Journal of Mathematical Analysis and Applications **233,** 328–335 (1999)
Article ID jmaa.1999.6312, available online at http://www.idealibrary.com on IDEAL®

Existence of Solutions for Generalized Vector Equilibrium Problems*

I. V. Konnov

Department of Applied Mathematics, Kazan State University, Kazan, Russia

and

J. C. Yao

Department of Applied Mathematics, National Sun Yat-Sen University, Kaohsiung, Taiwan, Republic of China

Submitted by Muhammad Aslam Noor

Received April 17, 1998

The concepts of a $F_{(C,D)}$-pseudomonotone mapping and of a (C, D)-pseudomonotone pair of mappings are introduced. By employing Fan's lemma, we establish several existence results for generalized vector equilibrium problems. The new results extend and modify various existence theorems for similar problems.

Key Words: $F_{(C,D)}$-pseudomonotone mapping; generalized vector equilibrium problem; existence results; multivalued mappings.

1. INTRODUCTION

Let K be a nonempty convex subset of a topological vector space X and let f: $K \times K \to R$ be a scalar bifunction such that $f(x, x) \geq 0$ for each $x \in K$. The scalar equilibrium problem (in short, EP) is the problem of finding

$$\bar{x} \in K \text{ such that } f(\bar{x}, y) \geq 0 \qquad \forall y \in K.$$

* This research was supported by RFFI Grant No. 95-01-00448 and by National Science Council of the Republic of China.

0022-247X/99 $30.00