

عنوان مقاله:

A geometric procedure to optimal control problems in microeconomy

محل انتشار:

دومین کنفرانس بین المللی تحولات نوین در مدیریت ، اقتصاد و حسابداری (سال: 1397)

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خلاصه مقاله:

An extension and restatement of Lagrange multiplier theorem is developed and converted to a reduced system with fewer variables based on the differential and symmetric geometry concepts. It also has been theorized how the reduced Euler-Lagrange equation can be achieved using the geometric properties of variational symmetries of that equation. This property which is a result of invariance of the Euler-Lagrange equations under the changes of variable, can convert the equation to a simpler system with less equations. The proposed methodology can be effectively applied to the optimal control models in various decision making problems such as those considered in microeconomy and macroeconomy. The proposed new approach is capable of solving multidimensional optimization problems in more general spaces, i.e., manifolds instead of Euclidean spaces, and multivariable target function and complex constraints on this abstract structure. This type of generalization is considerable due to the wide range of optimization matters in various branches of the economy. Control policies in order to improvement of business conditions, maximizing utility, cost minimization, methods of optimization and computational evolution with intelligent search and optimization of conditions in multi-purpose systems are of the most important of these applications.

کلمات کلیدی:

Lagrange-Multiplier Theorem, Euler-Lagrange equation, Variational symmetric group

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