

LEVITIN–POLYAK WELL-POSEDNESS BY PERTURBATIONS FOR BILEVEL MIXED VECTOR VARIATIONAL INEQUALITIES

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ABSTRACT. The purpose of this paper is to investigate the Levitin–Polyak well-posedness by perturbations of the bilevel mixed vector variational inequality (in short, BMVVI). Under suitable conditions, we prove that the Levitin–Polyak well-posedness by perturbations of the BMVVI is equivalent to existence and uniqueness of its solution and the generalized Levitin–Polyak well-posedness by perturbations of the BMVVI is equivalent to the nonemptiness and boundedness of the solution set.

1. Introduction

The bilevel variational inequality (BVI) is well-established as a fundamental framework with broad connections to optimization problems, variational inequalities, and equilibrium problems. Despite its theoretical significance, research on the well-posedness of BVI remains remarkably limited. Recently, Ju et al. [17] made a notable contribution by introducing bilevel vector variational inequalities, extending Levitin–Polyak (LP) well-posedness to this class of problems, and establishing key metric characterizations. However, to the

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