Response to Referee Report 1

Thank you for the constructive comments that you provided. The following is our response to the questions/concerns you have.

Q 1) The study used the number of patents as the measure of enterprise innovation, but in reality, enterprise innovation includes so many different ways. Suggest the authors to change the title of this paper or use another way to describe it.

A 1) Restricted by paucity of relevant data, this study chose patent data as the primary measure of enterprise innovation, which should be considered as reasonable in several aspects. First, patents are the results of the innovation process, and economists have found that number of patents can be a good indicator of innovation activity (e.g., Griliches, 1998; Aghion et al., 2018).

Second, in contrast to data on R&D spending and many other proxy variables, where the availability is limited and long-term consistent data does not exist, number of patents are publicly available and consistent in different countries and areas, which is widely used in a previous research. Moreover, the detailed patent classification system makes the comparison of narrowly-defined technological fields straightforward (Popp, 2005).

Given the above explanation to address the main concern by the reviewer, we think the title “Does the high-tech enterprise certification policy promote innovation in China?” is appropriate. In the future study, we hope to include various innovation indicators given the long-term availability of data.

Q 2) There are so many factors that can impact the innovations. The study may consider more factors such as competitive levels in the industry, research funding obtained, and etc. Possible include those factors?

A 2) We agree with the reviewer that various factors should be taken into consideration when studying innovation. Referring to current empirical studies on enterprise innovation, we have introduced multiple control variables in our models, including product market competition factor (measured by the sales expense rate). In terms of competitive levels in the industry, we also took it as a heterogeneous factor to analyze its impact. We calculated the Herfindahl index (HHI) based on company’s operating income (the larger the index, the greater the degree of industry concentration and the lower the level of market competition), and found that the higher the degree of competition of the industry (where the company belongs), the greater the promotion effect of high-tech enterprise certification is. In terms of research funding, we used R&D subsidies as a measure and found that it is an important channel in our study. Those enterprises being certified as high-tech enterprises can actually obtain more research funding, which partially explained their
better performance regarding innovation outputs.

By following the suggestion from reviewer, we have revised this part to address the concerns.

**Q 3) Abstract needs rewrite. A lot of grammar problems.**

**A 3) : Yes, this section was rewritten and improved.**

**Q 4) Introduction is too brief. Consider give a brief background why China government promoted THE (such as free trade, more competition, and etc.). And what are previous study in this topic? Also consider include the clear objectives in the introduction part.**

**A 4) In the introduction section, this paper reviewed several most significant previous research in this area and discussed the possible contributions from our study. We have also provided a brief overview of the previous studies related in our second section (theoretical analyses and research hypotheses). Based on the review, we revised and improved the introduction part.**

**Q 5) For most the models, R ² are very low. How to interpret it?**

**A 5) In regression analysis, you can actually have a low R-squared value for a good model, or a high R-squared value for a model that does not fit the data¹. For most of the models in this study, R-squared is only part of the indication of how well a regression model is. Even R-squared is low, low P values can indicate a real relationship exist between the predictor variables and the response variable. Moreover, the R-squared for most of our models are more than 0.17. To our knowledge, these values are pretty high comparing to the similar and previous studies.**

In some research fields, it is expected that the R-squared values will be low. For example, when predicting human behavior in psychology research, R-squared values are typically lower than 50%. Human behaviors are much more difficult to predict than predicting/forecasting in physical processes.

Furthermore, if your R-squared value is low but you have statistically significant predictors, you can still draw important conclusions about how changes in the predictor values are associated with changes in the response value. Regardless of the R-squared, the significant coefficients still represent the mean change in the response for one unit of change in the predictor while holding

other predictors in the model constant. Obviously, this type of information can be extremely valuable.

Based on the above consideration, we consider the models can be justified with relatively low R-squared values.

**Q 5)** The paper needs extensive editing of English language. The grammar and syntax should be improved.

**A 5)** We sincerely thank for the reviewer’s comments and the whole paper is revised and polished further in the latest version.

**References**

