Reply to the Editor:

Dear Editor:

Thanks for the message and the attached referee report. Our reply consists of the following a few points:

1. The referee's comments are very helpful, and in particular, his suggestion on innovation costs is inspiring. We have adapted his advice in our new Theorem 1, of which the proof has been revised accordingly.

2. With regard to the referee's first comment on our proof of Theorem 1, we first want to clarify that, by "after innovation, the equilibrium output of the monopolist is larger than that before", we mean in optimal allocation, it holds $x^{**}_1 > x^*_1$, which does not imply $x^{**}_2 \geq x^*_2$. In fact if more capital is employed by the monopolist after innovation (*K***>*K**), it will lead to an allocation with $x^{**}_1 > x^*_1$ but $x^{**}_2 < x^*_2$.

The referee correctly observes that, after innovation, there exists a feasible allocation with $(\hat{x}_1, \hat{x}_2)$ such t /hkup]

5 hat $\hat{x}_1 = x^*_1$ and $\hat{x}_2 > x^*_2$. Actually this can be achieved when good 2 producer employs the same capital amount *K** as before and leave the same amount *k** for each good 1 producer. By the strong increasing property of the utility function we have $u(\hat{x}_1, \hat{x}_2) > u(x^*_1, x^*_2)$.

But the other inequality $u(x^{**}_1, x^{**}_2) \geq u(\hat{x}_1, \hat{x}_2)$ suggested by the referee is not as trivial as from the first glance. Please note that, with new technology when the monopolist chooses *K*** as capital input, the prices of the goods and the income of every individual consumer is fixed; while (x^{**}_1, x^{**}_2) is feasible and optimal for an individual consumer, $(\hat{x}_1, \hat{x}_2)$ may be no longer feasible for him under his budget constraint. Thus we cannot directly conclude $u(x^{**}_1, x^{**}_2) \geq u(\hat{x}_1, \hat{x}_2)$. To argue for $u(x^{**}_1, x^{**}_2) \geq u(\hat{x}_1, \hat{x}_2)$, we need something like the First Welfare Theorem, claiming that the equilibrium allocation $\{(x^{**}_1, x^{**}_2)\}$ is Pareto optimal among all feasible allocations including $\{(\hat{x}_1, \hat{x}_2)\}$. However, our economy is NOT a price-taking economy, and, with strategic behavior whether or not the First Welfare Theorem remains true is in question. That is why we did not use the approach suggested by the referee. In fact the argument in our proof to some extent is equivalent to the argument for the First Welfare Theorem in the classical GE model.

3. Please pass on our great thanks to the referee for his very detailed comments.