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Selection and utilization of hand tool industry in the China–Taiwan free trade agreement

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ABSTRACT

The threshold decomposition method for trade patterns is used to analyze hand tool parts and components between China and Taiwan from 2000 to 2012. The selection and utilization of hand tool parts and components are analyzed by the Poisson pseudo maximum likelihood (PPML) model and a Probit model in considering of the impact on the Economic Cooperation Framework Agreement (ECFA) early harvest list. The significant negative coefficient of Taiwan's revealed comparative advantages (RCA) implies that China did not fully open its market to highly competitive Taiwanese hand tool parts and components when negotiating the early harvest list with Taiwan.

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1. Introduction

As one of the main manufacturers in the world, Taiwan has been an original equipment manufacturer (OEM) for many prominent international brands, such as Gedore, KSTOOLS, and Bauhaus in Germany; Facom in France; Stanley, Black & Decker, and Snap-on in the United States; Draper, Sealey, and Clarke in the United Kingdom; and CTC in Canada. Thus, Taiwan is widely known as the “Hand Tool Kingdom.” The importance of Taiwan as a main hand tool manufacturer is inferred from its continuous first ranking based on export value from 1998 to 2002. However, since 2003, China has challenged and surpassed Taiwan's leading status in the hand tool manufacturing industry. Given its orientation of being an OEM for western brands, Taiwan does not directly compete with western countries in the world market. With a similar orientation, China has become Taiwan's main competitor. China has used its advantages of low-cost labor, low-rent land, and a booming domestic demand market to attract firms that originally had a partnership with Taiwan to surpass Taiwan in hand tool export value and, eventually, become the largest threat to Taiwan in hand tool manufacturing.

Another factor related to this phenomenon is the incoming Taiwanese hand tool manufacturer that is also appealing to low-cost labor in China. [Chu and Amsden \(2003\)](#) took the electronics industry and the bicycle industry in Taiwan as cases and explained the movement of production attributable to increases in manufacturing costs. [Hsu, Hou, Huang, and Chen \(2011\)](#) pointed out that, since 1990, Taiwanese hand tool manufacturers have started to establish their factories in Kunshan, China, using the management strategy of international specialization between China and Taiwan as a response measure to low-price competition from Chinese OEMs. This strategy primarily focuses on the following production pattern. First, for high-end products, Taiwan receives the order and develops and manufactures the high-quality, high value added product. Second, for low-end products, production primarily occurs in China and the product is sold in international markets or China's domestic market. Third, for in-between products, the semi-finished product is assembled in Taiwan and sold to foreign nations. However, no academic study has yet conducted empirical research on the quality difference in the hand tool OEM between China and Taiwan.

Following the definition of the tariff database in [Customs Administration \(2012\)](#), the HS 820600 hand tool set consists of two or more tools selected from tools between HS 820210 and HS 820590. We explain the two-way trade (TWT) phenomenon by analyzing the 24 intermediate goods (parts and components) between HS 820210 and HS 820590 listed in [Appendix 1. Fig. 1](#) uses

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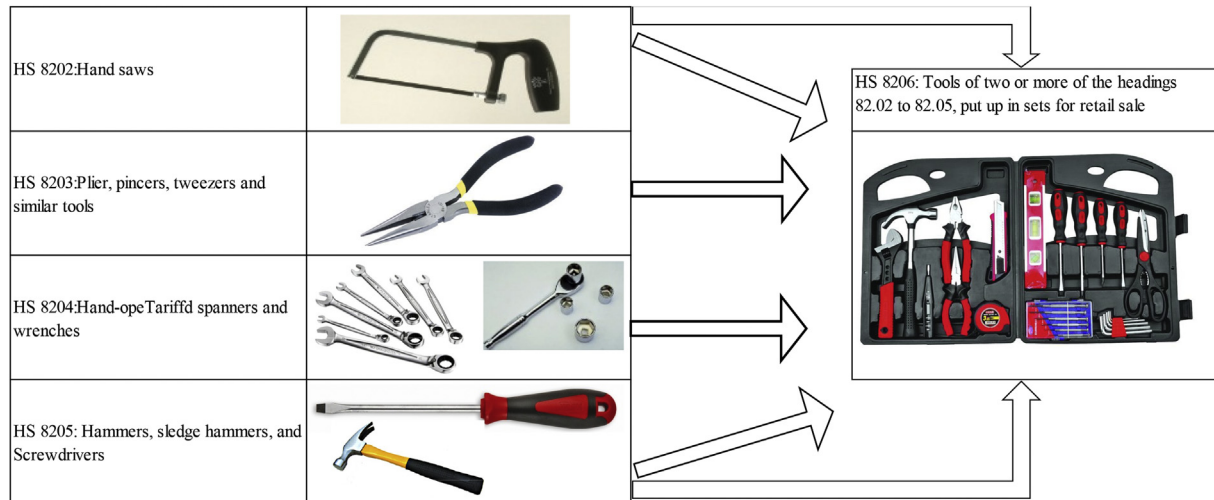


Fig. 1. Hand tool set (HS820600).
Source: Machinemart.

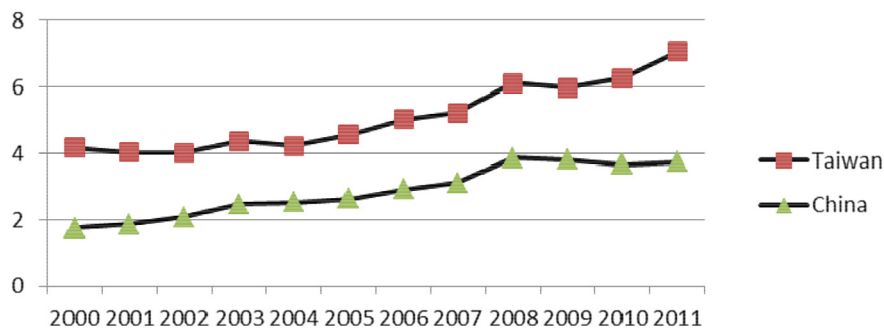


Fig. 2. Unit price of hand tool set (HS820600) exported from Taiwan and China to foreign nations.
Source: World Trade Atlas, unit: US Dollar.

the four-digit HS code to explain the relationship between final goods HS 820600 and tools from HS820210 to HS820590.

In Fig. 2, annual data on Taiwan's hand tool exports show that the export price of the HS 820600 hand tool set is almost two times higher than that of China. For example, in 2011, Taiwan's export price for the HS 820600 was 7.07 USD per kilogram (F.O.B.), whereas China's export price was 3.74 USD per kilogram (F.O.B.). The annual export price data show the price differences between Taiwan and China, which may imply a management strategy to address the quality differences, as Hsu et al. (2011) previously argued. Thus, further discussions on the division of labor for 24 intermediate goods (parts and components) are needed.

In 2010, the Economic Cooperation Framework Agreement (ECFA) was signed between Taiwan and China, and the early harvest list was implemented in January 2011 to strengthen cross-strait communications. Up to today, although China opened five hand tool categories on the early harvest list (see Appendix 2), Taiwan failed to eliminate the import tariff on the hand tool sector. The product-specific rule (PSR) for these five products was originally from the strictest category of the *Change Chapter* (CC), and these products have been under duty-free treatment since 2012. The hand tool industry is an export-oriented industry that processes material exported from Taiwan to China and then sells it to western countries. The duty-free policy on the feeding processing trade has been implemented for a while; in other words, China stopped imposing a tariff on exporters. Having the same effect as the zero-

tariff policy in ECFA, which was constructed under the strictest PSR CC type, the influence on the efficiency of hand tool industry in Taiwan is an important issue worthy of further discussion.

Using the previously noted motivation, this paper analyzes whether twenty-four types of hand tools are under the trading pattern of product differentiation. Further, this paper uses quantitative analysis to discuss whether Taiwanese products that possess quality with a vertical differentiation have a significant influence on their export value to China and decision making regarding the early harvest list and the non-early harvest list. The purpose of this paper is as follows. First, this paper analyzes the division of labor pattern in TWT between Taiwan and China for twenty-four types of intermediate goods for hand tool parts—from HS 820210 to HS 820590—and verifies the cross-strait quality differentiation in hand tools. Second, this paper analyzes the determinants of the export value of these twenty-four items from Taiwan. Third, this paper studies the factors that place five hand tool product items onto the early harvest list.

2. Development of Taiwan's hand tool industry and ECFA tariff removal

2.1. Development of Taiwan's hand tool industry

In 1960s, Taiwan started to develop the light industry and began the technique of hot and cold forging. Using these techniques and

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