters in the future, it is possible to draw conclusions about the further behaviour of the system and the possibilities of its stabilisation.

Keywords: E-government, corruption, dynamic model, differential equation with delay

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* Corresponding author. Tel.: +420 4114 1111;
E-mail address: novotna@fbm.vutbr.cz.