

# Chapter 41

## The Spread of Cross–Border High–Tech Manufacturing Component Goods in International Trade Integration

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### ABSTRACT

*The objective of this study is to examine the spread of cross-border trading in determining the firm's production in high-technology manufacturing industries in Indonesia. The spread of cross-border trading in the model is measured by export intensity and alternatively is measured by vertical trade integration. The firm-level data of high-tech industries are implemented in this study. A panel data regression procedure is applied to estimate the model. The estimation results elucidate that vertical trade integration is a significant determinant on affecting firm's production while export intensity is not. This evidence proves that the pattern of cross-border international trade of high-technology industries shifted from exporting finished goods to exporting fragmented products. The export intensity variable is no longer representing the international trade when the firms break-down their production process. The usage of export intensity variable in firms undertaking the vertical trade integration would lead to a misleading conclusion.*

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## INTRODUCTION

The spread of cross-border manufacturing component goods in international trade integration has become a growing phenomenon in global transaction. Most multinational companies (MNCs) prefer to break down their production processes. It allows foreign affiliation to unbundle stages of production so that each stage can be relocated in some countries. Most of MNCs have been headquartered in the United States, Western Europe, and Japan. These MNCs locate their plants in some different developing countries. The share of global foreign direct investment (FDI) in developing countries upsurged to 54% in 2019, the highest, with an 11% increase in Africa, 4% in Asia, and 2% in other developing economies as a whole (World Benchmarking Alliance, 2020).

There are some incentives for MNCs to branch out their production to other countries with different levels of development and income. They have placed some plants in the developing countries due to location advantages that stem from different factor endowments, such as labor price. There is a vast number of people who do not have jobs, leading to lower labor price in the developing countries (Athukorala & Yamashita, 2006). Ford Motor Company from United States employs over 81,000 people in 7 developing countries. Ericsson from Sweden employs over 34,000 people in 11 developing countries. Samsung Electronics owned by Japanese company is operationally active in 28 developing countries (World Benchmarking Alliance, 2020). According to Amador & Cabral (2016), the MNCs allow to unbundle their production process or outsource into developing economies because it cuts the production chain in the component parts of a particular good, reduces transportation and communication costs. In addition, Sari & Restikasari (2021) also said that trade liberalization, free trade zones, and reduced tariffs were the driving factors for the existence of foreign companies in the developing countries.

MNCs are no longer focused on exporting finished goods, but they change the focus on exporting fragmented products. They prefer to sub-contract into other countries that have low-cost inputs or to produce components of a particular good for later re-exported. Some studies have empirically evaluated the phenomenon of the international fragmentation of production and show that the components product trading is expanding more rapidly than conventional final goods trading. This rapid growth of components trade is a natural consequence and mainly associated with the activities of MNCs. This trading pattern is known as vertical trade integration (Athukorola & Yamashita, 2006; Kimura, et al., 2007; Jones, et al., 2005; Shimbov, et al., 2013).

The vertical trade integration refers to the usage of imported inputs to produce goods that are afterwards exported. Using export intensity to measure international trade will cause misleading if the firms export component goods. It is usually measured by exported goods divided by the total goods produced and this commonly reflects as a key indicator of competitiveness. Furthermore, most of the components product trading in this situation is high-tech products. Srholec (2007) stated that a large proportion of high-tech exports sourced from developing countries are closely related to their participation in fragmented global production networks. Xing (2014) also highlighted that the high-tech exports from developing countries are based on assembled high-tech products and indifferent from other labor-intensive products in terms of technological intensity.

The high-tech manufacturing industries have a very important role in national development. These industries not only have contributions to the international markets but also to the domestic markets. In Table 1 shows that the value of import (Rp150,939 billion) is greater than the value of export (Rp131,209 billion). The high-tech manufacturing industries export around 33.23% of their products and import 15.50% of their inputs. On the other hand, they hire a workforce around 551,057 people and generate

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