Referee report: "Endogenous Timing in Quality Choice and Price Competition"

1 Summary of the paper

This paper builds on Aoki (2003), and endogenize the timing of making quality choices. The choice of timing is modeled as a normal-form game and the firms commit to the timing that they have chosen. If both firms commit to choosing quality at date 1 or date 2, the subsequent quality choices will be simultaneous; if one firm commits to choosing quality at date 1 and the other firms commits to choosing quality at date 2, the subsequent quality choices will be sequential. Also, the authors discuss the possibility that the market is not fully covered, which is a case ignored by Aoki (2003).

I would not say that this paper's contribution is significant, but it will definitely improve our understanding about quality competition if it delivers some new results and explains the results well. However, as far as I can tell, the logic behind the results is not well explained and causes confusion. I raise some questions in the comments below and hope the authors can elaborate on them.

2 Comments

[1.] The game is set up as a sequential-move game and the timing of quality choice in the second stage is determined by the choices made in the first stage. For example, if firm 1 chooses date 1 and firm 2 chooses date 2 in the first stage, firm 1 should move first in the second stage. A natural solution concept should be SPNE. Proposition 1 confuses me as I cannot see why the choice profile (S, F) is part of a SPNE. If firm 2 becomes the leader in the first stage, it will for sure choose high quality in the second stage, which yield payoff

- $\pi_H^{SL} > \pi_L^{SL}$ as Aoki (2003) shows. I think the equilibrium definition used in Proposition 1 is in fact NE which I find strange, given the fact that the structure of this game with complete information is quite standard and should be solved in a standard way. Another possibility is that the authors are fixing the role of high-quality firm and low quality firm, which is also *ad hoc*.
- [2.] If my comment 1 is correct, there should be a unique SPNE of the game. Then, it is unnecessary to discuss mixed-strategy equilibrium anymore.
- [3.] The last proposition of the paper strikes me most. Given the assumption of full market coverage, the game from stage 2 on should be exactly the same as the one in Aoki (2003). But Proposition 4 claims that, regardless of the timing of quality choices, there is a unique outcome of the game. This result seems to contradict with Aoki's result which shows both firms are better off with sequential choices of quality. Can the authors explain why there is such a difference? Do I miss any assumption that is different from Aoki's?