Ministry of Education and Training
Vinh University

SOCIALIST REPUBLIC OF VIETNAM
Independence-Freedom-Happiness

SUMMARY INFORMATION OF THE DOCTORAL THESIS

1. Summary:

Full name of the doctoral student: Nguyen Van Hung

Thesis Title: Cotinuity of solution mappings for equilibrium problems

Specialty: Mathematical Analysis

Code: 9. 46. 01. 02

Training Institution: Vinh University.

2. Main contents:

2.1. Objective and subject of the research

The objective of the thesis is to establish the continuity of solution mappings for quasiequilibrium problems, stability of solution mappings for bilevel equilibrium problems, the Levitin-Polyak well-posedness for bilevel equilibrium problems and Painleve-Kuratowski convergence of solution sets for quasiequilibrium problems. Moreover, several special cases of optimization related problems such as quasivariational inequalities of the Minty type and the Stampacchia type, variational inequality problems with equilibrium constraints, optimization problems with equilibrium constraints and traffic network problems with equilibrium constraints are also discussed.

2.2. Methodology of the research

We use the theoretical study method of functional analysis, the method of the variational analysis and optimization theory in process of studying the topic, etc.

2.3. Main results and conclusion

- Establish the parametric gap functions for (QEP1) and (QEP2) and two key hypotheses (Hp) and (Hh). Afterwards, we prove that these hypotheses are not only sufficient but also necessary for the Hausdorff lower semicontinuity and Hausdorff continuity of solution mappings to these problems. As an application, we derive several results on Hausdorff (lower) continuity properties of the solution mappings in the special cases of variational inequalities of the Minty type and the Stampacchia type.

- Establish gap function sequences for problems (WQEP) and (WQEP)n and Painleve-Kuratowski upper convergence of solution sets for the reference problems. Base on the gap function sequences, we study the key hypotheses (Hh). Afterwards, we study necessary and sufficient conditions for Painleve-Kuratowski lower convergence and Painleve-Kuratowski convergence and application to vector quasivariational inequality (QVI) and (QVI)n.
- Establish the semicontinuity, continuity of solution mappings for the parametric bilevel vector equilibrium problems (MBEP) and application to parametric vector variational inequality problems with equilibrium constraints and parametric vector optimization problems with equilibrium constraints.
- Establish the sufficient and/or necessary conditions of the Levitin-Polyak well-posedness for bilevel vector equilibrium problems and discuss some metric characterizations of these Levitin-Polyak well-posedness concepts in the behavior of approximate solution sets and application to traffic network problems with equilibrium constraints.

Nghe An, December ..., 2018

On behalf of all supervisors	Doctoral student
Assoc. Prof. Dr. Dinh Huy Hoang	Nguyen Van Hung