

Hysteresis in Theoretical Behavioral Games

Leandro Almeida, Universidade do Minho
Jose Cruz, Universidade do Minho
Helena Ferreira, Universidade do Minho
and Alberto Adrego Pinto, Universidade do Minho

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Abstract

We consider a Theoretical Behavioral Game that consists in a model where people (members) strategically choose a behavior/group that will maximize their (payoff-utility) welfare. The welfare that a single member acquires by choosing a certain behavior depends, not only, on the individual welfare by having that behavior, but also on the other members that have the same behavior/group. These individual decisions/responses do not, necessarily, maximize the common welfare. We present an example where students choose a behavior/group that will correspond to the failure or approval of the students, with some probability. We study individual decisions through Nash Equilibria and show the presence of an hysteresis in the decision/response of this student's model.

Keywords: Game Theory; Behavior; Nash Equilibria; Hysteresis

References

- [1] I. Ajzen, Nature and Operation of Attitudes, *Annu. Rev. Psychol.*52:27 - 58 (2001).
- [2] I. Ajzen, L. Davis, J. Williams, The Decision of African American Students to Complete High School: An Application of the Theory of Planned Behavior. *Journal of Educational Psychology*, Vol. 94, No. 4, 810 - 819 (2002)
- [3] I. Ajzen, M. Fishbein, *Understanding Attitudes and Predicting Social Behavior*, Englewood-Cliffs, NJ: Prentice-Hall (1980).
- [4] D. Fudenberg, J. Tirole, *Game Theory*, 616 pages. MIT Press (1991)
- [5] R. Gibbons, *Primer In Game Theory*, 278 pages. Prentice Hall / Harvester Wheatsheaf (1992).
- [6] M. Wooders, E. Cartwright, R. Selten, Social Conformity in Games with Many Players. FEEM Working Paper.(2003)