Well-posed vector optimization problems and vector variational inequalities

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Abstract

In this paper we introduce notions of well-posedness for a vector optimization problem and for a vector variational inequality of differential type, we study their basic properties and we establish the links among them. The proposed concept of well-posedness for a vector optimization problem generalizes the notion of well-setness for scalar optimization problems, introduced in [2]. On the other side, the introduced definition of well-posedness for a vector variational inequality extends the one given in [13] for the scalar case.

Keywords : *Vector optimization, vector variational inequality, well-posedness.*

1. Introduction

Well-posedness of a scalar minimization problem is a classical notion (see e.g. [5] and references therein) and plays a crucial role in the stability theory for optimization problems. The notion of well-posedness has been deeply studied in different areas of scalar optimization, such as mathematical programming, calculus of variations and optimal control (see e.g. [5]). In particular, we wish to recall the approach proposed by A.N. Tykhonov [18] in the 60's.

On the other hand, scalar variational inequalities provide a very general and suitable model for a wide range of problems, in particular

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