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## Potential Methods in a Core-Periphery Model with Forward-Looking Expectations

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### Abstract

This paper studies a version of the core-periphery model à la Krugman (1991) where mobile workers are forward-looking. Our dynamic model incorporates frictions as in Matsuyama (1991): opportunities for mobile workers to migrate between regions arrive stochastically, following independent Poisson processes. The key observation in this paper is that, as considered as a game with a continuum of players, the static model (under a certain condition) admits a potential function (Monderer and Shapley (1996), Sandholm (2001)). Appealing to results on perfect foresight dynamics in potential games (Hofbauer and Sorger (1999)), we show that there generically exists a unique state that is globally stable under the perfect foresight dynamics whenever the degree of friction is sufficiently small, and such a state is characterized as a unique maximizer of the potential function. In particular, when the trade barriers are sufficiently low, agglomeration on the region with the highest trade barrier is the unique stable state for a small friction.

### Keywords

New economic geography; perfect foresight dynamics; history versus expectations; stability; potential game; turnpike property.

THE PAPER IS AVAILABLE AT:

<http://www.econ.hit-u.ac.jp/~oyama/papers/potCP.html>

### References

- HOFBAUER, J. AND G. SORGER (1999). "Perfect Foresight and Equilibrium Selection in Symmetric Potential Games," *Journal of Economic Theory* **85**, 1-23.
- KRUGMAN, P. (1991). "Increasing Returns and Economic Geography," *Journal of Political Economy* **99**, 483-499.
- MATSUYAMA, K. (1991). "Increasing Returns, Industrialization, and Indeterminacy of Equilibrium," *Quarterly Journal of Economics* **106**, 617-650.
- MONDERER, D. AND L. SHAPLEY (1996). "Potential Games," *Games and Economic Behavior* **14**, 124-143.
- SANDHOLM, W. H. (2001). "Potential Games with Continuous Player Sets," *Journal of Economic Theory* **97**, 81-108.