

# SPATIAL MODELS

Stefano Colombo

Università Cattolica del Sacro Cuore

## **Aim**

This short course provides an introduction to recent research on spatial models. Spatial models are a flexible tool which adopts the space dimension to model a wide array to economic questions, including industrial organization, regional science and marketing. The objective is to provide the students with basic skills in understanding and using spatial models and to identify interesting research questions where these models can be usefully adopted.

## **Outline**

- 1) Spatial models
- 2) Applications
  - Industrial organization
  - Regional science
  - Marketing

## **Assessment**

The assessment will be based on an essay on a topic agreed with the teacher. Students will be also required to replicate an existing paper agreed with the teacher.

## **References**

- *Applications to Industrial Organization*

Anderson, S., J. Goeree and R. Ramer, 1997, Location, location, location, *Journal of Economic Theory* 77: 102-127.

Chang, M.H., 1991, The effects of product differentiation on collusive pricing. *International Journal of Industrial Organization* 3: 453-470.

Chang, M.H., 1992, Intertemporal product choice and its effects on collusive firm behaviour, *International Economic Review* 4: 773-793.

Cremer, H., Marchand, M. and Thisse, J.F., 1991, Mixed oligopoly with differentiated products, *International Journal of Industrial Organization* 9: 43-53.

D'Aspremont, C., Gabszewicz, J.J. and J.F. Thisse, 1979, On Hotelling's stability in competition, *Econometrica* 47: 1145-1150.

Gross, J. and W.L. Holahan, 2003, Credible collusion in spatially separated markets, *International Economic Review* 44: 299-312.

Hackner, J., 1995, Endogenous product design in an infinitely repeated game. *International Journal of Industrial Organization* 13: 277-299.

Hotelling, H., 1929, Stability in competition, *Economic Journal* 39: 41-57.

Lederer, P.J. and A.P. Hurter, 1986, Competition of firms: discriminatory pricing and location, *Econometrica* 54: 623-640.

Salop, S., 1979, Monopolistic competition with outside goods, *BELL Journal of Economics* 10: 141-156.

Thisse, J.F. and X. Vives, 1988, On the strategic choice of spatial price policy, *American Economic Review* 78: 122-137.

- *Applications to Regional Science*

Biscaia, R. and I. Mota, 2013, Models of spatial competition: a critical review, *Papers in Regional Science* 92: 851-871.

Chen, C.S. and F.C. Lai, 2008, Location choice and optimal zoning under Cournot competition, *Regional Science and Urban Economics* 38: 119-126.

Colombo, S., 2013, Spatial Cournot competition with non-extreme directional constraints, *Annals of Regional Science* 51: 761-774.

Colombo, S., 2016, Location choices with non-linear demand function", *Papers in Regional Science* 95: S215-S226.

- Colombo, S., 2016, A model of three cities: the locations of two firms with different types of competition, *International Regional Science Review* 39: 386-416.
- Huang, T, 2009, Hotelling competition with demand on parallel line, *Economics Letters* 102: 155-157.
- Hwang, H. and C.C. Mai, 1990, Effects of spatial discrimination on output, welfare, and location, *American Economic Review* 80: 567-575.
- Lai, F.C. and J. Tsai, 2004, Duopoly location and optimal zoning in a small open city, *Journal of Urban Economics* 55: 614-626.
- Silva, S.T., I. Mota and F. Grilo, 2015, The use of game theory in regional economics: a quantitative retrospective, *Papers in Regional Science* 94: 421-441.
- Tsai, J. and F.C. Lai, 2005, Spatial duopoly and triangular markets, *Papers in Regional Science* 84: 47-59.
- *Applications to Marketing*
- Amaldoss, W. and S. Jain, 2005, Pricing of conspicuous goods: a competitive analysis of social effects, *Journal of Marketing Research* 42: 30-42.
- Balasubramanian, S., 1998, Mail versus mall: a strategic analysis of competition between direct marketers and conventional retailers, *Marketing Science* 17: 181- 195.
- Cattani, K., W. Gilland, H. S. Heese and J. Swaminathan, 2006, Boiling frogs: pricing strategies for a manufacturer adding a direct channel that competes with the traditional channel, *Production and Operations Management* 15: pp. 40-56.
- Chen, Y., C. Narasimhan and Z.J. Zhang, 2001, Individual marketing with imperfect targetability, *Marketing Science* 20: 23-41.
- Colombo, S., 2013, Product differentiation and collusion sustainability when collusion is costly, *Marketing Science* 32: 669-674.
- Colombo, S., 2016, Imperfect behavior-based price discrimination", *Journal of Economics & Management Strategy* 25: 563-583.
- Desai, P., 2001, Quality segmentation in spatial markets: when does cannibalization affect line design? *Marketing Science* 20: 265-283.

Fudenberg, D. and J. Tirole, 2000, Customer poaching and brand switching, *RAND Journal of Economics* 31: 634-657.

Moorthy, S. K., 2009, Product and price competition, *Marketing Science* 7: 141-168.

Pazgal, A., D. Soberman and R. Thomadsen, 2015, Profit-increasing asymmetric entry, forthcoming *International Journal of Research in Marketing*, DOI: 10.1016/j.ijresmar.2015.08.002.