

## Report on Ph.D. Thesis Defence

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| Ph.D. Candidate    | Zhang Xu  |
| Main referee       | Roberto Leon-Gonzalez   |
| Referees           | 田中 誠<br>Wie Dainn<br>田中 清泰 (IDE)<br>大山 達雄   |
| Dissertation Title | The Impact of Industrial Agglomeration and the Determinants of Firms' Location Choices in Guangdong |

Result: Pass (subject to minor changes)

### 1. Abstract

Ms. Zhang uses a large longitudinal dataset of firms located in the Chinese region of Guangdong. Her thesis consists of 5 chapters. The first chapter is an overview of the thesis that states the research objectives and main research methods. The second is a descriptive analysis of the industrial sector in Guangdong in relation to other regions of China and other countries.

In the third chapter, she analyzes the determinants of employment and productivity. In particular she examines the influence of infrastructure (highways, ports, etc.), FDI, R&D expenditure and other control variables. Her main interest though is on the impact of industrial concentration on employment and productivity. For this purpose she constructed two measures of concentration: industrial specialization in a region and geographical concentration of an industry. Other things being constant, she found industrial specialization in a region to be negatively correlated with productivity but uncorrelated with employment. On the other hand, geographical concentration was positively correlated with employment but uncorrelated with productivity.

The fourth chapter analyzes the determinants of firms' locations. That is, she tries to answer the question: what are the city characteristics that attract firms to choose that city as a main location? For this purpose she uses a conditional logit model. She finds that R&D investment in that city is important, and that firms are more attracted to cities with a smaller industrial specialization index.

The fifth chapter summarizes the main findings and draws some policy recommendations.

### **Presentation and Results:**

1. Ms. Zhang presented an overview of her thesis for about 1 hour.
2. The presentation was followed by a series of comments and questions by the examiners.
3. The Examination Committee met immediately after the presentation, chaired by Professor Oyama. After discussion and scoring the Committee decided that both the contents of the thesis and its public defense were satisfactory for conferring the doctoral degree. It was further agreed that some minor changes in the thesis would improve it. It was, therefore decided that
  1. Revisions recommended by the individual examiners would be made to the dissertation before the final submission.
  2. Associate Professor Leon would be responsible for scrutinising and approving the revisions.

## **2. Result /Notes from the Examining meeting / Final Evaluation**

### **Revisions After Defense**

Professor Oyama requested that:

1. Avoid repetitions in chapters III and IV.
2. The restrictions involved in the Cobb-Douglas production function need to be noted.
3. The derivation of the statistical model from the Cobb-Douglas function needs to be explained in more detail.
4. It would be better to interpret not only the statistical significance of coefficients but also the size.

Associate Professor Tanaka (from GRIPS) requested that:

1. Currently the thesis does not mention anything about soft infrastructure, only hard one. At least the role of soft infrastructure should be noted.
2. There is an apparent contradiction in the results, which suggest that FDI increases employment but decreases productivity. Perhaps this might be explained by the fact that low-tech (low productivity) firm increase inefficient labor when FDI increases. This hypothesis could be investigated to shed more light on the results found.
3. Some policy recommendations, such as fostering greener growth, do not follow from the analysis. The thesis should clearly indicate which policy

recommendations are based on the data analysis.

Dr. Tanaka (from IDE-JETRO) requested that:

1. The thesis should clarify in what way the research is different from previous literature on Guangdong.
2. Given that the original dataset on the JCER website does not describe the location of firms, the thesis should indicate clearly what the source of that information was.
3. The interpretation should not only be focused on statistical significance. It is important to interpret as well the size of coefficients and elasticities. In particular, the analysis that uses the conditional Logit should report odds ratio and interpret them appropriately.

Assistant Professor Wie requested that:

1. It is difficult to understand why FDI lowers productivity. It would be easier if some additional regressions were done to estimate the impact of FDI separately for each industry.
2. Policy recommendations should follow the data analysis. When this is not the case it should be clearly noted.

Ms. Zhang has made the changes recommended by the examination committee members and has given written report of the changes to me. I have gone through the thesis, examining the alterations made and I am now satisfied that she has implemented the recommendations of the examination committee. Some of the revisions required running some additional regressions. These additional regressions helped to investigate the impact of FDI in different type of industries. Other revisions required changing the writing (e.g. adding explanation, avoiding repetitions, etc.). She also used some additional STATA commands that allowed her to interpret the size of estimated parameters in a conditional logit model. As an appendix to this report I attach a detailed description, written by Ms. Zhang, of the revisions after the defense.

### **Plan for Publications**

Two papers could be published from this thesis. The first paper would examine the determinants of employment and productivity. The second paper would analyze the impact of city characteristics on firms' locations. I have encouraged Ms. Zhang to find time after graduation to write these two chapters in the form of journal articles and

submit them to a specialized journal.