

Referee Report on
Endogenous unrestricted locations in markets with network effects
MS1396

The paper studies (sequential) location and price decisions in a Hotelling (1929) duopoly model with quadratic transportation costs and network externalities. In particular it extends the analysis in Serfes and Zacharias (2012) allowing firms to locate outside the unit segment that represents consumers' locations. The main results are: (i) depending on the extent of the network externality various location configurations can arise in equilibrium, namely maximum differentiation, asymmetric locations and tipping (where the second mover in location is essentially inactive); (ii) unconstrained location choice makes the tipping equilibrium more likely; (iii) the feasibility of a penetration pricing strategy by a third firm depends on the extent of the network externality.

The paper considers an interesting issue, i.e. the possibility that firms' location decision may not be restricted to the unit segment representing consumers' space in the presence of network externalities. The analysis is on the whole rigorous, the results are clear and supported by useful economic intuition. Probably some of the results reported may not be particularly surprising. Nonetheless the contribution of the paper is a welcome addition to the understanding of firms' location decisions with the presence of network externalities. The main message of the paper seems to be that with unconstrained locations the leader in location has more room to be a more aggressive competitor in the short run, making the tipping equilibrium and entry deterrence more likely.

Comments

- 1) The paper provides plenty of real world examples. However some are not fully described (e.g. Pokerstars) or are reported in a slightly unconvincing way (e.g. console industry). Competition among newspapers is nicely described, but it may create a little confusion, given that *indirect* network externalities play a very important role in this sector.
- 2) Similar to Serfes and Zacharias (2012) the paper considers sequential entry. No explanation/motivation is provided to support this choice here. I guess that the reason has to be found on the possibility of multiplicity or non-existence of equilibria.
- 3) The concepts (and their importance compared to standard results in spatial economics literature) of asymmetric location equilibria and tipping equilibrium need a little more explanation. For the reader unfamiliar with the analysis in Serfes and Zacharias (2012) some of the statements appear a little obscure and it is somewhat difficult to assess the importance of the contribution of the paper. In its present form, the reader has to reach

page 13 (Appendix) to have a definition and description of tipping. At a minimum, the concept of tipping should be defined and clarified in the abstract and in the introduction.

- 4) It would be helpful if the location of the potential entrant described in section 4 could be accompanied by a figure.
- 5) The paper could be shortened, probably even turned into a note, in particular making use of the fact that the main framework is borrowed from Serfes and Zacharias (2012). If the paper were left in its present form, probably I would like to see some information currently in the Appendix to be moved to the main text (see point 3 above, c and d below).

Minor points

- a) Footnote on page 1. No need to state “Corresponding author”. In addition “usually” should read “usual”.
- b) Bottom of page 5. “We focus our analysis in” should read “We focus our analysis on”
- c) Page 6. $\hat{\alpha}_1$ is not defined in the main text.
- d) Lemma 3 describes the likelihood of equilibria. The likelihood measure used should be described in the main text.
- e) Page 9, section 4, line 4. “make” should read “makes”.
- f) Some expressions in the text are a little awkward. E.g. footnote 8, “Such strategy is *assiduously verifiable*”. A comprehensive English proof-reading should be undertaken.
- g) In the references, entries [14], [15] and [16] have the same title and authors. [14] and [15] seem to be incomplete.

Serfes, K. and E. Zacharias (2012). Location Decisions of Competing Networks. *Journal of Economics & Management Strategy* 21(4): 989-1005.