

**PERFORMANCE, OPENNESS AND EXCHANGE RATE  
PASS-THROUGH IN TAIWAN'S MIDSTREAM  
PETROCHEMICAL INDUSTRY**

By  
Shu-Ching Wang

**Abstract**

The dissertation is a collection of three separate but related papers which are devoted to the empirical studies of Taiwan's midstream petrochemical industry. In addition to the introductory chapter, three papers are presented respectively in chapters 2 through 4. The empirical results in chapter 2 confirm the causalities derived from the theoretical model, and demonstrate that there do exist simultaneous relationships among domestic firms' *PCM*, domestic concentration, import and export shares in Taiwan's midstream petrochemical industries. Specifically, domestic concentration affects domestic firms' *PCM* positively while import share, export share, import concentration and country concentration of exports affect domestic firms' *PCM* negatively. Domestic firms' *PCM*, import share and import concentration affect domestic concentration positively while market size affects domestic concentration negatively. Domestic concentration and cost differential affect import share positively while domestic firms' *PCM*, export share, import concentration and capacity utilization affect import share negatively. Domestic firms' *PCM*, import share and import concentration affect export share negatively. In addition, the results also imply domestic firms seem to be in a situation of collusion during the period of 1989-1997, and the collusive behavior probably has originated from their subsidiary or old employer-employee relationship. In chapter 3, the regression results confirm the causalities derived from the theoretical model, and demonstrate that there do exist simultaneous relationships among domestic firms' *PCM*, domestic concentration and the openness to trade in Taiwan's midstream petrochemical industries. Specifically, domestic concentration affects domestic firms' *PCM* positively while openness and import concentration affect domestic firms' *PCM* negatively. Domestic firms' *PCM*, openness, import share, import concentration and capacity utilization affect domestic

concentration positively while market size affects domestic concentration negatively. Domestic concentration and import share affect openness positively while domestic firms' *PCM* and import concentration affect openness negatively. Based on the derived causalities, the above empirical results imply that the interactive relationship among domestic firms as well as that between domestic and foreign firms might both be collusive during the period of 1989-1997, and the collusive behavior probably has originated from their subsidiary or old employer-employee relationship. In chapter 4, we have found that firms from the two largest importing nations of midstream petrochemicals in Taiwan, the US and Japan, have exercised market power in Taiwan market during our sample period. However, our data seems to suggest that other causes of incomplete pass-through were important for Japan and US imports. Observing the differences between Japanese and the US import behavior, cost increases for Japanese firms have a lower effect than US firms on equilibrium price, that could be explained by the desire of Japanese manufacturing firms to build up their shares in Taiwan during the period. In addition, the result indicates that the Japanese firms in Taiwan have more market power than US firms. According to theory model, this result also implies that elasticity of exchange rate pass-through of Japanese firms is smaller than the US firms'.