Brazilian Journal of Political Economy, vol. 36, nº 4 (145), pp. 769-787, October-December/2016

The role of transnational corporations in the international insertion of Brazilian manufactures in the context of productive restructuring*

O papel das empresas transnacionais na inserção internacional da produção industrial brasileira no contexto da reestruturação produtiva

ADRIANO JOSÉ PEREIRA
RICARDO DATHEIN**

RESUMO: Este estudo analisa a influência do padrão de comércio internacional das Empresas Transnacionais (ETNs) sobre a inserção internacional da indústria de transformação brasileira entre 1995 e 2005, com base em dados do Censo de Capitais Estrangeiros do Banco Central do Brasil. O trabalho tem como objetivo investigar em que medida o aumento da inserção internacional das empresas transnacionais nas economias nacionais tem contribuído para a evolução dos produtos brasileiros em termos de comércio internacional. Concluiu-se que a participação significativa de empresas transnacionais no comércio exterior brasileiro revela que a inserção internacional da produção industrial do país apresenta uma crescente dependência de decisões estratégicas das ETNs.
PALAVRAS-CHAVE: economia brasileira; corporações transnacionais; comércio internacional; comércio intrafirmas; conteúdo tecnológico.

ABSTRACT: This study analyzes the influence of the international trade pattern of Transnational Corporations (TNCs) on the international insertion of Brazilian manufacturing industry between 1995 and 2005, based on data of the Census of Foreign Capitals of the Central Bank of Brazil. The work aims to investigate to what extent increased international insertion of TNCs in national economies has contributed to the evolution

* The authors thank the Central Bank of Brazil for granting access to data that was not published in the Census of Foreign Capital, necessary for the development of the research, as well as to the two anonymous reviewers who have contributed to the improvement of the work.

** Professor adjunto do Departamento de Economia e Relações Internacionais e do Programa de Pós-Graduação em Economia e Desenvolvimento (PPGE&D) da Universidade Federal de Santa Maria (UFSM). E-mail: adrianoeconomia@ufsm.br; Professor associado do Departamento de Economia e Relações Internacionais e do Programa de Pós-Graduação em Economia (PPGE) da Universidade Federal do Rio Grande do Sul (UFRGS). E-mail: ricardo.dathein@ufrgs.br. Submetido: 2/Junho/2015; Aprovado: 23/dezembro/2015.

of Brazilian manufactures in terms of international trade. It has been concluded that the significant participation of TNCs in Brazilian foreign trade reveals that the international insertion of the country's industrial output presents an increasing dependency on strategic decisions of TNCs.
KEYWORDS: Brazilian economy; Transnational corporations; International trade; Intra-firm trade; Technological content.
JEL Classification: F14; L10; O14.

INTRODUCTION

The release of comprehensive data on global value chains (GVCs) in 2013 (OECD-WTO-UNCTAD, 2013) has been source of a series of studies about the importance of transnational corporations (TNCs) in trade and global production. To a great extent, these studies have evaluated the changes that have occurred since the 1990s, by comparing different economies to each other, as well as by evaluating their individual trajectories of integration into GVCs. These facts have increased the necessity for a better understanding of the behavior of TNCs in a globalized world and with more open economies.

In the case of the Brazilian economy, structural and institutional changes promoted in the 1990s produced a widening and deepening of the relationship with TNCs, which had been key agents of import substitution industrialization (ISI) in the earlier decades. The resumption of development strategy, particularly in the second half of the 1990s, was largely conditional to attracting foreign direct investment (FDI) and, therefore, to increasing the importance of transnational firms in the national economy.

In this scenario, the productive restructuring suffered by national industry, mainly promoted during the government of Fernando Henrique Cardoso (FHC), has become a determinant of the industrial sector performance since then. This situation eventually revealed that building a more open and modern economy (although only partially) would not be a sufficient condition for a more dynamic insertion of the national manufactures in international trade.

Increased penetration of TNC's in the domestic industry during the 1990s, despite Brazilian economy's integration to international productive chains (especially in the region, through MERCOSUR), has deepened its dependence on the decisions made by such companies. Such process is related to a growing denationalization of national economy (Laplane *et al..,* 2000), which resulted in a grow dependence on imported technology (Arbix and Mendonça, 2005).

Several studies have dealt with the insertion of Brazilian manufacture since economic liberalization, focusing on aspects related to the importance of the technological content of foreign trade and emphasizing the role played by TNCs[1] in

[1] Laplane and Sarti (1999); Sarti and Laplane (2002); De Negri and Laplane (2005); CEPAL (2004); Hiratuka (2000); De Negri (2005a); Coutinho, Hiratuka and Sabbatini (2005).

this situation. In short, one of the main conclusions deriving from this literature is that, even with the greater integration of TNCs to international trade, if compared to "national" companies, the first have been characterized by their predominant strategy of market and natural resource seeking (Dunning, 1994; ECLAC, 2004), as well as by trade imbalances. For instance, TNCs exports from Brazil are majorly of lower technological intensity products and, among their imports, goods with higher technological content stand out.

This article analyzes the main trends of the international insertion of the Brazilian economy between 1995 and 2005 – a period featured by productive restructuring of the national industry, specifically in what concerns the foreign trade performance of manufacturing TNCs – regarding foreign capital companies in general and in specific those with a majority foreign shareholding companies. In this sense, this study has conducted an examination of intra-firm trade patterns and their propensities to import and export, aggregated by technological intensity of production, relying on the data of the Census of Foreign Capital of the Central Bank of Brazil (BCB) for 1995, 2000 and 2005. Such an analysis on a more detailed basis helps to understand how such changes would affect the future performance of the national economy, providing subsidies to address contemporary challenges of Brazilian manufacturing industry in the context of GVCs. It is worth noting that available data on such chains (i.e., OECD-WTO-UNCTAD, 2013), although providing a relevant source of information on trade undertaken by TNCs, does not capture directly the strategies of these companies in terms of their importance for national economic development.

The share of manufactured goods in total exports, ranked by technological intensity (OECD, 2009), has been used as an important indicator of the international insertion of the productive structures of different economies. Intra-firm trade, in turn, reflects how foreign companies have organized their corporate strategies (especially commercial and productive) in order to place their products in different markets. This indicator also allows appraising how it has affected the foreign trade of distinct economies – particularly those that have a high degree of denationalization, like Brazil.

The article is divided into three sections, besides this introduction. The second section discusses the role of TNCs in Brazilian foreign trade, with emphasis on the 1995-2005 period, regarding the productive restructuring of the domestic industry. The third section examines intra-firm trade relations of TNCs in the economic activities of the Brazilian manufacturing industry. Finally, the last section is reserved for closing remarks.

THE PARTICIPATION OF TNCS IN BRAZILIAN FOREIGN TRADE IN THE CONTEXT OF PRODUCTIVE RESTRUCTURING

One of the main expectations related to the policy of economic openness centered on the attraction of FDI, since the 1990s, was that these investments would in-

crease the technological intensity of Brazilian exports. This situation implied the necessity for a productive restructuring of the domestic industry through a growing access to the most advanced technologies. The main objective of that was to make industry more competitive, which was seen as an essential condition to resume economic development (Franco, 1998). In the same process, these changes to national productive structure were also meant to contribute positively to a gradual reduction in the import of more technology-intensive products (Barros and Goldenstein, 1997).

However, as Laplane, Coutinho and Hiratuka (2003, p. 9) observed, "[...] in the case of Brazil, the internationalization of industry took the form of a denationalization process, instead of the conquest of new spaces in the world market". Hence, for these authors, the process in Brazil consisted of a "internationalization of the domestic market", that is, an "introverted" internationalization (Sarti; Laplane, 2002).[2] It is noteworthy that, regardless of the creation of macroeconomic and institutional conditions favorable to a surge in FDI flows, the results deriving from these investments have, therefore, depended on the strategies adopted by TNCs: on the relevance of subsidiaries within their "corporate structures" (Williamson, 1989) and on how these companies conceive their target markets.

Regarding the importance of the TNCs in Brazilian foreign trade, De Negri (2005a) argues that one of the possible strategies for countries like Brazil to foster its policy to promote technology-intensive exports involves exploring the potential of TNCs, given their prominent role in their respective markets. Thus, the foreign trade of TNCs features a major channel for international insertion of host economies, assuming the proportional relevance of those companies in the production of tradable goods.

As a result of foreign capital attraction policy, the FDI flow for the manufacturing industry in the second half of the 1990s concentrated on those activities that already had a denationalized production structure, that is, in which TNCs already had an important role and in most cases the major one.[3]

The productive strategy of TNCs, based on the intensification of FDI during the 1990s and early 2000s, was mainly linked to activities in the local and regional market (Mercosur and ALADI).[4] This explains largely why these companies esta-

---

[2] The main issue was to promote a more dynamic insertion in developed country markets, through the increase in the exports of products with higher technological content, which did not occur as expected. Brazil has shown a tendency of successive and increasing surpluses in the trade of low and medium-low technology intensive products (US$ 12,870 million in 2000 to US$ 39,572 million in 2009), and to deficits, also successive and growing, in products of high and medium-high technological intensity (US $ 16,038 million in 2000 to US$ 44,924 million in 2009) (Brazil, 2010).

[3] Between 1980 and 1995, the economic activities of metallurgical production, electrical equipment, electronics and communication, mechanical, production of motor vehicles, chemicals, food and beverage accounted for about 70% of investments and foreign direct reinvestments made in the manufacturing industry in Brazil. Together, these activities accounted for about 90% of FDI flows to the Brazilian manufacturing industry in 2000 (BCB, 2011b).

[4] As observed by Sarti and Sabbatini (2003) and by De Negri (2005), Mercosur and ALADI countries

blished in Brazil have such a reduced participation of high and medium-high technology intensive products in their exports to developed countries.[5]

The fact that TNCs are generally more likely to export – as a function of the technology used in the production and of their access to "marketing channels not available to domestic firms" (De Negri and Laplane, 2005), which intra-firm trade is the prime example – in Brazil has contributed to the generation of trade deficits, specifically in technology intensive products. These "channels" have served to encourage exports and especially imports of TNCs operating in Brazil, given the increasing importance of global value chains. Therefore, it is crucial to analyze TNCs relations with host countries from the way these companies are articulated in their "corporate networks".

The increased participation of foreign capital companies (FCC) in Brazilian trade with the world reveals the growing importance of these firms for a greater integration of Brazilian economy to international commerce. It shall be noted that the growth of the participation of FCC, between 1995 and 2005 (Table 1), in relation to both Brazilian imports and exports, was largely associated to the growth of intra-firm trade, between subsidiaries and/or affiliates.

Table 1: Foreign Capital Companies (FCC) – total companies and major shareholding – Brazil – 1995, 2000 and 2005 (in 31/12)

Years	Number of firms	Number of employees (annual average)	Share of total exports (%)	Share of total imports (%)	Share of intra-firm export in total exports of FCC (%)	Share of intra--firm import in total imports of FCC (%)
FCC – total foreign capital						
1995	6.322	1.352.571	46,8	38,8	41,8	44,0
2000	11.404	1.709.555	60,4	56,6	63,3	57,8
2005	17.605	2.091.737	54,9	61,8	61,1	55,7
FCC – with major foreign capital shareholding						
1995	4.902	911.371	31,2	31,4	30,5	41,2
2000	9.712	1.298.276	41,4	49,3	48,0	55,9
2005	9.673	1.623.492	42,4	51,0	48,9	48,2

Source: Authors's elaboration from original data of Brazilian Central Bank (BCB) (2010, 2011a, 2011b).

The analysis of BCB Foreign Capital Census data of 1995, 2000 and 2005 allows identifying a significant increase (178.5%) in the number of foreign capital

have been the main destination for Brazilian exports of medium and high technological intensity products. This performance might be explained by the exports of TNCs subsidiaries established in Brazil.

[5] In 2007, products with high and medium-high technological intensity accounted for over 60% of trade in manufactured goods among the countries of the Organization for Economic Cooperation and Development – OECD (OECD, 2009).

companies (FCC-total)[6] within this ten years period. In the case of companies with major shareholding of foreign capital (FCC-majority) it can also be observed a strong growth, although less significant (97.3%). This indicates the occurrence of a trend, at least in quantitative terms, of expansion in the shareholding instead of in the controlling over productive assets. The large volume of resources allocated for privatization and for mergers and acquisitions (M&A) is a fundamental part of the explanation of this process.

At the pace that the rising inflow of FDI to Brazilian economy in the 1990s intensified its level of denationalization, it also began to exert more influence on the country's foreign trade. Between 1995 and 2005, while total exports from Brazil grew 155%, exports of enterprises with foreign participation increased by 199%. For the same period, total imports grew 47%, while imports of enterprises with foreign participation rose by 135%.

The share of foreign capital companies in total exports from Brazil increased from 46.8% in 1995 to 54.9% in 2005 (Table 1). This relative growth was due primarily to the expansion of intra-firm exports. The share of imports in the same period increased from 38.8% to 61.8%. Therefore, while in 1995 and 2000 the share of exports was higher than that of imports, by 2005 it was reversed. In the FCC-majority, from an equivalent share in 1995 (approximately 31%), it also presented differentiation between the share of imports and exports in 2000 and 2005, the first reaching 51.0% of total imports of the country in the last year. This is because, although exports of FCCs have grown more than imports, the latter increased substantially more than the Brazilian total imports relative to the increase in exports. This burgeoning performance, it shall be stressed, was heavily concentrated in the 1995-2000 period, when the share of imports of TNCs relative to total domestic imports grew more than the one of exports. Thus, transnational intra-firm trade had a relatively unfavorable impact on trade balance.[7]

In the 1995-2005 period, there was an equally large increment in the share of intra-firm trade in all indicators (Table 1). This process mainly occurred in the first five years. Hence, for the FCC-total, while in 1995 the intra-firm exports represented 19.5% of Brazilian exports and imports, 17.1%; in 2005, these indicators reached a third of Brazil's foreign trade (33.6% for exports and 34.4% for imports). Specifically for the FCC-majority, the indicators doubled in magnitude: their intra-

[6] Foreign Capital Companies (FCC-total) are all institutions with foreign ownership of over 10% of the voting shares or 20% of total capital. The FCC-majority are institutions based in the country that are controlled by non-residents, that is, those whose voting shareholding is comprised in more 50% by non-residents (BCB, 2010).

[7] Although the share of imports of FCC sin the total Brazilian imports was greater than that in the exports in 2005, the value of exports of FCC was US$ 65 billion, while the value of imports was US $ 45 billion. This resulted in a positive balance of US$ 20 billion.

-firm exports rose from 9.5% of Brazilian exports in 1995 to 20.7% in 2005, while imports rose from 12.9% in 1995 to 24.6% in 2005.

In short, the economic liberalization and productive restructuring promoted in Brazilian economy during the 1990s contributed to raising denationalization levels of domestic industry, which allowed TNCs to broaden their participation in Brazilian foreign trade, especially through intra-firm trade.

TNCS INTRA-FIRM TRADE IN THE BRAZILIAN MANUFACTURING INDUSTRY

The ability of TNCs to build competitive advantage has derived, to a great extent, from the benefits of their multiple locations. From this perspective, country--specific factors remain fundamental to the definition of the strategies (market, resource, efficiency or asset seeking) of such companies (Dunning, 1994, 1997). However, it is the firm-specific corporate strategies that define, ultimately, the emphasis on the type of search deemed most appropriate, taking into account the conditions of both origin and destination of FDI.

At the same time, the way the share of medium-high and high technological intensity products in Brazilian foreign trade has arisen is related to the increasing denationalization of the economy, which took place from the second half of the 1990s on, especially in imports.

With the materialization of this greater FDI inflow, an important expectation, also related to trade liberalization and productive restructuring, has not been confirmed: TNCs have not migrated from a market and natural resources seeking strategy toward one of seeking greater efficiency and technological assets.[8]

Intra-firm trade relations of FCC (Table 2) have shown, both for exports and for imports, a significant increase from 1995 to 2000 in most of the economic activities of Brazilian manufacturing industry, which is consistent with the increased participation of these companies in the country's foreign trade. During this period, among the 23 sectors, 18 evidenced an increase in their share of exports (for two there was no change), while 20 sectors expanded their share of imports.[9] Thus, it confirms the expectation of greater insertion of Brazilian economy in international commerce, although conditioned to its dependency on corporate strategies of TNCs, particularly of production and trade.

---

[8] According to ECLAC (2004), in 2003, the 50 largest non-financial foreign controlled groups operating in Brazil were concentrated in telecommunications, automotive, electricity, food and beverage, oil and gas and retail activities. These were characterized, according to the source, predominantly by the strategies of market and natural resources seeking. It is noteworthy that, as ECLAC (2004) shows, 400 of the world's 500 top TNCs have subsidiaries in Brazil.

[9] During this period, currency appreciation forced the result in this direction, in the case of imports.

Table 2: ntra-firm foreign trade of FCC-total in the economic activities of manufacturing industry (CNAE 1.0), by technological intensity – Brazil – 1995, 2000 e 2005 (%)

Manufacturing industry	Intra-firm expot/total			Intra-firm expot/total		
Economic Activity	1995	2000	2005	1995	2000	2005
Low and medium-low technological intensity						
Food and beverage	28,1	**82,5**	**68,8**	**28,1**	**48,5**	**50,8**
Tobacco products	**65,2**	**81,6**	34,7	**35,1**	**40,2**	17,1
Textiles	17,0	37,4	17,8	17,5	23,3	27,4
Clothing and accessories	**52,1**	**69,2**	**60,9**	10,6	14,3	4,2
Leather products and footwear	8,8	25,5	13,7	7,6	26,3	4,0
Wood products	**38,5**	45,1	**60,3**	**20,9**	15,7	14,1
Pulp, paper and prod. of paper	**65,1**	**76,4**	**83,0**	**35,8**	**46,4**	32,2
Publish.Print. and reprod. of rec. media	27,1	46,7	36,3	15,3	19,2	46,4
Coke, oil and other fuels.	0,0	0,0	**99,5**	0,0	**100,0**	**97,0**
Rubber and Plastic products	**55,2**	**74,3**	43,4	**53,1**	**49,8**	33,6
Non-metallic minerals	24,7	29,8	24,7	**22,1**	32,7	33,9
Basic metals	34,6	**71,9**	41,1	17,1	**38,5**	5,8
Metal products	**67,2**	**47,7**	**47,9**	**21,4**	**46,0**	**58,5**
Furniture and manufacture n.e.c.	**39,7**	25,7	**53,3**	**26,4**	**61,9**	**57,3**
Recycling	0,0	0,0	28,8	0,0	3,5	63,9
Average	*34,9*	*47,6*	*47,6*	*20,7*	*37,7*	*36,4*
High and medium-high technological intensity						
Chemical products	38,0	**62,9**	**64,4**	**51,9**	**66,5**	**64,6**
Machinery and equipments	**47,5**	**63,6**	**67,4**	**54,0**	**72,5**	**56,7**
Office machinery and computers	**88,5**	58,3	1,5	**75,5**	49,9	52,1
Electrical mach. and apparatus n.e.c.	31,0	**67,4**	**60,8**	43,3	**72,8**	**55,8**
Electronic mach. and communication	**50,1**	**81,1**	47,7	35,0	57,0	41,5
Medical, optic and prec. equip. watches	26,7	**69,4**	**57,8**	42,3	**59,4**	**59,7**
Motor vehicles, trailers and semi-trailers	**57,7**	**73,8**	**77,8**	46,0	**61,8**	**70,5**
Other transport equipments	5,8	9,2	23,9	30,9	24,4	31,7
Average	*43,2*	*60,7*	*50,1*	*47,4*	*58,0*	*54,1*

Source: Authors' elaboration from original data from the Central Bank of Brazil (2010, 2011a, 2011b).
Note: The activities whose percentages superior to the average are highlighted in bold letters.

Albeit maintaining high levels of participation if compared to 1995, intra-firm trade in FCCs suffered a reduction in the share of both exports and imports in 13 sectors between 2000 and 2005. Notwithstanding, in other ten sectors analyzed, growth in both flows was evidenced. Thus, on average, the level of the intra-firm trade of manufacturing industry, regarding both exports and imports, grew substantially over the entire period (1995-2005), reaching a fairly high level, slightly

higher for exports. Among these sectors, five[10] have more than two-thirds of its exports comprised by intra-firm trade and other two[11] have an even higher share of their imports traded within company.

Regarding FCC-majority (Table 3), a substantial growth in average ratio of intra-firm to total exports of these companies between 1995 and 2000 can also be observed. The increase occurred in 17 sectors, and only five presented decrease. In the imports amount, 18 sectors exhibited growth, and there was a reduction in five sectors. From 2000 to 2005, the ratio of intra-firm exports to total exports raised in seven sectors, and dropped in 16 sectors. The ratio of imports showed growth in eight cases, and reduction in 14 cases.

Table 3: Intra-firm foreign trade of FCC-majority in the economic activities of manufacturing industry (CNAE 1.0), by technological intensity – Brazil – 1995, 2000 e 2005 (%)

Manufacturing industry Economic activity	Intra-firm exports/ total			Intra-firm imports/ total		
	1995	2000	2005	1995	2000	2005
Low and medium-low technological intensity						
Food and beverage	30,3	**88,1**	**70,0**	**36,5**	**57,2**	**53,8**
Tobacco products	**65,2**	**87,0**	31,7	**35,1**	40,3	17,8
Textiles	14,7	45,2	17,2	22,4	35,6	29,6
Clothing and accessories	**52,7**	**69,1**	**64,8**	10,8	13,6	4,5
Leather products and footwear	18,4	41,6	17,1	22,6	**48,1**	6,5
Wood products	**57,8**	**48,7**	**70,1**	23,1	18,0	15,5
Pulp, paper and prod. of paper	16,3	29,5	**72,1**	**60,8**	**50,0**	**41,8**
Publish. Print. and reprod. of rec. media	31,2	**59,3**	45,7	25,4	26,1	**71,5**
Coke, oil e other fuels.	0,0	0,0	**100,0**	0,0	**100,0**	100,0
Rubber and Plastic products	**56,3**	**76,8**	48,4	**58,9**	**56,1**	36,0
Non-metallic minerals	23,2	30,3	30,2	23,3	34,3	38,9
Basic metals	**45,4**	**47,1**	46,6	22,7	**44,3**	9,6
Metal products	64,5	48,4	52,2	27,9	54,5	61,3
Furniture and manufacture n.e.c.	39,6	33,6	74,5	36,7	64,5	73,9
Recycling	**100,0**	0,0	20,0	0,0	3,5	**64,2**
Average	***41,0***	***47,0***	***50,7***	***27,1***	***43,1***	***41,7***
High and medium-high technological intensity						
Chemical products	40,8	**69,1**	**67,2**	55,4	**69,6**	**67,0**
Machinery and equipments	**51,5**	59,2	**70,5**	**58,4**	**74,6**	57,1
Office machinery and computers	**88,0**	58,3	1,7	**80,1**	51,6	55,0
Electrical mach. and apparatus n.e.c.	30,7	**68,5**	**59,6**	46,8	**75,1**	**57,4**

[10] Food and drinks; pulp and paper; coke, oil and other fuels; machines and equipment; besides motor vehicles, trailers and semi-trailers.

[11] Coke, oil and other fuels; and motor vehicles, trailers and semi-trailers.

Electronic mach. and communication	**54,0**	**81,3**	48,2	45,1	59,4	37,2
Medical, optic and prec. equip. watches	27,5	**69,7**	**58,9**	46,5	60,2	**58,9**
Motor vehicles, trailers and semi-trailers	56,8	76,8	76,6	46,2	62,5	**73,1**
Other transport equipments	23,2	48,8	30,3	**94,5**	**85,6**	37,8
Average	***46,5***	***66,5***	***51,6***	***59,1***	***67,3***	***55,4***

Source: Authors' elaboration from original data from the Central Bank of Brazil (2010, 2011a, 2011b).
Note: The activities whose percentage is superior to the average are highlighted in bold letters.

Nevertheless, the average level achieved in 2005 is substantially higher than that of 1995 (and even higher for exports), despite being lower in seven sectors for exports and 11 sectors for imports. In 2005, for eight sectors, more than two-thirds of exports were intra-firm, while in five sectors the same share was reached in terms of total imports. Four of these[12] presented such a high percentage for both exports and imports.

For the manufacturing industry as a whole, it is observed that the share of intra-firm trade is, on average, slightly higher in companies with a majority foreign shareholding of capital (FCC-majority) than it is for all foreign capital companies (FCC-total), when comparing Tables 2 and 3. With regard to the total intra-firm trade of FCCs in Brazilian economy (Table 1), this difference is substantially greater in the manufacturing industry than in other activities. This is indicative that, in the case of manufacturing industry, intra-firm trade may perform a positive relationship, via expansion of marketing channels, as a positive relation increases.

This piece of evidence demonstrates the importance of organizational hierarchies (the "corporate governance" structure, a key aspect of GVCs) as a determinant of the strategies adopted by TNCs' subsidiaries in manufacturing sector of Brazilian economy. Hence, as much as macroeconomic policies have conditioned the attraction of FDI, they have not determined the micro-organizational (corporate) behavior of transnational companies, since the latter operate in various competitive environments, and, thus, are able to combine different strategies seeking distinct locational advantages.

Regardless of technological intensity, in most cases the economic activities of FCCs present high levels of intra-firm trade. In spite of that, it is observed that the more technology-intensive the economic activities are,[13] in general, the higher their

[12] Coke, oil and other fuels (about 100% in 2005); Furniture and manufactures n.e.c.; Chemicals products; Motor vehicles, trailers and semi-traiers.

[13] Considering the differences, although of little significance, between the classification adopted by the Foreign Trade Secretariat of the Ministry of Development, Industry and Foreign Trade (Secex/MDIC) and the one adopted by BCB concerning the dissemination of statistics on economic manufacturing activities that limit a more detailed analysis, we adopt an aggregate, from Table 2, the high and medium-high technological intensity activities on the one hand, and low and medium-low activities technological intensity on the other. Despite the limitations resulting from this aggregation, this is perceived as

levels of intra-firm trade (exports and imports), for both the FCC-total and the FCC- majority.

Considering the entire manufacturing industry, intra-firm share of its total exports is greater than their total imports.[14] The same occurs for most of lower technological intensity activities. However, in general, the opposite occurs for high technology sectors, in which the ratio of intra-firm imports over total imports is greater. Propensities to export and import[15] of Brazilian manufacturing industry rose substantially between 1995 and 2005, especially in more technology-intensive activities (Tables 4 and 5).

Table 4: Propensity to export and to import of FCC-total in the economic activities of manufacturing industry (CNAE 1.0), by technological intensity – Brazil – 1995, 2000 e 2005 (%)

Manufacturing industry	Propensity to export			Propensity to import		
Economic activity	1995	2000	2005	1995	2000	2005
Low and medium-low technological intensity						
Food and beverage	13,1	**28,8**	20,4	7,3	6,8	4,8
Tobacco products	39,5	**39,8**	**75,1**	5,4	3,2	3,1
Textiles	18,3	13,8	22,8	**14,8**	17,9	14,0
Clothing and accessories	6,4	2,0	3,9	**18,5**	6,4	5,8
Leather products and footwear	61,0	**58,3**	**54,8**	8,5	10,1	6,6
Wood products	**46,9**	**30,3**	**28,4**	5,1	**15,6**	9,7
Pulp, paper and prod. of paper	**36,8**	**37,6**	**44,2**	6,6	11,5	9,3
Publish. Print. and reprod. of rec. media	0,4	0,8	3,0	6,1	9,7	11,6
Coke, oil and other fuels.	11,1	**28,1**	4,5	**25,3**	**28,4**	80,5
Rubber and Plastic products	17,6	14,9	9,4	**15,0**	**18,1**	13,7
Non-metallic minerals	12,0	12,4	17,0	5,5	7,6	7,8
Basic metals	**31,9**	**38,2**	**26,7**	**10,7**	10,9	11,2
Metal products	13,4	15,1	9,5	**14,8**	**14,8**	9,2
Furniture and manufacture n.e.c.	7,4	12,5	33,5	11,3	16,5	18,0
Recycling	0,0	0,2	0,8	2,3	1,4	1,0
Average	21,0	22,2	23,6	10,5	11,9	13,8
High and medium-high technological intensity						
Chemical products	8,2	8,1	9,8	**18,2**	23,8	28,0
Machinery and equipments	17,5	22,5	36,3	12,6	18,3	22,3
Office machinery and computers	7,3	6,6	15,9	10,3	**53,8**	**58,5**
Electrical mach. and apparatus n.e.c.	**11,4**	18,5	15,7	11,4	23,8	26,9

inflicting having no harm on the characterization of the pattern of foreign trade presented by FCC in Brazilian manufacturing industry, this article's main object of analysis.

[14] Lower in FCC-majority in 1995.

[15] Value of exports and imports relative to net operating income (NOI).

Electronic mach. and communication	4,1	9,6	22,6	**28,7**	**32,0**	**43,0**
Medical, optic and prec. equip. watches	6,1	12,6	19,5	**26,3**	**31,4**	21,8
Motor vehicles, trailers and semi-trailers	9,8	**21,5**	**26,6**	11,3	21,2	15,5
Other transport equipments	20,9	**70,9**	61,6	**25,4**	**42,4**	46,2
Average	***10,7***	***21,3***	***26,00***	***18,0***	***30,8***	***32,7***

Source: Authors' elaboration from original data from the Central Bank of Brazil 2010, 2011a, 2011b). Note: 1) Value of exports and imports converted into BRL at the annual average sales exchange rate R$ / US$. Propensity to export = export value / net operating income (NOI). Propensity to import = value of imports / NOI. 2) The activities whose percentage is superior to the average are highlighted in bold letters.

Propensities to export of FCC-total in 1995, 2000 and 2005 were higher than their propensities to import, what also occurred to a greater extent in less technology-intensive activities. However, in activities of higher technological content, usually, the opposite took place, with companies showing higher propensities to import. In the case of FCC-majority, propensities to export became superior in 2005. In less technology-intensive activities, in general and in the entire period, the propensity to export was higher. Regarding activities with higher technological content, in contrast, the propensities to import were higher.

Table 5: Propensity to export and to import of FCC-majority in the economic activities of manufacturing industry (CNAE 1.0), by technological intensity – Brazil – 1995, 2000 e 2005 (%)

Manufacturing industry Economic activity	Propensity to export			Propensity to import		
	1995	2000	2005	1995	2000	2005
Low and medium-low technological intensity						
Food and beverage	9,7	29,4	25,2	7,1	6,7	4,7
Tobacco products	39,5	38,5	**74,5**	5,4	3,4	4,0
Textiles	18,5	7,1	20,3	**14,0**	**22,5**	14,2
Clothing and accessories	6,3	2,1	4,6	**19,6**	6,6	5,2
Leather products and footwear	**63,1**	**57,4**	**91,7**	6,2	7,6	8,7
Wood products	**36,5**	**34,3**	**38,2**	5,4	**23,6**	**17,0**
Pulp, paper and prod. of paper	12,6	13,2	**31,4**	**10,0**	**16,6**	10,5
Publish. Print. and reprod. of rec. media	0,3	0,8	3,0	3,9	7,7	9,8
Coke, oil and other fuels.	n.d.	**28,1**	4,5	n.d.	**28,4**	**77,7**
Rubber and Plastic products	19,0	18,0	9,9	**14,9**	20,1	14,8
Non-metallic minerals	11,7	9,8	14,8	6,2	9,0	7,4
Basic metals	27,8	33,2	**29,8**	**10,9**	11,5	10,7
Metal products	12,3	17,0	10,2	**13,2**	**16,0**	9,8
Furniture and manufacture n.e.c.	8,8	10,4	21,6	**9,9**	**17,0**	**17,5**
Recycling	0,0	0,2	0,7	2,3	1,4	1,0
Average	***19,0***	***20,0***	***25,3***	***9,2***	***13,2***	***14,2***
High and medium-high technological intensity						
Chemical products	7,7	8,0	9,7	**20,5**	25,3	28,3

Machinery and equipments	**21,9**	**20,9**	**35,7**	16,2	19,0	22,5
Office machinery and computers	7,3	6,9	14,8	9,9	**54,0**	**58,4**
Electrical mach. and apparatus n.e.c.	**12,1**	**19,3**	15,6	11,9	24,4	26,3
Electronic mach. and communication	7,8	10,0	25,2	**28,3**	**32,0**	**42,8**
Medical, optic and prec. equip. watches	6,9	13,0	19,8	**26,3**	**32,2**	21,7
Motor vehicles, trailers and semi-trailers	9,6	**21,1**	**26,0**	11,3	21,3	15,2
Other transport equipments	6,4	**17,8**	**58,2**	**18,7**	28,4	**43,3**
Average	*9,9*	*14,6*	*25,6*	*17,9*	*29,6*	*32,3*

Source: Authors' elaboration from original data from the Central Bank of Brazil (2010, 2011a, 2011b). Note: 1) Value of exports and imports converted into BRL at the annual average sales exchange rate R$ / US$. Propensity to export = export value / net operating income (NOI). Propensity to import = value of imports / NOI. 2) N.A. = not available. 3) The activities whose percentage is superior to the average are highlighted in bold letters.

Even though high and medium-high technological intensity activities present, in general, higher propensity to import than export (Table 4), a different performance is featured in the production of machinery and equipment (in 1995, 2000 and 2005), in the assembly of motor vehicles, trailers and semi-trailers (in 2000 and 2005) and in the production of other transport equipment (in 2000 and 2005). It is worth noting that the production of machinery and equipment activity presented a propensity to export and import as well as a level of intra-firm imports and exports above manufacturing industry average, consistent with highly integrated structures. In turn, the assembly of motor vehicles, trailers and semi-trailers industry exhibited a rising propensity to export between 1995 and 2005, which can be explained, to a great extent, by the regional focus of domestic production, an explanation which is also valid to the case of the production of other transport equipment.

Therefore, regardless of the level of foreign control (majority or not) of the productive capital, FCCs in Brazilian manufacturing industry have been characterized by a behavior that contributes to surpluses in the commerce of low and medium-low technology intensity products and to deficits in the one of products with high and medium-high intensity. It can be said that, as a rule, the technological content of foreign trade of TNCs exhibited, relative to Brazilian manufacturing industry in the period 1995-2005, an inverse relation with the propensity to export and a direct one with the propensity to import, especially if considered the activities that mostly receive FDI. This reflects directly the behavior of intra-firm trade of TNCs, which performed better in the export of products with lower technological content, whereas importing products of higher technology.

This characterization of intra-firm trade, yet in general terms, shows that, by providing greater integration of TNCs subsidiaries to their "corporate networks", the opening of Brazilian economy, contrary to what was expected, has generated asymmetric results from the greater insertion of the country's manufacturing industry in international trade. Imports of higher-technology products by TNCs subsidiaries in Brazil grew more than exports. Therefore, TNCs contributed to the

deepening of a historical predominant pattern of less technology-intensive products in the exporting basket.

The pattern of foreign trade of FCC in Brazilian manufacturing industry, as exposed in the data of BCB Capital Census (2010, 2011a, 2011b), supports the perception that the form of international integration of those companies from national economy is function of their specific corporate strategies. As such, corporate governance structures have been presented as an important form of productive organization, especially for traditional activities, those which have received most FDI over the past decades.

The growth in the participation of TNCs in world commerce, with emphasis on intra-firm trade, reflects the greater control of these corporations of the markets in which they operate, as they have the ability to produce and sell in "global networks". This does not invalidate the importance of cooperation between companies, as TNCs have a sufficiently dynamic structure to adopt different strategies for the control of their assets (specific and complementary), including technology. An evidence of this is that many TNCs have expanded their activities, including innovative ones, in developing countries (UNCTAD, 2005).

The relation between origin of FDI and of imports of TNCs subsidiaries in Brazilian economy (Hiratuka and De Negri, 2004) is an indicator of the importance of intra-firm trade in the productive strategy of these companies. In turn, the rise in the share of FCCs located in Brazil intra-firm exports in total exports in the country (41.8% in 1995 to 61.1% in 2005, according to Table 1), as well as in their imports (44.0 % in 1995 to 55.7% in 2005), is an indicator of the increasing importance of the organizational hierarchy. This, by giving priority to intra-firm trade, tends to reduce the "spillover effects" for other companies located in the host country. This fact was noted by Laplane and Sarti (1999) and is mainly due to the global sourcing strategy characteristic of GVCs.

For these authors (1999, p. 42), the restructuring process that Brazilian productive structured passed through in the 1990s, despite having contributed to greater efficiency of industrial enterprises in Brazil, through enhancing competitiveness, has harmed, "[...] paradoxically, the potential dissemination of efficiency gains beyond the limits of the business premises". The large volume of intra-firm trade is one of the main evidences of this process, which was confirmed in the data for the years of 2000 and 2005.

Hence, on the one hand the elevated share of high and medium-high technology intensive products in the imports of TNCs subsidiaries in Brazil reflects their easy access to international trade, which is possible through their merchandising "channels"); on the other hand, this is also an evidence of the country's lack of technological development to meet international supply needs of these companies. This is one of the consequences of the deepening of denationalization occurred in the second half of the 1990s.

The preference for a hierarchically organized commercialization reflects TNCs capacity to act simultaneously on distinct environments. This is an important reason that makes the actions of TNCs in the Brazilian economy seeming to be pre-

dominantly linked to market (internal and regional) and natural resources seeking strategies, while other strategies are able to be channeled to other markets. This characterizes the situation in which the same corporation develops different mechanisms of interaction due to the diversity of environments in which it operates.

The operation of TNCs subsidiaries in manufacturing industry in Brazil demonstrates their ability to develop differentiated strategies within the same corporation. It is a choice among manifold forms of integration to the economies of host countries. In other words, TNCs have directly contributed to the organization of the markets in which they operate, depending on their productive, commercial and technological demands. Thus, in this case, there is not a dichotomy between company and market, as it was conceived by Chesnais (1994).

In the case of intra-firm trade of TNCs in Brazilian manufacturing industry, it is evident that the company is not some market antithesis, that is, there is no choice to be made between firm and market (Williamson, 1989). They are instead different institutions whose interaction affects their forms of organization. The option for greater control of business activities by TNCs in the case of Brazilian economy is an evidence of that process. To the extent that they possess elevate levels of organizational hierarchy, TNCs produce asymmetries in markets in which they are established (Chesnais, 1996), which grant them a greater capacity of income appropriation, driven by intra-firm trade.[16] Each market requires a unique form of insertion, while corporate strategies and governance consider the whole global economic plan – and, thus, conceive their actions in several different markets.

In the case of Brazilian economy, the main institutional change (the process of commercial liberalization), promoted since the beginning of the 1990s, has stimulated the endurance of strategies already established by major TNCs in the manufacturing industry, particularly with regards to their business plan.

In this sense, adapting to the conditions of the techno-economic paradigm of "flexible networks" (Perez, 2001) does not imply necessarily a decentralization of activities by TNCs in host countries. Accordingly, the organizational hierarchy, internationally structured, has been presented as a fundamental alternative, from which transnational companies can define the best strategy to be adopted in this multiple markets.

In summary, high levels of trade intra-firm of TNCs subsidiaries in Brazilian manufacturing industry are evidence that these firms have ample capacity to adapt, considering the idiosyncrasies of the markets in which they operate. In Brazil, the elevated degree of corporate control, associated with asymmetries of technological content in the foreign trade of such companies, is an indicator of this process as there was not necessary, in general, an insertion of their products in technologically

[16] An example, as Dunning (1997) suggests, consists in the fact that M&A characterize "capitalist alliances." As such, FDI acts as an alternative to pure vertical integration, albeit with similar effects, increasing corporate control over specific and complementary assets and expanding investment return expectations.

dynamic international markets, in consonance with recent studies that analyze Brazilian economy and its relationship with GVCs (Sturgeon et al., 2013; Araujo Jr., 2013; Arend, 2014; Reis and Almeida, 2014; Hiratuka and Sarti, 2015) .

Furthermore, these studies show, among other things, that the deepening of the internationalization of Brazilian manufacturing productive structure is associated to a low degree of integration into GVCs, which is reflected in the low foreign content of Brazilian exports (the share of intermediate goods imported in the gross value of exports, or "backward linkage") when compared to developing countries.[17] It is also important to note that the participation of Brazilian industrial production remained low and stable, comparing the years 1995 and 2009, according to the OECD-WTO-UNCTAD (2013) "backward linkage" indicator. This data supports the analysis of intra-firm trade of FCCs in Brazilian economy between 1995 and 2005 and reveals that there can't be evidenced gain of foreign trade dynamism deriving from that greater internationalization of the national industry production structure.

FINAL REMARKS

The expansion in the share of intra-firm commerce in Brazilian foreign trade – as a result of increased denationalization, open economy policy and productive restructuring – reveals the dependence of Brazilian industrial production on TNCs management for an international insertion. Hence, the pattern of Brazilian integration into GVCs relies on corporate strategies of TNCs, taking into account the difficulties of the market and the absence of selective industrial policies from the government.

In this context, the growth of intra-firm trade flows stands as an indicator of the importance of micro-macroeconomic relations. If, on the one hand, liberalization policies have enabled the intensification of international trade, on the other, TNCs have made fundamental contributions to the asymmetries of current trade patterns. In Brazil, such contributions have been important to reinforce the operation pattern of such companies in relation to their market and natural resource seeking strategies, which would reveal a mismatch between macro-institutional perspectives and micro-organizational actions.

The policies adopted during the 1990s to promote structural and institutional changes to Brazilian economy were largely associated to the perspective of attracting FDI and generating a dynamic integration of national production into inter-

[17] As Araujo Jr. (2013) demonstrates, in 2009, the foreign content of Brazilian exports was only at the level of 9%, which means that 91% of the value added to Brazilian exports corresponded to goods and services produced nationally. That same year, the same indicator was 29% for China and 40% for South Korea, evidencing that these economies have export strategies more integrated into GVCs. Among BRIICS (Reis and Almeida (2014) have added Indonesia to the acronym), Brazil had the worst performance in 2009.

national trade. In this sense, one shall highlight the importance of the dependency on international productive capital as a lock-infor the construction of the economic development path adopted in that context in Brazil. It is also noteworthy that the way productive "modernization" was sought in Brazil, focused on attracting FDI, may have enhanced, rather than diminished, the "embedment"of dependence on foreign capital, without producing a dynamic insertion of national manufactures in world commerce.

To consider that globalization is "driven by macroeconomic decisions" of TNCs (Lacerda, 2004) implies admitting that these companies have strengthened their economic power in face of nation States, particularly with regard to late comer economies with increasing degree of commercial openness, such as Brazil. Nevertheless, this does not imply assuming that major attraction of FDI brings necessarily greater export dynamism.

In comparison to other developing economies, the integration of Brazilian economy into GVCs has been sluggish, especially concerning to the import content of exports ("backward linkage"), which reveals the limits of international presence that is extensive, but centered on micro-organizational strategies of TNCs operating in Brazil.

It is understood, therefore, that, given the significant participation of transnational companies in Brazilian foreign trade, a major contribution of these companies to the insertion of national manufacturing industry into more dynamic markets necessarily relies on the way that intra-firm relations are administered. This confirms the limits of "passive" industrial policies, which have bet on TNCs as drivers of national economic development. The productive restructuring process, at the pace that allowed for partial modernization of national industry, imposed limits to a dynamic integration of Brazilian industrial production into international trade. It is once again evident in this case that macroeconomic aspects influence, but do not determine the microeconomic actions, neither their results.

REFERENCES

Araujo Jr., J. T. de. (2013). "Fragmentação da produção e competitividade internacional: o caso brasileiro". *Revista Brasileira de Comércio Exterior*. n. 115, p. 42-51, abr./jun.

Arbix, G.; Mendonça, M. (2005). "Inovação e competitividade: uma agenda para o futuro". In Castro, A. C. et al.. (ed.). *Brasil em Desenvolvimento 1: Economia, Tecnologia e Competitividade*". Rio de Janeiro: Civilização Brasileira.

Arend, M. (2014). "A industrialização no Brasil ante a nova divisão internacional do trabalho". In Calixtre, A. B.; A. M. Biancarelli; M.A.M.Cintra (eds.). *Presente e Futuro do Desenvolvimento Brasileiro*. Brasília: IPEA. p. 375-42.

Banco Central do Brasil (BCB) (2010) "Censo de capitais estrangeiros no país: 1995, 2000 e 2005". Available at http://www.bcb.gov.br/?CENSOCE >. Acess November 10, 2010.

Banco Central do Brasil (BCB) (2011a). "Censo de capitais estrangeiros no país – data-base: 2000 – resultado". Available at http://www.bcb.gov.br/Rex/Censo2000/Port/Resultado/resultados.asp?idpai=CENSO2000RES. Acess on January 15, 2011.

Banco Central do Brasil (BCB) (2011b) "Investimento estrangeiro direto: 1996 a 2009. Available at http://www.bcb.gov.br/?INVEDIR>. Acess on January 15, 2011.

Barros, J. R. M.; L. Goldenstein, (1997). "Avaliação do processo de reestruturação industrial brasileiro". *Revista de Economia Política*, 17 (2): 11-31.

Brasil. Ministério do Desenvolvimento, Indústria e Comércio Exterior. Secretaria de Comércio Exterior. "Exportação-importação brasileira dos setores industriais por intensidade tecnológica". Available at <http://www.mdic.gov.br/sitio/interna/interna.php?area=5&menu=1113&refr=608>. Acess on December 20.

Chesnais, F. (1996). *A Mundialização do Capital*. São Paulo: Xamã.

Comissão Econômica para a América Latina e Caribe (CEPAL) (2004). "Investimento estrangeiro na América Latina e no Caribe". Documento Informativo.

Coutinho, L.; C.Hiratuka,; R.Sabatini. (2005) "O desafio da construção de uma inserção externa dinamizadora". In Castro, A. C. et al.. (ed.). *Brasil em Desenvolvimento 1: Economia, Tecnologia e Competitividade*. Rio de Janeiro: Civilização Brasileira.

Coutinho, L.; F. Sarti, F. (2003). "A política industrial e a retomada do desenvolvimento". In Laplane, M.; L. Coutinho; C. Hiratuka (eds.). *Internacionalização e Desenvolvimento da Indústria no Brasil*". São Paulo: Editora da UNESP; Campinas: IE- Unicamp.

De Negri, F. (2005a). "Conteúdo tecnológico do comércio exterior brasileiro: o papel das empresas estrangeiras". *Discussion Paper* IPEA n. 1074.

De Negri, F.. (2005b). "Padrões tecnológicos e de comércio exterior das firmas brasileiras". In De Negri, J. A.; M.S. Salerno (eds.). *Inovações, Padrões Tecnológicos e Desempenho das Firmas Industriais Brasileiras*". Brasília: IPEA.

De Negri, F.; M.F. Laplane (2005). "Impactos das empresas estrangeiras sobre o comércio exterior brasileiro: evidências da década de 1990". *Discussion Paper* IPEA n. 1002.

Dunning, J. H. (1994). "Re-evaluating the benefits of foreign direct investment". *Transnational Corporations*, 3 (1): 23-52.

Franco, G. H. B. (1998). "A inserção externa e o desenvolvimento". *Revista de Economia Política*, 18 (3): 121-147.

Hiratuka, C. (2000). "Estratégias comerciais das filiais brasileiras de empresas transnacionais no contexto da abertura econômica e concorrência global". *Revista de Economia Contemporânea*, 4 (2): 113-141.

Hiratuka, C. (2003). "Padrões de integração comercial das filiais de empresas transnacionais". In Laplane, M.; L. Coutinho; C. Hiratuka (eds.). *Internacionalização e Desenvolvimento da Indústria no Brasil*". São Paulo: UNESP; Campinas: IE- Unicamp.

Hiratuka, C.; F. De Negri (2004). "Influencia del origen del capital sobre los patrones del comercio exterior brasileño". *Revista de la CEPAL*, 82: 121-137.

Hiratuka, C.; F. Sarti, F. (2015). "Transformações na estrutura produtiva global, desindustrialização e desenvolvimento industrial no Brasil: uma contribuição para o debate". IE: Unicamp, Campinas-SP. *Discussion Paper* 255.

Lacerda, A. C. (2004). *Globalização e Investimento Estrangeiro no Brasil*. 2. ed. São Paulo: Saraiva.

Laplane, M. F.; Sarti, F. (1999). "Investimento direto estrangeiro e o impacto na balança comercial nos anos 90". *Discussion Paper* IPEA n. 629.

Laplane, M. F. et al..(2000). "Internacionalização e vulnerabilidade externa". In: Lacerda, A. C. de (ed.). *Desnacionalização: Mitos, Riscos e Desafios*. São Paulo: Contexto.

Laplane, M. F.; J.E.P. Gonçalves; R.D. Araújo (2006). "Efeitos de transbordamento de empresas transnacionais na indústria brasileira (1997-2000)". In Laplane, M. (ed). *El Desarrollo Industrial del Mercosur: Qué Impacto han Tenido las Empresas Extranjeras?* Buenos Aires: Siglo XXI; Editora Iberoamericana.

OECD- Organization for Economic Co-operation and Development (2010). "Science, technology and industry scoreboard". 2009. Available at <www.oecd.org/sti/scoreboard.>. Acess March 12 2010.

OECD-WTO-UNCTAD (2013). Organization for Economic Co-operation and Development (OECD); World Trade Organization (WTO); United Nations Conference on Trade and Development

(UNCTAD). "Implications of global value chains for trade, investment , development and jobs". Saint Petersburg (Russian Federation), september. Available at <http://www.oecd.org/trade/G20-Global-Value-Chains-2013.pdf>. Acess on April 2015.

Perez, C. (2001). "Cambio tecnológico y oportunidades de desarrollo como blanco móvil". *Revista de la CEPAL*, 75: 115-136.

Reis, C. F. de B.; Almeida, J. S. G. (2014). "A inserção do Brasil nas cadeias globais de valor comparativamente aos BRICS". IE: Unicamp, Campinas-SP. *Discussion Paper* 233.

Sarti, F.; Laplane, M. (2002). "O investimento direto estrangeiro e a internacionalização da economia brasileira nos anos 1990". *Economia e Sociedade*, 11(1): 63-94.

Sarti, F.; Sabbatini, R. (2003). "Conteúdo tecnológico do comércio exterior brasileiro". In: Viotti, E. B.; Macedo, M. de M. (Org.). *Indicadores de ciência, tecnologia e inovação no Brasil*. Campinas: Editora da Unicamp.

Sturgeon, T.; Gereffi, G.; Guinn, A.; Zylberberg, E. (2013), "O Brasil nas cadeias globais de valor: implicações para a política industrial e de comércio". *Revista Brasileira de Comércio Exterior*, 115: 26-41.

United Nations Conference on Trade and Development (UNCTAD) (2005). "Transnational corporations and the internationalization of R&D". *World Investment Report* (WIR).

Williamson, O. E. (1989). *Las Instituciones Económicas del Capitalismo*. México: FCE.