

論文審査の要旨及び担当者

No.1

報告番号	○甲 乙 第 号	氏 名	シルバ シャンギ マテウス
論文審査担当者	主 査	： 清田 耕造 (慶應義塾大学産業研究所教授 博士 (経済学))	
	副 査	： 白井 義昌 (慶應義塾大学経済学部准教授 Ph.D.)	
		： 木村 福成 (慶應義塾大学経済学部教授 Ph.D.)	
	面接担当	： 河井 啓希 (慶應義塾大学経済学部教授 商学修士)	
		： 大久保 敏弘 (慶應義塾大学経済学部教授 Ph.D.)	
(論文審査の要旨)			
<p>The development of international production networks or the second unbundling, particularly in machinery industries, has been a notable phenomenon in the past three decades though its geographical extension is highly skewed. This Ph.D. dissertation titled “Essays on Machinery Production Networks and the Globalizing World Economy: a Comparison between Latin America and East Asia” employs disaggregated international trade data and the data of trade in value added, places its focus on machinery production networks as a central player of the second unbundling, and empirically investigates differences in the degree of participation in production networks across countries and regions as well as the interactions among them. In particular, the contrast between Latin America and East Asia in terms of the involvement in production networks is highlighted.</p>			
<p>The dissertation starts with the first chapter that provides an overview of the evolution of machinery production networks in the world and confirms notable differences in the degree of participation in production networks across regions. By employing the concept of intensive and extensive margins as well as the standard gravity estimation, the chapter reveals geographical skewness in the extension of machinery production networks. Machinery industries are highly concentrated in three regions in the world: East Asia, the European Union, and North America. And over time, the dominance of East Asia has been strengthened. Latin America except Mexico, which is classified in North America here, has fallen behind in participating in the new wave of international division of labor.</p>			
<p>Chapter 2 examines the degree of participation in production networks by individual Latin American countries. It finds striking differences between Brazil and Mexico.</p>			

Although Brazil started industrialization earlier than Mexico with much higher levels of science and technology in the background, the aggressive utilization of the mechanics of the second unbundling with the US and other parts of the world allows Mexico to catch up quickly, particularly in automobile industry. Why did such a contrast emerge? Although distance from the US and natural resource endowments would be possible factors, the difference in industrialization strategies, i.e., whether sticking to import substitution or jumping into the second unbundling, is an undeniable reason.

Chapter 3 uses the data of trade in value added (TiVA) developed by the Organisation for Economic Co-operation and Development (OECD) and the World Trade Organization (WTO) and again examines differences in the degree of participation in global value chains among regions in the world. Although TiVA data provide much more aggregated levels of information than disaggregated international trade data, they allow us to directly observe domestic and international industrial linkages. By decomposing value added into domestic and foreign inputs by industry, the chapter calculates a series of recently developed indicators including the domestic value added to gross exports (VAX) ratio, forward, backward, and global value chain (GVC) participation ratios, the average length of GVCs, distance to final demand, and others. It confirms premature participation in machinery production networks by Latin America in contrast with East Asia.

Chapter 4 provides detailed descriptive analyses on the participation of individual Latin American countries in machinery production networks, including the decomposition of intensive and extensive margins in machinery trade growth, and then conducts a series of regression analyses to detect quantity and quality effects of machinery parts and components imports from the rest of the world on intra Latin American machinery exports. In particular, the quality of exported machineries is evaluated by the trade basket sophistication index proposed as the PRODY index by Hausmann, Hwang, and Rodrik (2007), which is a weighted average of the per capita GDP of countries exporting a given product. The chapter finds that imports of machinery parts and components from East Asia contribute particularly to the qualitative sophistication of intra Latin American machinery

exports while those from North America show the opposite pattern. This suggests that links with East Asia may help Latin American countries upgrade product line-ups in machinery production networks.

Chapter 5 empirically analyzes another aspect of international production networks, import tariff evasion. Although it is difficult to directly observe import tariff evasion, the data matching of exporting and importing countries at the disaggregated level of international trade data, suggested by Fisman and Wei (2004), provides a pretty good proxy of the extension of import tariff evasion. The chapter employs this empirical approach and compares the seriousness of import tariff evasion between East Asian imports from the own region and from the rest of the world. It finds that intra-East Asian imports are less prone to have import tariff evasion than inter-regional imports. In addition, intra-East Asian imports tend to misreport the quantity of products while inter-regional imports are more likely to cheat on unit prices. It also conducts a similar exercise for Latin America and finds more extensive import tariff evasion practices.

The modified version of Chapter 4 is in *Latin American Economic Review*, vol. 26(9), 2017, and that of Chapter 5 is in *The International Economy*, vol. 20, 2017 (co-authored). He has another paper, not included in the dissertation, in *The Journal of Asian Economics*, vol. 48, 2017 (co-authored).

Overall, the dissertation is successful in empirically investigating the degree of participation in machinery production networks by Latin America and East Asia over time from various angles. It also suggests the nature of machinery production networks in terms of inter-regional linkages as well as import tariff evasion behavior. Policy implication for Latin American countries is also profound if they wish to utilize the mechanics of the second unbundling more aggressively.

The scope of the dissertation, however, is obviously limited, and further research in various directions is hoped for. Although differences in development strategies should be discussed more extensively, explicit investigation on policy matters is not

provided. Also, in order to isolate policy elements as a source of generating differences between two regions, we must properly take care of other “natural” and “prior” differences such as geography, transport modes, population density, factor endowments and factor prices, and others. To reach a constructive policy discussion, there are still many things to do.

Although various additional studies can be suggested in the extension, the quality of this dissertation obviously clears our standard criteria. All five examiners of this dissertation are unanimously of the view that Mr. Mateus Silva Chang should be awarded a Doctoral Degree in Economics from Keio University.