

4. Conclusions And Suggestions

Facing with the strong impact of globalization, world economy has become more integrated with large scale of disintegration of production. Locating at the margin of Mainland China, Taiwan constructs a close economic-linkage between Cross-Strait outsourcing trades. My thesis is structured into two independent projects in Chapter 2 and Chapter 3: one is to discuss the effects of outsourcing on unemployment and changes in relative wages, and the other focuses on the issue of whether outsourcing leads to Taiwan deindustrialization.

4.1 Conclusions and Suggestions

In Chapter 2, I obtain some conclusions through the model of Feenstra and Hanson (1995) incorporating empirical evidences:

- A. The share of manufacturing employment in total employment declines over time, which is consistent with the timing of increasing outsourcing.
- B. Outsourcing plays the role of “non-neutral technological progress” that shifts the relative demand away from unskilled workers and towards skilled workers hence reflects this change on their relative wages.
- C. The unemployment induced by outsourcing is due to the “dis-matching” of unskilled workers who fail to move to skilled sectors. Coincidentally, this could happen even with industrial upgrading.
- D. Slopes of both skilled and unskilled of workers’ total employment share and wage share in electric & electronic related industries are steeper than those of the whole manufacturing: each is 1.26 times and 1.06 times that of the whole manufacturing, correspondently. Possible

explanation is that Taiwan electric and electronic related industries plays the Southern (outsourced) role more. Through equation (2-12) we found that, when the outsourcing level z^* is higher, the effects of outsourcing on relative demand and wage inequality will be stronger probably.

- E. Technological exporting usually comes with outsourcing thus we have no reason to regulate the unprofitable industries to move out. What we should do is to develop and expand the higher-skilled sector and to encourage high-technology industries to upgrade the production with the most comparative advantage.

Therefore, depending on these conclusions and findings, some policy suggestions are yield from Chapter 2:

- A. “No hast, be patient” policy is not effective in completely preventing the unemployment and widening wage-gap problem which are partly due to technological progress.
- B. Even if outsourcing will widen the wage gap between skilled and unskilled workers, it dose not suggest a case for increased outsourcing limitation (Sachs and Shatz, 1996; Slaughter, 1998). Foreign experience also teaches us that we should respond to the unemployment and wage inequality by widening the premium on education, including schooling job training, which is the better way to solve these problems.
- C. The characteristics of different industries are very diverse so there should be different industrial policies applicable to different features of each industry. To announce a rough and uniform will probably do more harms than goods.

Chapter 3 applies Krugman and Venables (1995) to analyze the controversial issue of whether open “three links” will cause Taiwan economic

periphery. The main conclusions are:

- A. Briefly speaking, as transportation costs reduce over time, asymmetric development and inequality of nations will indeed happen. However, it is just one of the points in the process of dynamic development. Due to the lower-wage effect, businesses will re-move out from the core (Mainland China) and come back to Taiwan again in a possible long run time frame.
- B. Transportation cost is not the only contributor to “core and periphery” pattern, as I have mentioned in Chapter 3. t is a composite parameter and share of intermediate input (μ) and consumers’ elasticity for manufactured goods (σ) are also playing important roles. That is:

$$\frac{dt}{d\mu} = \frac{2t}{\sigma-1} \left[\frac{1}{1-\mu^2} + \frac{\sigma(\sigma-1)}{(\sigma+\sigma\mu-1)(\sigma-\sigma\mu-1)} \right] > 0 \quad (3-11)$$

$$\frac{dt}{d\sigma} = \frac{t}{\sigma-1} \left[\frac{-2\mu}{(\sigma+\sigma\mu-1)(\sigma-\sigma\mu-1)} - \ln t \right] < 0 \quad (3-12)$$

Equation (3-11) means that the stronger the industrial nexus is, the higher the probability core and periphery pattern forms. Equation (3-12) implies that, a positive change in demand shock reduce the importance of transportation cost t and support more domestic firms to stay at Taiwan, therefore “core and periphery” pattern is less likely to form.

It is worth noting that the critical transportation cost t is a composite parameter of μ and σ so that “three links” or not is not the independent policy decision. That is, μ and σ should be taken into consideration at the same time. Therefore, different industries should be applicable for different policy arrangement. This reinforces what we have proposed in Chapter 2.

4.2 Limitations And Further Research

First, there is still no consensus in the definition of outsourcing, and Chapter 2 cites the estimated data from Huang (2003), where outsourcing is defined only as the imported intermediate input. If outsourcing is more broadly defined, it is expected that its trend of growth will be stronger than I have showed before. Due to the limitation of outsourcing data acquired, instead of doing causality test of outsourcing effects on unemployment and relative wages, I show these trends of the same timing to establish the possible linkages. Depending on these observations, the main purpose in Chapter 2 is trying to make some policy suggestions. To strengthen the completeness of these theories, empirical evidences are called for further research. This thesis has laid the foundation for many directions in testing policy relevant hypothesis.

Second, one may explore finer the distinction between vertical and horizontal outsourcing. In general terms: vertical outsourcing is motivated by minimizing cost, so factor prices are fairly important; horizontal outsourcing is motivated by expanding market-share, so market's conditions in host country is quite significant¹⁹ Vertical outsourcing shifts works abroad which are not manufactured domestically and horizontal outsourcing moves the same activities produced nationally to foreign countries. That is to say, horizontal outsourcing means that firms shift jobs overseas that not only low-skilled works but also more higher-skilled works in home country. Taiwan outsourcing to Mainland China almost took vertical form for cheaper factor-prices in the earlier times and parts of outsourcing have turn into horizontal form gradually in recent years. Outsourcing model in my thesis focuses mostly on vertical outsourcing. Horizontal outsourcing in Cross-Strait trades is important extension for further research.

¹⁹ Hanson, Mataloni Jr., Slaughter (2001) have documented that: Vertical FDI is the view to take advantage of international factor-price differences; horizontal FDI is the view that to avoid for high entry barriers of host market. Both concepts of vertical FDI and horizontal FDI are analogous to vertical outsourcing and horizontal outsourcing.

Third, simulations made in Chapter 3 are used for illustrations because μ and σ are theoretical parameters. We still need more understanding on what these parameters correspond to. Empirical studies on what the values of μ and σ in Taiwan are the directions for further research.