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Solving fuzzy equations in economics and finance

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Abstract

In this paper we apply our new solution procedure for solving fuzzy equations (linear, non-linear, differential) to three problems in economics and finance. The three applications are: (1) Leontief's input-output model; (2) the internal rate of return; and (3) a dynamic supply-demand model where price and supply are governed by a system of differential equations.

Keywords

Economics; algebra; analysis

2005; Boussabaine & Elhag, 1999; Buckley, 1992; Carlsson & Fullér, 1999; Çetin & Kahraman, 1999; Chiu & Park, 1994, 1998; Dymowa, 2011; Gao, Zhao, & Ji, 2005; Gil-Aluja, 1997, 1999, 2004; Gil-Lafuente, 1990, 2001, 2005; Kahraman, Ruan, & Tolga, 2002; Kuchta, 2000; Mohamed & Mccowan, 2001; Sanches, Pamplona, & Montevechi, 2005; Serguieva & Hunter, 2004; Sheen, 2005; Terceño, Andrés, Barberà, & Lorenzana, 2003; Tolga, Demircan, & Kahraman, 2005; Tsao, 2005; Yao, Chen, & Lin, 2005), to name a few. Several authors emphasize the advantages of using fuzzy theory associated with traditional capital budgeting methods under uncertainty, and over a hundred articles can currently be found in the fuzzy financial literature....

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