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A NEW FIXED POINT THEOREM AND ITS APPLICATIONS IN EQUILIBRIUM THEORY

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Abstract. We give a new fixed-point theorem for lower semicontinuous correspondences and introduce the notion of Q'-majorized correspondences. As applications we obtain some new equilibrium theorems which improve the results of X. Wu in [8], referred to abstract economies with lower semicontinuous correspondences, respectively X. Liu and H.Cai in [4], referred to abstract economies with Q-majorized correspondences. **Key Words and Phrases:** Fixed point, Q-majorized correspondences, Q'-majorized correspondences, abstract economy, equilibrium.

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References

- A. Borglin and H. Keiding, Existence of equilibrium actions and of equilibrium: A note on the 'new' existence theorem, J. Math. Econom., 3(1976), 313-316.
- [2] W.K. Kim, A fixed point theorem in a Hausdorff topological vector space, Comment. Math. Univ. Carolinae, 36(1995), 33-38.
- [3] E. Klein and A.C. Thompson, *Theory of Correspondences*, Canadian Math. Soc. Series of Monographs and Advanced Texts, John Wiley & Sons, Inc., New York, 1984.
- [4] X. Liu, H. Cai, Maximal Elements and Equilibrium of Abstract Economy, Appl. Math. Mech., 22(2001), 1225-1230.
- [5] W. Shafer and H. Sonnenschein, Equilibrium in abstract economies without ordered preferences, J. Math. Econom., 2(1975), 345-348.

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- [6] K.K. Tan and X.Z. Yuan, Lower semicontinuity of multivalued mappings and equilibrium points, World Congress of Nonlinear Analysis '92 (Berlin), vol I-IV, Walter de Gruyter, 1996, 1849-1860.
- [7] G. Tian, Fixed points theorems for mappings with non-compact and non-convex domains, J. Math. Anal. Appl., 158(1991), 161-167.
- [8] X. Wu, A new fixed point theorem and its applications, Proc. Amer. Math. Soc., 125(1997), 1779-1783.
- [9] N.C. Yannelis and N.D. Prabhakar, Existence of maximal elements and equilibrium in linear topological spaces, J. Math. Econom., 12(1983), 233-245.
- [10] G.X.Z. Yuan, The Study of Minimax Inequalities and Applications to Economies and Variational Inequalities, Memoirs Amer. Math. Soc., 132(1988).
- [11] G.X.Z. Yuan and E. Taradfar, Maximal elements and equilibria of generalized games for u-majorized and condensing correspondences, Internat. J. Math. Sci., 22(1999), 179-189.

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