

The study entitled “Cost-reduction Innovation under Mixed Economy” by P. Nie and Y.C. Yang consists of a theoretical model analyzing the impact of a mixed oligopoly on innovation, production and prices offered in the market.

The model assumes one semi-public and one private firm operating in the market. Firms simultaneously invest in cost reducing process innovation and compete in quantities in the product market. Products are assumed to be differentiated and unit costs are symmetric.

The paper focuses on an interesting and policy relevant question. Unfortunately, the paper suffers from several weaknesses.

In its current form, the study appears to be a simple calculation exercise.

The results on innovation and prices and quantities are rather intuitive, since the semi-public firm also accounts the consumer surplus into its objective function.

The study seems to lack interesting or surprising results and/or a better understanding of the mechanics that drive these results.

A potentially interesting result might be the one reported in Proposition 4. I would suggest to further emphasize this result and to use this result to better motivate the introduction and contribution of this study.

The model makes strong assumptions on the functional form of the inverse demand and the investment cost function. It might be worthwhile to at least discuss these assumptions.

The writing of the paper needs to be improved for several reasons:

- The introduction is not well motivated and leaves the reader wondering what research question the study concentrates on, and why mixed oligopolies are interesting to explore.
- The paper is often imprecise, and appears to be superficial. I list just a few examples from the introduction:
  - 1) On page 2, you mention “Some papers focus on the effects of mixed oligopolies on firms’ strategies and the others highlight the effects of other factors on the mixed oligopoly.”  
It is unclear what firms’ strategies you are referring to. I would suggest to be more precise by mentioning the impact on innovation or market structure.  
Moreover, it is not clear what you mean by “other factors”. That could be everything and leaves the reader in the dark. Moreover, the phrase suggests that the topic of mixed oligopolies is not novel, since it might be one of the “other factors” that other studies already explored.
  - 2) On page 2, you mention “Barcena-Ruiz (2007) discussed the endogenous timing under mixed oligopoly”.

The question arises, endogenous timing on what, on innovation, entry, quantity setting? Being more precise allows the reader to better understand how this and other references relate to the main objective of your study.

- 3) Based on the cited studies and the way they reported, it is difficult to understand the main contribution of your study to the current literature. I suggest to also mention the results of the cited studies. That helps the reader to better understand the context.

I believe that this paper is better published as a short note which summarizes the main results on 5-10 pages, probably stressing Prop 4 further and to better motivate the contribution. Alternatively, the paper could gain more value by adding an empirical part to it.