

comercio internacional

What can we say about trade and growth when trade becomes a complex system?

Vivianne Ventura-Dias



NACIONES UNIDAS



International Trade and Integration Division

Santiago, Chile, July 2003

This document was prepared by Vivianne Ventura-Dias, Chief of the International Trade and Integration Division.

The views expressed in this document, which has been reproduced without formal editing, are those of the author and do not necessarily reflect the views of the Organization.

United Nations Publications

ISSN printed version: 1680-869X

ISSN online version: 1680-872X

ISBN: 92-1-121402-5

LC/L.1898-P

Sales No.: E.03.II.G.57

Copyright © United Nations, July 2003. All rights reserved

Printed in United Nations, Santiago, Chile

Applications to the right to reproduce this work are welcomed and should be sent to the Secretary of the Publications Board, United Nations Headquarters, New York, N.Y. 10017 U.S.A. Member States and their governmental institutions may reproduce this work without prior authorization, but are requested to mention the source and inform the United Nations of such reproduction.

Contents

Abstract	5
I. Introduction	7
II. Non-market determinants of production disintegration and trade integration	11
Changes in the nature of international trade	11
The international division of labour in trade with production segmentation.....	16
Market-access in industrial countries.....	21
III. The implications for trade and growth	23
IV. Final considerations	27
Bibliography	29
Serie Comercio internacional: issues published	33

Tables

Table 1	Product composition of the exports of selected countries according to technological intensity	9
Table 2	Components of the final price of a Barbie doll	19
Table 3	U.S. imports under the production-sharing provisions of the HTS9802 ^a by leading countries (1985,1990,1997, and 2000)	20
Table 4	Ten Latin American countries: U.S. content in total imports under HTS, chapter 98 (1980-2000).....	21

Abstract

Outsourcing in different modalities is a dominant element of domestic economies and of the world economy. Although the literature is new international production is not a new phenomenon. Yet, the scale of international operations was extended and the pace was accelerated with the movement of trade liberalisation, privatisation and market deregulation of the past decades, together with great progress in technologies of transportation, information and communication that drastically reduced the costs of coordinating international transactions. Internationally dispersed activities have been integrated into production systems through different co-ordination mechanisms some of them internal to large multinational enterprises. The vertical disintegration of the production process, broadly defined to include *ex-ante* and *ex-post* assembly operations such as research and development, product design, marketing, distribution, and after-sales services, is a trend of the world economy of vast complexity.

Attempts of the conventional theory of trade to deal with the complexities of international production and trade through increasing returns and imperfect competition have been frustrating because the models overlook important non-market mechanisms. It is suggested that the new conditions of global production sharing introduce significant changes in the basic assumptions of international trade models. Therefore, the normative results that are derived from those models may not hold. In particular, the relations between trade and growth can become indeterminate when exports are characterised as import-intensive in the presence of high mobile assembling operations.

I. Introduction

Latin American trade specialisation vindicates the simple Hecksher-Ohlin-Samuelson (HOS) model of factor proportions. Individual countries' comparative advantages are based on abundant natural resources and unskilled labour. A large number of Latin American countries exchange resource-based and/or labour-intensive processed and unprocessed goods for machinery, parts and components (as embodied technology and capital services). Nevertheless, this is just part of the picture. The product composition of Latin American exports has become highly diversified. Between 1985 and 2000, some traditional exporters of primary products became into successful exporters of manufactures. In addition, there has also been a remarkable transformation in the characteristics of Latin American integration to the world economy. Even though labour and resource-intensive manufactures that fit the structure of factor endowments of those countries explain growth in manufacturing exports, there has also been an unexpected increase in products classified as “high technology” manufactures (see table 1). Mexico alone accounted for almost 3 per cent of world exports of high technology goods in 1998 (Lall, 2000, tables 3 and 4).

Trade data of those countries suggest that a significant technological upgrading occurred in their exports. The same cannot be verified through labour statistics. Between 1990 and 1999, manufacturing exports increased from 43 per cent to 85 per cent of Mexican exports. Moreover, from 1995 to 1998, output and exports in the electronics industry grew at average annual rates of 25 per cent

and 31 per cent, respectively (de Ferranti et al. 2002, p. 109). The occupational structure of employment in Mexico remained unchanged over the whole decade.

Part of the answer to the mismatch of factor endowments and the product mix of individual country trade can be found in the inadequacy of available trade classification to describe with precision the product mix of trade flows in the context of production fragmentation and international production-sharing. The empirical literature on trade has insisted that trade classification systems cannot capture the vast heterogeneity of products that are produced and traded in the real world (Davis and Weinstein, 2001; Schott, 2000, 2002). Standard trade classifications describe data on foreign trade according to substitutability in consumption and similarity of input requirements in production.¹ They are satisfactory classifications to describe goods that are produced in one country with low coefficients of imported inputs.² The accuracy of the same classification system is reduced when it has to measure finely defined processing operations of technology-intensive goods that are transferred to labour-abundant countries. Customs officers in El Salvador are indifferent as to whether the pharmaceutical product that is exported to the United States was just packaged in the country. It will fall under the tariff line of pharmaceutical products.

Outsourcing in different modalities is a dominant element of domestic economies and of the world economy. Grossman and Helpman (2002, p. 1) claimed that "we live in an age of outsourcing". Krugman (1995a, p. 332) asserted that the "ability of producers to *slice up the value chain*, breaking a production process into many geographically separated steps" was one of the new aspects of modern world trade. Although the literature is new international production is not a new phenomenon. Yet, the scale of international operations was extended and the pace was accelerated with the movement of trade liberalisation, privatisation and market deregulation of the past decades, together with great progress in technologies of transportation, information and communication that drastically reduced the costs of coordinating international transactions. Internationally dispersed activities have been integrated into production systems through different co-ordination mechanisms some of them internal to large multinational enterprises. The vertical disintegration of the production process, broadly defined to include *ex-ante* and *ex-post* assembly operations such as research and development, product design, marketing, distribution, and after-sales services, is a trend of the world economy of vast complexity. Very few international economists, however, accept that those radical changes in the nature of world trade made patterns of trade across regions more difficult to explain with the extensions of the traditional HOS model (Helpman, 1998).

Since the pioneering doctoral dissertation of Stephen Hymer, forty years ago, our knowledge of multinational enterprises has increased albeit the linkages between trade and multinational enterprises still lack a solid theoretical treatment. It is a gigantic task that asks for a synthesis of separate and voluminous segments of the economic literature: the modern theories of the firm, institutional economics, industrial organisation and theories of trade and growth. Attempts of the conventional trade theory to deal with the complexities of international production and trade through increasing returns and imperfect competition have been frustrating because the models overlook important non-market mechanisms.³ I suggest that the new conditions of global production sharing introduce significant changes in the basic assumptions of international trade models. Therefore, the normative results that are derived from those models may not hold. In

¹ That is the way the Standard International Trade Classification (SITC) is organised.

² The intractable problem of converting the theoretical concept of *industry* into an empirical category is a familiar problem in empirical studies of international trade. The term *industry*, both in industrial and international trade analysis, implies an agglomeration of firms producing a perfectly homogenous commodity. Empirical data, however, rarely provide sets of homogeneous goods.

³ As Maizels (1984: 26) put it: "Thus, neoclassical theory faces a dilemma - that as a logical system it is unrealistic, while as it moves towards reality it becomes subject to logical limitations and inconsistencies."

particular the relation between trade and growth can become indeterminate when exports are characterised as import-intensive in the presence of high mobile assembling corporations.

Table 1
PRODUCT COMPOSITION OF THE EXPORTS OF SELECTED COUNTRIES ACCORDING TO TECHNOLOGICAL INTENSITY

(Percentage of total exports)

Countries / regions	Primary Products		Resource-based Manufactures		Low technology manufactures		Medium technology manufactures		High technology manufactures		Other type of transactions	
	1985	2000	1985	2000	1985	2000	1985	2000	1985	2000	1985	2000
Industrial countries	12.8	7.9	19.4	16.8	13.7	12.2	36.9	36.7	14.0	22.9	3.2	3.5
United States	16.4	7.0	14.3	12.1	6.4	11.0	34.3	34.5	24.3	32.7	4.2	2.7
Latin America and the Caribbean.	50.0	27.3	23.5	17.0	7.9	14.0	12.1	24.6	4.3	14.0	2.2	3.1
Mercosur	42.6	34.7	23.9	24.1	12.8	11.0	15.8	21.2	2.7	6.6	2.1	2.4
Argentina	56.3	49.8	24.8	21.9	8.9	8.5	6.6	16.2	2.6	2.4	0.8	1.2
Brazil	38.6	27.1	24.6	25.5	13.5	11.6	19.4	24.3	2.9	8.9	1.0	2.5
Paraguay	77.0	57.4	17.6	14.5	4.4	8.7	0.5	0.8	0.2	0.7	0.4	17.9
Uruguay	31.8	36.7	9.7	20.5	22.2	22.0	5.1	13.6	0.6	2.8	30.5	4.4
Chile	41.0	40.3	50.9	48.6	1.3	3.0	3.6	5.7	0.4	0.7	2.9	1.7
Andean Community	59.8	59.5	32.8	24.5	2.8	6.3	2.9	6.4	0.3	0.9	1.4	2.4
Bolivia	71.4	56.0	17.7	24.7	1.9	13.4	0.4	1.1	0.3	1.0	8.3	3.8
Colombia	73.8	59.4	13.7	13.2	4.5	10.4	5.4	10.4	0.6	2.0	2.1	4.5
Ecuador	88.0	76.1	9.3	15.4	0.4	3.4	1.4	2.9	0.4	0.9	0.4	1.3
Peru	44.6	41.8	41.9	35.6	7.1	14.5	3.9	2.4	0.4	0.5	2.0	5.1
Venezuela	50.8	59.9	44.2	30.1	1.8	2.6	2.3	6.2	0.1	0.4	0.9	0.7
Mexico	53.4	11.7	10.3	5.8	5.8	14.7	18.0	38.5	9.9	25.3	2.6	3.9
Central American Common Market	71.6	27.7	10.9	9.2	8.5	39.7	4.4	6.6	3.7	14.5	0.9	2.2
Costa Rica	67.2	29.1	7.9	8.5	14.5	17.1	6.5	8.3	3.2	34.3	0.7	2.8
El Salvador	67.9	13.4	8.4	9.8	9.0	62.7	4.2	5.9	9.8	6.4	0.7	1.8
Guatemala	69.9	36.1	14.4	12.4	6.6	39.9	5.1	7.4	3.2	2.5	0.8	1.7
Honduras	77.7	21.4	14.3	6.4	5.1	65.2	1.7	4.1	0.6	1.3	0.6	1.6
Nicaragua	87.2	46.9	6.9	8.8	1.1	36.7	1.3	2.5	0.4	0.3	3.0	4.7
Panama	32.5	24.9	15.3	14.3	7.7	18.1	34.7	26.7	5.6	12.0	4.2	3.9
Caricom	41.7	37.4	39.3	34.9	5.4	10.2	5.7	11.6	6.0	1.4	1.9	4.6
Dominican Republic	23.7	4.9	24.3	8.6	28.2	62.7	9.9	17.5	1.1	3.5	12.8	2.9
Republic of Korea	4.8	1.7	9.3	12.0	48.7	16.9	21.7	29.2	14.4	38.4	1.1	1.8
China	35.0	4.7	13.6	6.9	39.7	47.6	7.7	17.3	2.6	22.4	1.4	1.1
Taiwan	5.0	1.3	9.1	4.8	48.2	21.8	20.7	25.0	15.9	45.5	1.2	1.5

Source: ECLAC on the basis of the CAN computer program (2002 version).

Production-sharing operations are basically co-ordinated by non-market mechanisms. Public policies, intra-firm and inter-firm collaborative arrangements shape the decisions of firms to allocate their production geographically. The economic literature has given much attention to the protection of domestic markets by exporting countries, with harsh criticism addressed to import substituting policies in Latin American countries (Srinivasan and Bhagwati, 1999). A marginal recognition was given to the role of policies in importing countries to influence developing countries' specialisation. Notwithstanding, industrial countries have used negative and positive incentives that affected the allocation of economic activities and the integration of labour-abundant countries into the world economy. Very little research exists for instance, on the impact of inter-

industrial barriers in industrial countries (such as in agriculture, textile and apparel) on the intra-industrial components of their trade. Similarly, very little research was conducted on the impact of fiscal instruments (for instance, the provisions 806.30 and 807.00 of the United States tariff code) to promote international outsourcing and foreign assembly operations.

In this complex environment of trade, the gains from trade are not easily assessed. Greater efficiency for individual firms may not result in greater efficiency for individual economies. The outcome of moving resources from lower to higher productive activities may not be a sustainable path of development if these activities are temporarily based in the country through *foot-loose* types of investment. Since the basic "vent-for-surplus" model of Adam Smith, the determinants of the pattern of production have constituted the key fact for the understanding of trade patterns. Opportunity costs are derived from the basic production-possibilities schedule in each trading country. However, when labour abundant countries are integrated into world supply chains the causality also goes in the other direction: it is trade and investment decisions that determine the pattern of local production.⁴ In addition, in the context of international production, specialisation is the result of comparative advantage within a narrow set of activities rather than in particular labour-intensive industries (Rayment, 1983; Feenstra, 1998; Knetter and Slaughter, 1999). These two propositions imply that the reduced domestic inter-industrial mobility of labour can become a considerable obstacle for converting trade into a machine of growth. Exporting activities behave as real enclaves without productive linkages to other sectors in the economy. Finally, in the simple trade model, although there is competition between alternative uses of domestic resources, there is no direct competition between resources of different nations due to the assumption of immobility of each nation's productive factors ("trapped within a nation's borders", as in Jones, 1980). In real world, international enterprises have resources and information that enable them to benefit (even though temporarily) from wage differentials.

The ideas expressed in this paper are preliminary and basically exploratory. I still do not have the necessary tools for a rigorous description of the complex system of international specialisation, production and trade. I think that such interpretation has to include the complexity reasoning in which economic agents have neither the information nor the processing capacity that are required by the construction of an optimal strategy (limited cognitive ability). Furthermore, the study of trade and growth in the context of production fragmentation necessarily involves the purposive behaviour of a small number of actors, multinational enterprises and national governments, engaged in strategic bargaining, interdependent decisions and adaptive strategies.⁵ The paper is organised in four sections including this introduction. Section 2 reviews major changes in the structure (nature) of international trade with the objective of stressing the non-market determinants of production fragmentation and trade integration. The section reviews the definitions and measurements proposed by the literature on international production sharing and vertical specialisation; the characteristics of trade specialisation, and the impact of barriers and incentives created by industrial countries to foster intra-industrial trade specialisation and international assembly operations. Section 3 proposes a few questions concerning trade and growth in the context of the current structure of Latin American trade. Section 4 concludes with some final considerations.

⁴ It can be said that the integration of developing countries into the world economy has always been based on external stimuli. It is hard to think of one single industry that existed "in autarky". From plantations to mining, all export industries were established in developing countries with the purpose of producing for foreign markets (see Beckford 1972 for a rigorous study of plantation economies).

⁵ When people's behaviour or people's choices depend on the behaviour or the choices of other people, the properties of the aggregate cannot be inferred by summation or extrapolation (Schelling, 1978: 14). In addition, it is impossible to deduce the consequences of adaptive strategies when there are many interacting agents following rules that have non-linear effects (Axelrod, 1997).

II. Non-market determinants of production disintegration and trade integration

Changes in the nature of international trade

International economists discussed the analytical meaning of significant changes in the structure of world trade over a large part of the 20th century. Since the beginning of the 1920s, as indications that the gaps in comparative advantages among industrial countries were narrowing, trade students shared a common apprehension for the future of international trade. Early in the 1940s statistical analyses of the composition of trade flows, based on the first estimates made available by the League of Nations showed the dynamic role of manufactured exports in trade associated with the importance of trade among industrial countries in manufactures. Those movements were counter-intuitive and puzzled international economists of classical formation.⁶ Hirschman (1945) showed that in the inter-war period, although the exchange of manufactures for manufactures accounted for less than 20 per cent of total trade it constituted nearly half of total trade in manufactures. Maizels (1963) compiled information on

⁶ Alfred Marshall believed that the spread of modern technology and economic growth to all countries should lead to the decrease in the relative importance of trade in manufactures. Also, that the proportion of world trade based on differences in national resources would rise (as quoted in Rayment, 1983: 1).

industrial countries' that confirmed that even before the Second World War these countries traded mostly among themselves. Nevertheless, those trends were positively associated with growth in manufacturing trade and with the expansion of trade.

At the end of last century, three broad and interdependent trends related to the structure of the world trade became extensively documented in the empirical literature: 1. the prominent share of manufactures in trade flows⁷; 2. the intra-industrial characteristic of manufacturing trade⁸, and 3. the outstanding participation of trade among industrial countries in total trade flows.⁹ In many ways, these combined trends made the process of economic integration of the late 20th century distinctively different from the Victorian integration of the 19th century. A small part of these trends can be explained by factor proportions theory.¹⁰ The standard model based on increasing returns and imperfect competition that was formally elaborated by Paul Krugman and Elhanan Helpman explains part of intra-industrial trade in differentiated products (horizontal trade) (Krugman, 1995b). It is true that in his book of 1933, Bertil Ohlin, as Krugman reluctantly conceded, had already included economies of large-scale production and specialisation into his factor-proportion explanation (Krugman, 1999). Moreover, according to Rayment (1983: 4), Ohlin was the first economist to suggest that intra-industry specialisation was an important characteristic of intra-industrial country trade in manufactures.

Seen from a historical perspective, the process of structural changes in the international economy is more evolutionary than revolutionary. Most of the trends that became conspicuous by the 1980s and accelerated in the 1990s were emerging more than sixty years earlier. The volume, composition and direction of trade flows have been changing in consonance with the overall transformation in the technical, institutional and organizational conditions of production and consumption. The expansion of international transactions was an interactive result of the introduction and diffusion of technical, institutional, and organisational innovations that reduced the costs and risks of international integration. Ancient civilisations developed sophisticated institutions that enabled them to use trade to provide for basic food, clothes and weapons albeit these developments did not ensure their survival.¹¹ In the past, however, trade was employed either to move goods across borders for final consumption elsewhere or to move a few intermediate goods

⁷ According to data provided by the World Trade Organisation (WTO), between 1990 and 2000, the share of manufactured goods in world exports (in current dollars) increased from 70 per cent to almost 80 per cent. There are several semi-processed goods included in the set of manufactures – roughly 21 per cent of world exports. After those goods are deduced from manufacturing trade, almost 60 per cent of world trade, measured by exports, are composed of manufactured goods such as consumer goods, parts and equipment, chemical products, and others, out of which only a small proportion is traded as final goods (see the Web page <http://www.wto.org>). In 1955 the share of manufactures in world trade was just 45 per cent (Rayment, 1983: 3).

⁸ The first systematic studies on intra-industrial trade were based on the process of trade liberalisation among industrial countries. The gradual reduction in trade barriers during the establishment of the European Economic Community (EEC) generated a greater uniformity in the structure of exports of EEC countries than had been foreseen (Balassa, 1967:89). The studies that were conducted in the late 1950s and 1960s indicated that individual member countries had diversified their exports while keeping and expanding their productive structure. Balassa concluded that the principal adjustments had taken place within industries. Basically, intra-industry trade was defined as consisting of trade in differentiated final goods. Several hypotheses were advanced to explain the determinants of the commodity composition of those trade flows: economies of scale and production differentiation (Drèze, 1960; 1961); similarities in consumption patterns (Linder, 1961); association between trade and investment through enterprises with operations in different countries (Vernon, 1966). See Grubel and Lloyd (1975); Giersch (1979) and Tharakan (1981) for references on the intra-industry trade literature.

⁹ In 2000, trade among European countries, the United States, Japan, Canada, Australia and New Zealand added to roughly 70 per cent of world exports. Krugman (1995a: 332) subsumed the two trends in the term *intra-trade*: trade in similar goods between similar countries.

¹⁰ Finger (1975) proposed that "overlapped trade" is consistent with factor proportions theory so long as factor input requirements vary more within product groups than between them (quoted in Tharakan, 1981:275).

¹¹ History should teach us that economic integration through trade expansion and diversification is not an irreversible process. Classical Greece and the Roman Empire developed trade of impressive extent and quality. Athens derived much of its grain supply and its tin (needed for the manufacture of bronze) from distant places in Europe while Greek metal wares and pottery regularly reached farther areas. Historians have concluded that in the first and early second centuries A. D., the Roman Empire achieved an intensity and range of trade that surpassed what the Greeks had known and that were not to be regained until the 18th century of the modern era (Rogowski, 1989).

(such as grains and a few minerals) as inputs to the production of final goods for consumption elsewhere. A more recent feature, which is directly related to the industrial revolution, is the role of trade in providing inputs in large scale for the production of goods to be later exported in final or intermediate form.

The role of trade in creating production networks required new institutional innovations. The expansion of trade in intermediate goods depended on the arrival and continuous development of the capitalist firm, a latecomer economic institution, without which the simultaneous movements of integration of countries and disintegration of production processes could not take place.¹² This phenomenon has also been more gradual than some writers want us to believe. The international organisation of production and the multinational operations of large enterprises have been maturing since the restoration of world production and trade in the 1950s, although the first multinational initiatives appeared at the end of the 19th century.¹³

In his study on intra-firm trade Helleiner (1981:5-8) defined trade structure as the commodity composition and the geographical direction of international trade. Trade structure is therefore related to patterns of trade specialisation, the fundamental subject of the theory of international trade. He added the nature of international markets as a missing dimension of the trade structure. By that he meant not just the role of market structure but also the role of the intra-firm international trade as the result of the internalisation of some markets within a private firm. He suggested that significant changes in the structure of trade were therefore due to changes in the nature of international markets. The evidence was not conclusive but indicated that a sizeable proportion of United States merchandise imports originated with a party related by ownership to the buyer.

After two decades, the information on offshore assembly and production and mostly on the internalisation of trans-border transactions within multinational firms is still diffuse. The prevailing belief is that a significant part of international transactions of goods and services involve co-ordinating mechanisms that go beyond pure market exchange. In some cases, these transactions may involve intra-firm trade. In cases in which the two parts of the transaction are independent firms, they may still be related through systems of governance that entail long-term contractual arrangements. The studies carried out by OECD revealed that related-party trade and international sourcing have become widespread (OECD, 1996). Consequently, supply and demand decisions in world markets have become ultimately interrelated either because they are taken within the same corporation (pure hierarchy) or because of contractual obligations that tie suppliers to production specifications of large buyers.

Deardorff (2000: 26) indicated that fragmentation involves a much greater input of services than would be needed for trade in final goods only, in order to co-ordinate the segments of the value chain. The recent visibility of fragmentation as an increasingly important phenomenon in the global economy would be partly due to technological improvements that have brought service provision's costs down to historically low levels. Along the same lines, Burda and Dluhosch (2000) suggested that business services produced with skilled labour are necessary for managing global production (and therefore determine the equilibrium extent of international production fragmentation). A small increase in fragmentation or specialisation (equal to an incremental lengthening of the production process) reduces direct production costs, but also generates overhead (communication, management, organisational) costs. Hence, a variable of central importance is the price of business services that Burda and Dluhosch (2000) propose as the market price of fragmentation.

¹² See Chandler 1974; 1990; and Lamoreau, Raff and Temin, 2002 for a critical view of Chandler emphasis on structure and strategy.

¹³ See Dunning 1973, 1974.

International trade theory disregards the complex process through which goods and services are marketed and distributed, and the institutions that organise their production and trade (Helleiner, 1981:7). In economic models agents do not interact with one another directly except indirectly through markets. Anonymous markets are assumed to provide the co-ordination of multifaceted value chains without any cost. In real life, co-ordination involves skills and knowledge that are scarce and that command large financial rewards (Wood, 2001).¹⁴ The literature on transaction costs that grew out of the writings of Ronald Coase has incorporated the costs of economic co-ordination as a critical determinant of the organisation of economic activity.¹⁵ Nevertheless, for many economists the basic questions of Coase concerning the nature and boundaries of the firm are still not clearly answered. In particular, the study of international economics requires a convincing explanation of the reasons why some activities are carried out within hierarchical organisations whereas others are carried out through arms-length transactions (Krugman, 1995b:1274-1275).

Trade, foreign direct investment, and inter-firm collaborative arrangements have become closely related in the phenomenon of splitting up industrial operations and locating them in places according to cost differentials or market proximity, in what became known as globalisation of the industry by OECD (1996). The latter occurs when the production process, broadly defined, to include product development, manufacturing, sourcing, marketing and financing activities, is segmented and distributed in the geographic space. Industry and country-specific factors determine the economic allocation of economic activities but they are bounded by strategic decisions of multinational firms. International firms can benefit from locational advantages of different sites to distribute plants and activities in several countries. The rise of outsourcing allows enterprises to extend activities across national boundaries and tailor production strategies to idiosyncratic attributes of local production sites (Burda and Dluhosch, 2000: 3).

Several authors have studied the characteristics of international production and trade organised by international firms designating the topic by different names. The abundance of papers combined with the lack of agreement on terminology show the importance of the subject for international economists as well as the descriptive stage of the studies.¹⁶ Horizontal and vertical trade can take place, according to the characteristics of the product. The former takes place when a homogenous product is produced with the same technology in multiple locations, whereas the latter happens when the production process, from the design to the final delivery to the final consumer, is segmented in production units established in several places. It is also known as outsourcing or trade in intermediate goods. Countries still trade among them horizontally differentiated goods produced with similar technologies, but the main hypothesis is that trade in vertically differentiated products of different factor intensity accounts for a significant share of world trade flows. Although with distinct features cross-border production sharing, or global outsourcing by international firms, occurs both in trade among OECD countries and between them and developing countries. As mentioned above, outsourcing activities are not necessarily carried out within subsidiaries (intra-firm trade) but can be carried out through arm's length operations.

¹⁴ Dunning(1983: 99) proposed that " A firm engages in two interrelated functions. First, it organises the production of individual goods and services. Second, it engages in transactions, i.e. it buys and sells outputs. Some of these transactions will be with external buyers and sellers, e.g. households and other firms; others will be made within the same firm. A firm will then grow when it either increases the output of the products it is already producing (or replaces these by new and/or improved products), or internalises transactions which would otherwise have been undertaken via the market, i.e. by redistributing output from other producers to itself."

¹⁵ See the section "An evolutionary approach to economic organization" in Dunning (1997/1999: 32-37).

¹⁶ Global production sharing (Feenstra and Hanson, 2001; Yeats, 1998; Ng and Yeats, 1999); co-production (Grunwald and Flamm, 1985); vertical specialisation (Hummels, Ishii and Yi, 1999; Yi, 1999; Knetter and Slaughter, 1999; Fontagné et. al., 1997); outsourcing and disintegration of production (Feenstra, 1998; Feenstra and Hanson, 1996; Katz and Murphy, 1992); intra-mediate trade (Antweiler and Treffer, 1997); delocalisation (Leamer, 1996); fragmentation (Deardorff, 1998; 2000; Jones and Kierszkowski, 1997). Bhagwati and Dehejia (1994) employed the expression "kaleidoscope comparative advantage" to refer to the fast movement of enterprises to locate their international activities; Krugman (1995a) preferred the phrase "slicing the value chain". Gereffi et al. (2001) referred to integrated production networks as global value chains (which are also called supply chains or global commodity chains).

Outsourcing and production sharing operations determine significant bilateral trade flows in manufactures composed of products that belong to the same category in trade classification. Therefore, there is a link with the trade literature concerned with the conceptual and empirical features of intra-industry trade. Many studies are focussed on trade among industrial countries in final goods (exchange of horizontally differentiated goods produced with identical factor intensities). Bela Balassa (1967: 101-104) however, recognised the cost advantages derived from vertical specialisation in the framework of large markets. He differentiated economies of scale obtained from the reduction in product variety (horizontal specialisation) from those obtained from the subdivision of the production process among several plants.

More recently, several authors have linked the empirical evidence on the expansion of outsourcing operations by firms to the disintegration of the production set of activities in manufacturing and service operations that can be purchased abroad and later combined with those performed at home. Feenstra (1998) concluded that the combined effect of trade liberalisation and falling transport costs accounted for the growth in trade. Falling tariffs were twice as important as falling transportation costs. Nevertheless, both were only partial explanations, leaving three-fifths of the growth in trade relative to income unexplained. Disintegration of production leads to more trade, as intermediate inputs cross borders several times during the manufacturing process.¹⁷ The multiple movements of “goods-in-process” over several national borders during the production process could explain the rapid growth in world trade. However, there is double counting of imported parts and components. Yi (1999) argues that in order to explain the rates of growth in world trade, trade models need to consider the interconnectedness of production processes in a sequential, vertical trading chain stretching across many countries, with each country specialising in particular stages of a good’s production sequence.¹⁸

Production sharing or vertical specialisation can be defined to occur when: (i) goods are produced in multiple and sequential stages; (ii) two or more countries provide value-added in the good’s production sequence; and (iii) at least one country must use imported inputs in its stage of the production process, and finally some of the output goods must be exported (Hummels Rapoport and Yi, 1998:81; Hummels, Ishii and Yi, 1999:3). Vertical specialisation can include trade in final goods as long as some imported intermediate goods are used to produce those goods.

In spite of important conceptual and theoretical contribution of production segmentation to the field of international trade, the magnitude of production sharing in world trade is still based on scattered evidence and case studies. The evidence so far indicates that the use of production sharing by enterprises varies with the industries. The use of imported intermediates tends to be high in assembly industries such as computers, electronics, aerospace; middle in motor vehicles and small in textiles and clothing (OECD, 1996). In particular, chemicals and machines account for much of the growth in the share of vertical specialisation in total trade (Hummels, Ishii and Yi, 2001).

Feenstra and Hanson (2001a) proposed to look at ‘processing trade’, which is defined by customs offices in the United States as the import of intermediate inputs for processing, and subsequent re-export of the final product. They found that between 1988 and 1998, processing exports grew from 12.4 to 97.2 billion in China, or from about one-third to over a half of total Chinese exports. They reported a research on trade between the United States and European Union countries that found that between 1988 and 1994 processing imports from the United States into these countries (as a share of their total imports from the United States) increased slightly from 18

¹⁷ As indicated by Krugman (1995a, p. 334), while in 1913, each consumer good would be exported just once, today it can be exported many times: “a good that is produced in one country may be assembled from components produced in other countries, and these in turn may be assembled from subcomponents produced in yet other countries”.

¹⁸ Yi (1999) concluded that elasticities on the order of nine or higher were required to explain all of the growth of trade if several cross-border movements of goods were not included in the models.

per cent to 20 per cent. This ratio, however, increased more significantly from 14 per cent to 24 per cent for countries such as Greece, Ireland, Portugal and Spain.

In a similar study, Feenstra and Hanson (1999) suggested that the total amount of imported intermediate inputs could be estimated by multiplying the purchases of each type of input by the economy-wide import share for that input. Summing that amount over all inputs used within each industry, they found that imported inputs for United States manufacturing industries had increased from 6.5 per cent of total intermediate purchases in 1972 to 8.5 per cent in 1979, and 11.6 per cent in 1990. Hummels, Ishii and Yi (2001) focused their research on the use of imported inputs in producing goods that are exported to measure the size of vertical specialisation. Using input-output tables from 10 OECD and four emerging market countries (Ireland, Korea, Mexico and Taiwan) they calculated that vertical specialisation accounted for 21 per cent of these countries' exports. For most of the OECD database countries and all four of the other countries, growth in vertical specialisation accounted for more than 30 per cent of export growth between 1970 and 1990. In Canada and the Netherlands, roughly 50 per cent of the growth of exports is accounted for by growth in vertical specialisation. For Mexico between 1979 and 1994, and for Taiwan between 1961 and 1994, vertical specialisation growth accounts for more than 50 per cent of export growth. Vertical specialisation in the OECD primarily involves other OECD countries. This is to say that developed nations use inputs from other developed nations to be transformed and exported to other developed nations. A notable exception to this pattern was the United States trade, which had become more oriented toward developing countries.

Nevertheless, the measurement of the size of production sharing in trade flows faces severe empirical problems. The imported input content of exports or in other words, the foreign value-added embodied in exports is not readily available. Some of the measures that are constructed on the basis of coefficients estimated from input-output tables will face the normal problems in dealing with input-output data. Among others, the difficulties to construct time series indicators due to the availability of input-output tables for a limited number of years, and the reduced number of sectors for which the information on coefficients is available.¹⁹ Researchers are also faced with the usual empirical difficulties of combining trade and production data and aggregation problems when trying to integrate classification systems that are not compatible.²⁰

The international division of labour in trade with production segmentation

The literature on production disintegration and market integration developed the notion that the production can be segmented in finely defined production activities. Following the classical notion of economies of specialisation and scale that result from the intensification of the division of labour within the factory, Rayment (1983: 17-20) proposed a dynamic theory of international specialisation with a finer division of labour. He used the theory as a general framework to explain intra-industry trade in intermediate goods but it can be extended as a framework for current production-sharing activities. Inspired by Lancaster (1966), production is conceived as a joint set of activities and there is increasing disintegrability of the activity set for any product as a function of the extent of the market.²¹ He based his analysis of industrial differentiation on the influential paper

¹⁹ See Hummels, Ishii and Yi, 1999, appendices I to III.

²⁰ The number of sectors and subsectors in Standard International Uniform Classification (SITC) for trade data is different from those in the Standard Industrial Classification (SIC).

²¹ Lancaster (1966) refined the concept of consumption activity as having a single input (a good) and joint outputs (a bundle of characteristics). Some consumption activities may require several goods, or even other inputs. He proposed that the core of his approach was the jointness of the characteristics. A single good may have more than one characteristic, and a single characteristic may be obtainable from more than one good.

on cumulative causation by Allyn Young (1928), who linked economies of scale derived from roundabout methods of production with production carried out by large firms and the extent of the market.

Rayment suggested that the process of industrial differentiation arise because of an increase in the number of specialised activities engaged in the entire chain of transforming raw materials into finished manufactures. The increasing disintegrability of the activity set for any final product is another source of industrial differentiation.

"If each activity in the set is homogenous with respect to factor proportions, economies of scale, etc., and if all producers within the 'industry' are faced with identical conditions, then there would be no incentive for disintegrating the activity set as the market grows, and the production function will be a legitimate simplification of the complexity of the production process. But in practice the individual firm or plant will tend to be better at doing some things rather than others; returns to scale will vary from one activity to another, partly because of indivisibilities but also because the possibility of applying further specialised equipment will vary among the different activities as the market expands, which in turn may be due to localised technical progress; and relative factor intensities may also vary within the activity set (Rayment, 1983: 17-18)."

For a given product, the growth of its total market will lead to the establishment of more specialised plants for some activities which may or may not remain under the control of the original enterprise. In addition, the effect of changes in technology, especially in communications, will reduce the relative costs of co-ordination tasks which could lead to the emergence of outside specialists and to a geographical extension of the market. Insofar as the activity sets contain activities with significant differences in factor requirements there should be predictable effects in trade. The latter explained the trend detected since the mid-1960s when enterprises selected labour intensive activities from a number of predominantly skilled labour and capital intensive industries in developed countries to relocate them in developing countries.²² Longer production runs can result from the disintegration of the individual firms' activity set through two ways: reduction of the number of final products and through a reduction in the number of intermediate processes performed by the firm itself.²³

Along similar lines, but from a neo-classical perspective, Knetter and Slaughter (1999:6) defined a model called "Heckscher-Ohlin-plus-production fragmentation" based on Feenstra (1998). In the model, the production process is characterised by the increased use of imported intermediate inputs leading to narrowing the range of production activities within each country. Similarly to what was exposed above, specialisation is the result of comparative advantage within a narrow set of activities rather than in particular industries embodying those factor services. At the end, labour abundant countries specialise in labour-intensive productive activities narrowly defined along the set of activities that constitute the production process. In the basic Heckscher-Ohlin-Samuelson (HOS) model, one country specialises in cars and the other in shirts. With the reduction in barriers to trade, production should become more dissimilar across countries thereby

²² "This view of production as a joint activity set implies that when we speak of producers in a given country as having a comparative advantage in the production of 'x' we mean that *on average* or on balance they have a comparative advantage in those activities whose joint performance is necessary to produce the final product 'x'. As the market expands so the relatively more disadvantageous activities can be peeled away and the original producer will compromise less with his greatest comparative advantage (Rayment, 1983: 18)."

²³ Rayment gives examples from the pottery industry. "Firms have generally sought long runs by reducing their product range and specialist firms now supply already-prepared materials, clays, flints, bones, colours, glazes, lithographs, etc., and machines, kilns, driers and even buildings can readily be purchased or hired on the market (Rayment, 1983:19, quoting a study by R. L. Smyth, 1971)."

contributing to the intensification of their trade. When fragmentation occurs, "the product space actually evolves as a result of the opportunity to trade." In the standard model, no distinction is made between industries and activities. In the modified model, specialisation occurs on the basis of comparative advantage in activities. Yeats (1998:1) defines production sharing as the internationalisation of a manufacturing process in which several countries participate in different states of the manufacture of a specific good. Production sharing between developing and industrial countries involves the development of specialised labour-intensive production activities within vertically integrated international manufacturing industries.

The difficulty is that trade data are organised by industry rather than activity. Trade statistics as they are organised do not yield the information that is required to assess a country's productive specialisation. As pointed out by Yeats (1998), trade data does not allow to perfectly distinguishing between components and assembled products. Hence, trade data may indicate products that are associated with innovation efforts, but only minor assembling operations may be performed in that country. Ottaviano y Puga (1998) suggested that trade data should be complemented by employment or output data in order to quantify location patterns more precisely. In the context of development policies, it is more urgent the demand for a better interpretation of trade data, since the presence of a product coarsely defined in the exports of a country does not necessarily mean that the productive process is internalised in the country. Therefore, the efficiency gains and welfare effects of improved resource allocation derived from trade may not materialise, because developing countries are engaged in the low-skill, low-value-added assembly stages of global production chains (Mayer et al., 2002).

Feenstra (1998:35-36) takes the international production of the Barbie doll, marketed by Mattel, as documented by Tempest (1996) to illustrate the international disintegration of production to be later integrated through trade. The raw materials for the doll (plastic and hair) were obtained from Taiwan and Japan. Assembly was at first done in the same countries, as well as in the Philippines, but due to labour-cost differentials, it moved to Indonesia, Malaysia, and China. The molds are shipped from the United States, similarly to additional paints used in the dolls. China supplies only the cotton cloth used for dresses besides labour. Trademark and other intellectual property rights, transportation, marketing, wholesaling and retailing in the United States account for 80 per cent of the final selling price. The majority of value-added activities is therefore the result from highly skilled service activities is carried out in the United States (see table 2).

It should be pointed out that the *value-chain perspective* has also been presented as an effective means of conceptualising the forms that the international integration of dispersed activities take. This approach emphasises the shift from production alone to the whole range of activities from design to marketing, and the inclusion of the question of governance (non-market co-ordination) in the analysis (Gereffi et al., 2001: 2).²⁴ In particular, studies using this approach showed the importance of activities that deal with *intangibles* (services) such as fashion trends, brand identities, design and innovation, over activities that deal with *tangibles*, the transformation, manipulation and movement of physical goods. Therefore, as seen in the example of the Barbie doll, manufacturing activities are becoming increasingly commodified and account for a reduced share of the value-chain. There are also indications that barriers to entry in intangibles are growing faster than those in tangible activities (Gereffi et. al.: 6).

²⁴ The integration of service activities into the analysis highlights that for many industries it is not enough to design and produce new products. Instead, it involves gaining entry into international networks of design, production and marketing (Gereffi et al. 2001:2).

Table 2
COMPONENTS OF THE FINAL PRICE OF A BARBIE DOLL
(in US dollars)

Costs as percentage of the final price	Subtotal	Total
Final price (in the United States)		10.0
Export price at Hong Kong		2.0
Production cost (East Asia)	2.00	
Labour costs (China)	0.35	
Cost of materials (Taiwan, Japan, United States) (+)	0.65	
Other costs (Filipinas, Indonesia, Malasia, and Hong Kong)	1.00	
Mattel (United States)		1.0
Transportation, marketing, wholesaling and retailing in the United States		7.0

Source: Rone Tempest, "Barbie and the world economy", *Los Angeles Times*, September 22 1996, A1 y A12 (quoted in Robert C. Feenstra, "Integration of trade and disintegration of production in the global economy", *Journal of Economic Perspectives*, vol. 12, N. 4, 1998, pp. 35-36).

Using 1974 data from United States of related-party imports, Helleiner (1981:32-35) found that the relative importance of related-party trade was much greater in imports from other OECD members than in imports from developing countries. He also found that there were striking differences between imports from major developed countries and those from developing countries. Firstly, imports from United States firms were dominant in United States related-party imports from developing countries, and secondly those were firms engaged in *international production* whereas a high proportion of imports from other developed countries were undertaken by non-United States enterprises engaged primarily in trading rather than "productive" activities. Helleiner hinted that in one or two decades processing, assembly, and components manufactures for export within vertically integrated international industries was bound to become an increasingly important segment of trade (1973, p.46, as quoted in Balassa, 1979).

In the 1970s, Mexico was the exception in Latin America, since the proportion of intra-industrial trade in Mexican trade with developed countries (the United States) was higher than in trade with other Latin American countries (Balassa, 1979). As it was mentioned above, several studies indicated that the United States tended to present a higher level of intra-industry trade with developing countries than other OECD countries did. Nevertheless, with few exceptions, between 1970 and 1980 the number of industries with a high intra-industry index in trade between developing and industrial countries increased (Roosens, 1980 quoted in Tharakan, 1981:270-272). Studies showed that the stage of development was an important determinant of intra-industry trade. Higher per capita income and greater diversification of manufactured goods were positively correlated with the proportion of a country's intra-industry trade in its total trade. Havrylyshyn and Civan (1983) remarked that the process of integration of developing countries into world trade over the previous 15-20 years had taken the form of a strong surge in two-way trade of similar goods. The newly industrialising countries (NICS) that had been fully incorporated into the production-sharing programmes of the United States (see below) heavily weighted that result.

Table 3

U.S. IMPORTS UNDER THE PRODUCTION-SHARING PROVISIONS OF HTS 9802^a
BY LEADING COUNTRIES,
(1985, 1990, 1997, 1999 AND 2000)
(In million of dollars)

Countries	Total PS-Imports (A)					U.S. Content (B)					Share (B/A)				
	1985	1990	1997	1999	2000	1985	1990	1997	1999	2000	1985	1990	1997	1999	2000
Mexico	5537	12811	28883	25875	19430	2934	6387	15483	13928	10271	53.0	49.9	53.6	53.8	52.9
Japan	10990	17107	15667	15058	17851	133	582	548	576	543	1.2	3.4	3.5	3.8	3.0
Germany	4657	5771	8541	11172	9849	109	95	142	156	137	2.3	1.6	1.7	1.4	1.4
Dom. Republic	247	697	2669	2789	2727	177	483	1737	1791	1700	71.6	69.3	65.1	64.2	62.3
Philippines	298	596	2063	2331	2099	141	259	1058	1137	933	47.4	43.5	51.3	48.8	44.4
Malaysia	427	1351	1911	2109	1639	217	578	930	998	885	50.8	42.8	48.7	47.3	54.0
Korea	398	2182	1881	2002	1378	175	602	755	1042	753	44.1	27.6	40.2	52.0	54.6
Honduras	...	...	1380	1882	1890	...	...	983	1329	1300	...	...	71.2	70.6	68.8
Taiwan	518	957	1248	1717	882	96	235	510	585	395	18.5	24.6	40.9	34.1	44.8
China	...	...	1319	1612	1242	...	...	180	272	252	...	...	13.6	16.9	20.3
United Kingdom	659	1435	1665	1573	1870	71	167	124	251	213	10.7	11.6	7.4	15.9	11.4
Belgium	143	445	1105	1455	1066	11	8	35	37	28	7.7	...	3.2	2.5	2.6
Sweden	1143	1610	1433	1352	2080	37	49	15	60	42	3.2	3.0	1.0	4.5	2.0
El Salvador	...	...	912	1186	1315	...	...	544	704	774	...	...	59.6	59.3	58.9
Costa Rica	98	308	851	832	893	71	213	568	548	577	71.8	69.2	66.7	65.8	64.6
TOP 15 countries	25115	45270	71530	72945	66211	4171	9658	23611	23413	18803	16.6	22.7	33.0	32.1	28.4
All others	5000	29838 _b	7636	5381	5009	1379	11151 _b	2954	1945	1736	27.6	21.3	38.7	36.1	34.7
Total	30115	75108	79167	78327	71220	5550	20809	26565	25358	20539	18.4	37.4	33.6	32.4	28.8

Source: Ventura-Dias, Vivianne and José Durán Lima, (2001), "Production Sharing in Latin American Trade: a research note", ECLAC, Serie Comercio Internacional No. 22, Table 5, pp. 20.

^a Since 1997, data includes HTS 9802.00.60; 9802.00.80 and 9802.00.90

^b In 1990, Canada is the first leading country, with a PS value of US\$. 23, 958 million, and US\$. U.S. content of US\$. 9,538 million.

The detailed data on the United States outsourcing programme provide some information on the different ways through which countries are incorporated in vertically integrated international manufacturing industries as a function of their development level. Table 2 shows the share of the United States inputs imported into the country that will be further processed and re-exported to the United States. The first columns present the total imports from individual countries into the United States from 1985 to 2000 under this programme. The second set of columns indicate the total amount of United States inputs that were imported to the country to be processed, in the same period, and the third set of columns present the share of the United States content. In countries such as Belgium, Germany, Japan and Sweden, that share has never exceeded 4.5 per cent (7.7 per cent in the imports from Belgium in 1985). The United Kingdom is a little above the average for industrial countries with a share between 10 to 15 per cent).

Nevertheless, the average of the United States content in developing countries' production sharing imports is far above 50 per cent. Jamaica, Haiti, Dominican Republic, and Costa Rica present the highest proportion of United States inputs, or conversely the lowest share of domestic value-added. Mexico ranks in the middle with a persistent share of 53 per cent, whereas the Asian countries (Korea, Malaysia and Philippines) show an average share of roughly 48 per cent. Conversely, China displays coefficients similar to those of the United Kingdom. Brazil presents a low coefficient but it is not a significant importer under the United States tariff programme (see also table 4).

Table 4
TEN LATIN AMERICAN COUNTRIES: U.S. CONTENT IN TOTAL
IMPORTS UNDER HTS CHAPTER 98:
1980-2000
(Shares)

Country	1980	1985	1990	1995	1996	1997	1998	1999	2000
Mexico	50.1	52.3	49.9	51.4	52.5	53.6	53.3	53.8	52.9
Dominican Republic	67.3	71.7	69.4	65.0	64.9	65.1	62.9	64.2	62.3
Honduras	...	69.8	...	71.0	70.7	71.2	71.2	70.6	68.8
El Salvador	80.7	...	...	55.5	56.9	59.6	57.9	59.3	58.9
Costa Rica	66.7	69.0	69.1	66.8	69.3	66.7	65.3	65.8	64.6
Guatemala	...	...	...	49.7	47.6	45.9	43.3	38.9	40.5
Jamaica	...	72.5	74.5	80.9	80.0	81.8	81.0	81.9	80.8
Haiti	68.2	68.7	70.9	68.4	68.6	72.5	73.2	74.9	74.1
Colombia	...	64.5	54.3	62.1	58.3	59.7	58.9	58.9	54.9
Brazil	14.4	36.7	10.0	11.2	8.3	8.1	11.1	14.4	10.0
10 countries	50.6	47.5	44.0	50.5	51.6	52.6	52.9	55.9	55.7

Source: Ventura Dias, Vivianne and José Durán (2001), "Production Sharing in Latin American Trade: a research note", ECLAC Serie Comercio Internacional No. 22, Table 6c, pp. 22.

Market-access in industrial countries

The reduction of trade barriers in manufactures and falling costs of transportation, information and communication explain part of the increasing share of international sourcing of parts and materials in world trade. Other authors have also stressed that intra-industry trade reflects the refusal of industrial countries to adjust to the new patterns of international competition brought by the emergence of newly industrialising countries. As a result, many sectors remain untouched by trade liberalisation movements. There are scarce references in the literature as to how industrial countries avoided important adjustment burdens by increasing intra-industry specialisation while keeping high barriers in the sectors in which they had lost comparative advantage. As it was mentioned, Helleiner was an exception. He analysed the political economy of United States trade policy emphasising the skewed structure of trade barriers against labour-intensive industries. There was a positive correlation between the height of United States effective protection rates on the one hand and unskilled labour intensity of the protected industries on the other (1981: 73-89).

In intra-industrial analyses Hufbauer and Chilas (1974) were some of the first to claim that the origins of balanced international trade were to be found in tariff and non-tariff barriers. They concluded that at the beginning GATT negotiations had favoured intra-industry over inter-industry specialisation. Similarly, Yeats (1998) singled out tariff escalation in industrial countries as an important factor in shaping the patterns of production sharing between developing and industrial countries that were found since the middle 1960s.

Industrial countries have also influenced the international allocation of economic activity through positive incentives. Baranson (1969: 74-76) stressed the importance of the US-Canadian Automotive Agreement to foster the bilateral trade in cars and components. The Automotive Agreement provided for the expansion of Canadian car and components manufactured in the United States market as a precondition for United States firms continuing to sell assembled cars and trucks in Canada. The offshore assembly programme of the United States known as Production Sharing (Harmonised System 9802) was created through a provision of the Tariff Act of 1930 and has been operating since the early 1960s. It was initially applied to steel enterprises with

production plants in Canada, Asian countries and in small scale to Mexico (Grumwald and Flamm, 1980). Over time, the programme was extended to include many industries and countries.²⁵ The Production-sharing programme allows enterprises based in the United States to export component parts and to assemble in foreign countries. The finished product is later imported into the United States with duties being paid only on the foreign value-added. Until recently, all of the assembly operations in Mexico were conducted under this programme. According to the Department of Commerce of the United States, in 1990, 45 per cent of total United imports from Latin America was made under the Production Sharing system.²⁶

Similarly, in 1965, Mexico created a tariff-based programme that allowed enterprises to temporally import into the country duty-free inputs, components and equipment, and even technical workers, to produce a good or service that will be re-exported to the United States (Garcia Zamora, 2001).²⁷ These assembling activities are also known as *maquilas* and they have been extended to other Central American and Caribbean countries. The operations are oriented towards the United States, but enterprises based in various countries are located in Mexico. In 1966 there were 12 production plants that employed a little over 3 thousand workers. Later, in 1979, there were 540 plants and 11,370, and in 1989, 1,660 plants and 430,000 workers. The establishment of the North American Free Trade Agreement (NAFTA) gave a new impetus to the programme. In 1997, the number of plants increased to 2,609 and they employed almost 900 thousand workers.²⁸

Value added tariff programmes exist in the majority of the industrialised countries. Their provisions vary from country to country but all permit, under certain conditions, manufactured goods to enter domestic markets partially free of tariff duties when raw materials have originated in the country of importation. The organisation of such trade and manufacturing activities implies a degree of transnational management although it can be undertaken by brokers and trading houses, as well as vertically integrated multinational corporations. As Baldone et al. (2000) stated: "...product competition from emerging, low labor-cost countries has been countered by industrialized countries through a strategy combining a relatively higher productivity at home with lower labor costs abroad...". The European Union began long ago to offer incentives to firms in industries in which countries were losing comparative advantage, to adopt such strategies, stating very explicitly that the reason for such regulations was to restore the competitiveness of those industries in the European Union. For instance, the regulations of the programme known as Outward Processing Traffic were made more favourable. Central and Eastern European countries have become a preferred location by manufacturers of most European Union countries who accept to delocalise production activities outside the boundaries of the fifteen European Union countries.²⁹

²⁵ Kuwayama (1992: 29, note 32) indicated that the background of the Provision 9802.00.60 was a bill of the House of Representatives in 1953 to provide tariff relief to manufacturers in the State of Michigan to use metal processing facilities in Ontario, Canada. The Senate Finance Committee expanded the eligibility of the bill to all other countries in the following year. The language of the current provision was adopted as part of the tariff schedules in 1963.

²⁶ Kuwayama (1992) analysed three major variants of United States corporate strategies in Latin America, namely foreign direct investment, new forms of investment and preferential schemes. He observed that the common element among the three was an increasing volume of production-sharing or overseas sourcing operations.

²⁷ At the end of the 1960s Mexico signed an agreement with Massey-Ferguson to manufacture tractors at 70 per cent domestic content and cover the 30 per cent import deficit with re-exports to the international firm's other overseas plants. A similar programme had been initiated by Chrysler to specialise by interchanging engines in Mexican affiliate and North American plants (Baranson, 1969: 76).

²⁸ The empirical evidence of Feenstra (1998) show that the outsourcing programme transferred unskilled labour-intensive activities from United States industries to labour-abundant countries.

²⁹ See several studies conducted on integration of transition economies into global production and distribution networks (<http://www.worldbank.org>).

III. The implications for trade and growth

The simple model of comparative advantage is neutral to the product composition of trade. Comparative advantage determines that each nation will always find a set of products in which production it can successfully compete in world markets regardless of the degree of efficiency of its technology or service basis (Jones, 1980).³⁰ In this sense, various authors have defended the benefits of openness by the efficiency-enhancing role of free trade in a static context (Srinivasan and Bhagwati, 1999). Gains from trade are expressed in productivity growth as the consequence of a more efficient use of domestic resources regardless of the nature of the products in which the productive factors are employed. Under the assumptions of the model, the supply conditions imply that productive factors that are fully employed before the country is opened to trade are totally mobile between import-competing and export-oriented sectors. Much of the structuralist literature and development economics covered the unrealism of those assumptions for the study of gains from trade in Latin American economies. It is not my intention to review that literature. I believe that part of the structuralist arguments can be useful to analyse the impact of trade integration through production of labour-intensive segments of a highly diversified value-chain in which the internal mobility of labour is further reduced because no employment is generated in domestic industries.

³⁰ Kindleberger (1962: 211) concluded that “The impact of foreign trade on growth is then indeterminate over a wide range. Trade can stimulate growth when the demand is right abroad and the supply is right at home. It can inhibit it when the demand is wrong abroad and the supply is wrong at home. In the two intermediate cases, we do not know.”

Baldwin (1954, 1963) suggested that the extent to which exports generate economic growth depend on the characteristics of the production functions of export products, particularly as regards input requirements, the incidence of scale economies, and the like. To illustrate the impact of coffee plantations on the domestic economies of exporting countries was radically different from the impact of mining enclaves. Based on the successful Canadian experience, Caves (1971: 433-437) listed some of the channels through which export activities are linked to sources of intensive growth (growth in per capita income): 1. skill requirements, including entrepreneurial skill: exports that require skilled labour generate more favourable linkages than those using unskilled labour; 2. economies of scale: substantial economies of scale in the production of the export good seemed to favour its contribution to intensive growth; 3. social overhead capital (activities associated with the construction of social overhead capital favoured intensive growth); and 4. some characteristics of the export commodity that would favour local processing industries (perishable commodities, their relative bulk, i.e., the volume of shipping space required per unit of FOB value, in comparison with the volume required by an equivalent value unit of the goods for which it is typically traded).³¹

Along similar lines, the literature on productive linkages argues that demand and supply characteristics of trade specialisation of a given country will have an effect on the way trade can be translated into economic growth. Not all productive activities are similar in creating the virtuous process of cumulative causation that is at the root of economic development. The notion of transmission effects evokes the concept of backward and forward linkages developed by Albert Hirschman. Largely influenced by the theory of growth poles developed by François Perroux and by the concept of external economies of Alfred Marshall, Hirschman (1958) introduced the notion of leading or “key” industries” into the theory and models of development. An industry could be ranked according to the direct and indirect repercussions of an increase in final demand requirements on other sectors of the economy. Leading industries influence investment decisions in other sectors through those interindustrial linkages. Therefore, the effects of growth transmitted by those leading industries would be more effective than those of industries with weaker interindustrial linkages.

More recently, the importance of a non-linear relationship between trade and growth through investments has been highlighted (Baldwin and Sbergami, 2000; Baldwin and Seghezza, 1996). Their findings reject the proposition that trade affects growth by influencing the rate of productivity growth. Trade liberalisation tends to promote growth only by promoting investment.³² Similarly, Agosin (1999) pointed out to the impact of Chilean exports on growth from middle 1980s on through the increase in the investment rate. Several studies on the success of Asian economies in the adoption of export-led growth models have also emphasised the importance of rapid accumulation based on high investment in physical and human capital (Lall, 2000). In their case, productivity growth was based on technology transfer through licensing agreements.

Chilean exports are heavily based on agricultural and mineral products. Although foreign enterprises play important role as service providers in the marketing and distribution of those commodities, Chile is not part of the world outsourcing networks. Most of Southern American countries are not important players in those networks that have the United States as a hub. Conversely, Mexico and Central American countries have reoriented their exports to the United States through the expansion of outsourcing and preferential programmes. Looking at trade data, the Mexican experience was very successful since exports increased at two digit rates in the last

³¹ Caves (1971:433) found that the capital-intensity of a commodity's production process did not in itself indicate any definite direction for predicting its linkages to intensive growth. High capital-output ratio combined with an absence of scale economies could favour a high rate of regional capital formation and saving by entrepreneurs and others.

³² In Baldwin and Seghezza (1996) model only capital-intensive industries from industrialised countries are liberalised.

decade. Mexican exports currently accounts for almost 45 per cent of all Latin American exports and as much as to 88 per cent of them are directed to the United States. Assembling operations account for more than 45 per cent of all those exports. Similarly but in a shorter period of time, Central American countries moved away from primary products and were converted into exporters of manufactures of low and high technological content. Costa Rica was converted overnight into an exporter of sophisticated semiconductor devices even though the country has not created expertise in engineering or created skilled labour.

This trade specialisation of some Latin American countries occurred in the 1990s in a context in which some resources are highly mobile while others are relatively immobile (“trapped within domestic boundaries”). When some factors have restricted mobility whereas others are free to search for maximum returns to their services, factor endowments of a country are still determinants of industrial location patterns, but large multinational corporations that embody the scarce and mobile factors can arbitrate costs differentials of domestic resources in their favour. Most of the investments of global corporations in labour intensive operations are footloose with very little sunken investments. In addition, the diffusion of knowledge from labour-intensive activities to other sectors of the economy is very limited. On the one hand, to profit from the United States programmes and the interest of multinational enterprises on labour-intensive activities, governments from labour-abundant countries have created exporting zones. Consequently, there is a trend towards reinforcing the dualism between exporting production and production for domestic consumption, considering that, in those developing economies there is limited capacity to the absorption of technological knowledge.³³

The conclusions in terms of the development process are not clear. The high mobility of those enterprises allows them to adopt a strategy that is the most adequate to the growth of their operations worldwide, but that may not coincide with the development goals of the host country. On the other hand, primary product exporters such as the Central American countries have little options to integrate into the world market due to depressed world prices for their products. The composition of their basically unskilled labour force, and the limited size of their markets reduce the possibilities of an endogenous manufacturing process. Hence, the conversion of manufacturing through assembling activities into a sustained process of growth and diversification will require continuous investment in physical and human capital.

³³ Buitelaar, Padilha and Urrutia (1999) called the attention to the preference of transnational corporations for transferring “technology ready for use”, and not for transferring activities of technological research and development to developing countries. Also, those enterprises do not have any incentives to purchase local inputs.

IV. Final considerations

There is an increasing recognition among mainstream economists that the nature of international trade has been changing with the substitution of non-market for market mechanisms of coordinating trans-border transactions. Intra-firm and inter-firm collaborative arrangements extend the range of enterprise action through the creation of a large number of production networks covering multiple activities from the conception of a product to its final consumption. Part of these activities is undertaken within the firm in the modality of intra-firm trade whereas the remaining falls under long-term contracts of various types. It seems, therefore, that the current “market economy” includes institutions and modes of operations that differ from the way economists are trained to think that market institutions operate. The conclusions in terms of gains from trade and the implications for economic growth and development in the new international context may not coincide with those derived from traditional international trade models.

After more than forty years of detailed work on multinational corporations, multinational businesses and multinational networks, we still know very little on “who, how, when, how much, how long” of the way this real market economy operates. We know that the results from studies on multinational operations cannot be easily generalised. Most conclusions are industry-specific, country-specific, time-specific and enterprise-specific due to the nature of the empirical data. But, more importantly, the theory of the firm is a major weakness of a theory of multinational operations. In international economy, there is a

pressing need for a deeper understanding on the reasons why enterprises prefer long-term contracts to proprietary relations, and vice-versa.

Paul Krugman talked about neoclassical models as “useful fictions about the world that allow to cut through the complexities” of real world. In the case of contemporary international trade, however, the main difficulty with the required simplification of the complex reality is that it leaves aside all the important elements of the reality that beg for explanation. In this sense, they stop being “useful fictions”. We have still to create those new fictions to increase our understanding on the complexities of international operations of firms, on the characteristics of trade that they create and the final impact on national economies in order to provide sound recommendations to policy-makers.

Bibliografía

- Agosín, M., 1999, Chile: comercio y crecimiento, realizaciones del pasado y perspectivas para el futuro, in *Nuevas Políticas Comerciales en América Latina y Asia: Algunos casos nacionales*, ed. Mikio Kuwayama, CEPAL-Naciones Unidas, pags. 205-270.
- Axelrod, R. 1997. *The Complexity of Cooperation (Agent-Based Models of Competition and Collaboration)*. Princeton, New Jersey: Princeton University Press.
- Balassa, B. 1967. *Trade Liberalization Among Industrial Countries, Objectives and Alternatives*. New York: McGraw-Hill Book Company.
- _____. 1979. *Intra-Industry Trade and the Integration of Developing Countries in the World Economy*. Discussion paper 312. Washington: The World Bank. 32 .
- Baldone, S., F. Sdogati and L. Tajoli, 2000, Production and competitiveness in the textile and apparel industry. Paper presented to the 2nd Annual Conference of the European Trade Study Group, Glasgow, 15-17 September.
- Baldwin, R., 1954, "Patterns of development in newly settled regions", in *Manchester School of Economic and Social Studies*, vol. XXIV, May, pp. 161-179.
- _____. 1963, "Export technology and development from a subsistence level" in *The Economic Journal*, vol. 73, March, pp. 80-92.
- Baldwin, R. E. and F. Sbergami, 2000, Non linearity in openness and growth links. Graduate Studies of International Studies, Geneva (<http://heiwww.unige.ch/~baldwin/>)
- _____. and E. Seghezza, 1996, Trade-induced investment-led growth, NBER Working Paper 5582, May.
- Beckford, G. L. 1972. *Persistent Poverty (Underdevelopment in Plantation Economies of the Third World)*. London: Zed Books Ltd.
- Buitelaar, R., R. Padilha and R. Urrutia. 1999. "Industria maquiladora y cambio técnico" in *Revista de la CEPAL*, 67 (April): 133-152.

- Burda, M. C. and B. Dlahosch. 2000. Fragmentation, globalization and labor markets. CESifo Working Paper Series. Munich, Germany: CESifo, October.
- Campa, J. and L. S. Goldberg. 1997. The evolving external orientation of manufacturing: a profile of four countries. *FRBNY Economic Policy Review*, July, 53-81.
- Caves, R. E. 1971, "Export-led growth and the New Economic History", in Jagdish Bhagwati et al. (eds.) *Trade, Balance of Payments and Growth: Essays in Honor of Charles P. Kindleberger*, North-Holland Publishing Co., Amsterdam, pp. 403-442
- Chandler, J., Alfred D. 1977. *The Visible Hand (The Managerial Revolution in American Business)*. Cambridge, Massachusetts: The Bknap Press of Harvard University Press.
- _____. 1990. *Scale and Scope: The Dynamics of Industrial Capitalism*. Cambridge, Massachusetts: The Bknap Press of Harvard University Press.
- Davis, D. R. and D. E. Weinstein. 2001, What Role for Empirics in International Trade? NBER Working Paper Series 8543 Cambridge; Massachusetts [Online]. Available: <http://www.nber.org>.
- de Ferranti, D., G. E. Perry, D. Leterman, a. W. Maloney, 2002. *From Natural Resources to the Knowledge Economy: Trade and Job Quality*. Washington: The World Bank.
- Deardoff, A., V. 1998. Fragmentation in simple trade models. Discussion Paper n. 422. Ann Arbor, Michigan: University of Michigan, School of Public Policy, January 8.
- _____. 2000. International provision of trade services, trade and fragmentation. Paper prepared for a World Bank Project WTO 2000. Ann Arbor, Michigan: University of Michigan, Dept. of Economics, August 30. <http://www.econ.lsa.umich.edu/~alandear>.
- Drèze, J. 1960. Quelques réflexions sereines sur l'adaptation de l'industrie Belge au Marché Commun. In *Comptes Rendus Des Travaux de la Societé Royale d'Économie Politique de Belgique*, vol. 275. December.
- Dunning, J. 1997/1999. Governments and the macro-organization of economic activity: a historical and spatial perspective. In *Governments, Globalization, and International Business*, ed. John Dunning, 31-72. Oxford: Oxford University Press.
- _____. 1983. Changes in the level and structure of international production: the last one hundred years. In *The Growth of International Business*, ed. Mark Casson, 84-139. London: George Allen and Unwin.
- Durán Lima, J. and V. Ventura-Dias forthcoming. *Comercio Intrafirma: Concepto, Alcance y Dimensión*. Santiago de Chile: CEPAL, serie Comercio Internacional.
- Feenstra, R. C. 1998. Integration of trade and disintegration of production in the global economy. *Journal of Economic Perspectives*, 12(4, Fall): 31-50.
- _____.and G. H. Hanson 1996. Globalization, outsourcing and wage inequality. NBER Working Paper 5424. Cambridge, Massachusetts: National Bureau of Economic Research, January.
- _____. 2001. Global production sharing and rising inequality: a survey of trade and wages. NBER Working Paper n. 8372. Cambridge, Massachusetts, July. (<http://www.nber.org/papers/w8372>).
- Finger, M. 1975. Trade overlap and intra-industry trade. *Economic Inquiry*.
- Gereffi, G., J. Humphrey, R. Kaplinski and T. Sturgeon. 2001. "Introduction: globalisation, value chains and development". *IDS Bulletin*, 32(3, July): 1-8.
- Giersch, H. (. 1979. *On the Economics of Intra-Industry Trade*. Tübingen: J. C. B. Mohr (Paul Siebeck).
- Grossman, G. M. and E. Helpman 2002. Outsourcing in a global economy. NBER Working Paper 8728. Massachusetts: National Bureau of Economic Research, January. <http://www.nber.org/papers/w8728>.
- Grubel, H. G. and P. J. L. 1975. *Intra-Industry Trade*. London: The Macmillan Press.
- Grunwald, J. and K. Flamm 1985. *The Global Factory: Foreign Assembly in International Trade*. Washington, D.C.: Brookings.
- Helleiner, G. K. 1981. *Intra-Firm Trade and the Developing Countries*. New York: St. Martin's Press.
- Helpman, E. 1998. The structure of foreign trade. NBER Working Paper 6572. Cambridge, MA: National Bureau of Economic Reserch (NBER), October. (www.nber.org/papers/w6752).
- Hirschman, A. O. 1945. *National Power and the Structure of Foreign Trade*. Berkeley: University of California Press.
- _____. 1958/1970, *The Strategy of Economic Development*, Yale University Press, New Haven.
- Hufbauer, G. and J. G. Chilas. 1974. Specialization by industrial countries: extent and consequences. In *The International Division of Labour: Problems and Perspectives*, ed. Herbert Giersch, 3-20. Tübingen: J. C. B. Mohr (Paul Siebeck).

- Hummels, D., D. Rapoport and Kei-Mu Yi. 1998. Vertical specialisation and the changing nature of world trade. *FRBNY Economic Policy Review*, June, 79-99.
- Hummels, D., J. Ishii and K.-Mu Yi. 2001. The nature and growth of vertical specialization in world trade. *Journal of International Economics*, 54(1, June): 75-96.
- Jones, R. 1980. Comparative and absolute advantage. *Schweizerische Zeitschrift Für Volkswirtschaft und Statistik*, 3, 235-260.
- Knetter, M. M. and M. J. Slaughter 1999. Measuring product-market integration. NBER Working Paper n. 6969. Cambridge, Massachusetts: National Bureau of Economic Research, February. <http://www.nber.org/papers/w6969>.
- Krugman, P. 1995a. Growing World Trade: Causes and Consequences. *Brookings Papers on Economic Activity*, 25th anniversary issue(1): 327-377.
- _____. 1995b. Increasing returns, imperfect competition and the positive theory of international trade. In *Handbook of International Economics, Vol. III*, ed. Gene M. Grossman and Kenneth Rogoff, 1243-1277. Amsterdam: Elsevier.
- _____. 1999. Was it all in Ohlin? [Http://www.wws.princeton.edu/~pkrugman/ohlin.html](http://www.wws.princeton.edu/~pkrugman/ohlin.html).
- Kuwayama, M. 1992. New forms of investment (NFI) in Latin American-United States trade relations. ECLAC Working Paper n. 7. Santiago de Chile. September. A timely analysis of US preferential schemes and their impact on Latin America.
- Lall, S. 2000. The technological structure and performance of developing country manufactured exports, 1985-1998. QEH Working Paper Serie (QEHWPS44). Oxford: Queen Elizabeth House, University of Oxford, June.
- Lamoreaux, N. R., D. M. G. Raff and P. Temin. 2002. Beyond markets and hierarchies: towards a new synthesis of American business history. NBER Working Paper 9029. Massachusetts: National Bureau of Economic Research, July. <http://www.nber.org/papers/w9029>.
- Linder, S. B. 1961. *An Essay on Trade and Transformation*. Stockholm: Almqvist and Wicksell.
- Maizels, A. 1963. *Industrial Growth and World Trade*. London: Cambridge University Press.
- _____. 1984. A conceptual framework for analysis of primary commodity markets. *World Development*, 12(1): 25-41.
- Mayer, J., A. Butkiewicz and A. Kadri, 2002, Dynamic products in World exports. *Discussion Papers* n. 159, May, UNCTAD, Geneva (<http://www.unctad.org>).
- Ng, F. and Y. A. 1999. Production Sharing in East Asia: Who Does What for Whom, and Why? (<http://www.worldbank.org/research/>). Banco Mundial.
- Organisation for Economic Co-operation and Development (OECD). 1996. *Globalisation of Industry: Overview and Sector Reports*. Paris: OECD.
- Rayment, P. B. W. 1983. Intra-'industry' specialisation and the foreign trade of industrial countries. In *Controlling Industrial Economies, Essays in Honour of C. T. Saunders*, ed. Stephen F. Frowen. London: MacMillan.
- Rogowski, R. 1989. *Commerce and Coalitions (How Trade Affects Domestic Political Alignments)*. Princeton, New Jersey: Princeton University Press.
- Roosens, J. 1980. De Intra-Industriële Handel van de OESO-Landen met de Ontwikkelingslanden. (Mimeo). Universiteit Antwerpen.
- Schelling, T. C. 1978. *Micromotives and Macrobehavior*. New York: W. W. Norton & Company.
- Schott, P. K. 2000. One size fits all? Heckscher-Ohlin specialization in global production. Working Paper. New Haven: Yale School of Management, 14 February. <http://www.som.yale.edu/faculty/pks4>.
- _____. 2002. Do rich and poor countries specialize in a different mix of goods? Evidence from product-level US trade data. Working Paper. New Haven: Yale School of Management, 14 February. <http://www.som.yale.edu/faculty/pks4>.
- Srinivasan, R. N. and J. Bhagwati. 1999. Outward-orientation and development: are revisionists right? Center Discussion Paper n. 806. Economic Growth Center, Yale University, New Haven, Connecticut.
- Tharakan, P. K. M. 1981. The economics of intra-industry trade: a survey. *Recherches Economiques de Louvain*, 47(3-4, September): 259-290.
- Vaitsos, C. V. 1977. *Distribución del Ingreso y Empresas Transnacionales*. Mexico, D. F.: Fondo de Cultura Económica.
- Vernon, R. 1960. International investment and international trade in the product cycle. *Quarterly Journal of Economics*, May, 190-207.

- Wood, A. 2001. Value chains: an economist's perspective. *IDS Bulletin*, 32(3, July): 41-45.
- Yeats, A. J. 1998. Just How Big is Global Production Sharing? The World Bank, Washington, D. C.: Development Research Group.
- Yi, K.-M. 1999. Can vertical specialization explain the growth of world trade? International Research, Federal Reserve Bank of New York, December.



Serie

comercio internacional

Issues published

- 1 Las barreras medioambientales a las exportaciones latinoamericanas de camarones, María Angélica Larach, (LC/L.1270-P), N° de Venta: S.99.II.G.45(US\$ 10.0), 1999. [www](#)
- 2 Multilateral Rules on Competition Policy: An Overview of the Debate, Berend R.. Paasman (LC/L1143-P), Sales N°: E.99.II.G.63 (US\$ 10.0), 1999. [www](#)
- 3 Las condiciones de acceso a los mercados de bienes: algunos problemas pendientes, Verónica Silva y Johannes Heirman, (LC/L.1297-P) N° de Venta: S.99.II.G.62 (US\$ 10.0), 1999. [www](#)
- 4 Open Regionalism in Asia Pacific and Latin America: a Survey of the Literature, Mikio Kuwayama, (LC/L.1306-P), Sales N°: E.99.II.G.20 (US\$ 10.0), 1999. [www](#)
- 5 Trade Reforms and Trade Patterns in Latin America, Vivianne Ventura Dias, Mabel Cabezas y Jaime Contador, (LC/L.1306-P) Sales N°: E.00.II.G.23 (US\$ 10.0), 1999. [www](#)
- 6 Cooperative Analysis of Regionalism in Latin America and Asia Pacific, Ramiro Pizarro, (LC/L.1307-P) Sales N°: E.99.II.G.21 (US\$ 10.0), 1999. [www](#)
- 7 Exportaciones no tradicionales latinoamericanas. Un enfoque no tradicional, Valentine Kouzmine, (LC/L.1392-P) N° de Venta: S.00.II.G.65 (US\$ 10.0), 2000. [www](#)
- 8 El sector agrícola en la integración económica regional: Experiencias comparadas de América Latina y la Unión Europea, Miguel Izam/ Valéry Onffroy de Vézé, (LC/L1419-P) N° de Venta: S.00.II.G.91 (US\$ 10.0), 2000. [www](#)
- 9 Trade and investment promotion between Asia – Pacific and Latin America: Present position and future prospects, Mikio Kuwayama, José Carlos Mattos and Jaime Contador (LC/L.1426-P) Sales N°: E.00.II.G.100 (US\$ 10.0), 2000. [www](#)
- 10 El comercio de los productos transgénicos: el estado del debate internacional, María Angélica Larach, (LC/L.1517-P) N° de Venta S.01.II.G.60 (US\$ 10.0), 2000. [www](#)
- 11 Estrategia y agenda comercial chilena en los años noventa, Verónica Silva (LC/L.1550-P) N° de venta: S.01.II.G.94 (US\$ 10.0), 2001. [www](#)
- 12 Antidumping in the Americas, José Tavares de Araujo Jr./Carla Macario and Karsten Steinfatt, (LC/L.1392-P) Sales N° E.01.II.G.59 (US\$ 10.0), 2001. [www](#)
- 13 E-Commerce and Export Promotion Policies for Small-and Medium-Sized Enterprises: East Asian and Latin American Experiences, Mikio Kuwayama (LC/L.1619-P) Sales N° E.01.II.G.159 (US\$ 10.0), 2001. [www](#)
- 14 América Latina: las exportaciones de productos básicos durante los años noventa, Valentine Kouzmine, (LC/L.1634-P) N° de Venta S.01.II.G.171 (US\$ 10.0), 2001. [www](#)
- 15 El comercio entre América Latina y los países de Europa Central y Oriental en los años noventa, Valentine Kouzmine, (LC/L.1653-P) N° de Venta S.01.II.G.191 (US\$ 10.0), 2001. [www](#)
- 16 Los desafíos de la clasificación de los Servicios y su importancia para las negociaciones comerciales, José Carlos Mattos, (LC/L.1678-P), N° de Venta S.01.II.G.217 (US\$ 10.0), 2001. [www](#)
- 17 The Gender Dimension of Globalization: a survey of the literature with a focus on Latin America and the Caribbean, Maria Thorin, (LC/L.1679-P), Sales N° E.01.II.G.223 (US\$ 10.0), 2001. [www](#)
- 18 Las tendencias principales del comercio, la política comercial y los acuerdos de integración de los países de la Asociación de Estados del Caribe (AEC), Johannes Heirman, (LC/L.1661-P), N° de Venta S.01.II.G.216 (US\$ 10.0), 2001. [www](#)
- 19 Facilitación del comercio: un concepto urgente para un tema recurrente, Miguel Izam, (LC/L.1680-P), N° de Venta: S.01.II.G.218 (US\$ 10.00), 2001. [www](#)
- 20 Notas sobre acceso aos mercados e a formação de uma área de livre comércio com os Estados Unidos, Vivianne Ventura-Dias, (LC/L.1681-P), N° de Venta: S.01.II.G.219. (US\$ 10.00), 2001. [www](#)
- 21 La liberación del sector de servicios: el caso del tratado Unión Europea/México, Philippe Ferreira, (LC/L. 1682-P), N° de Venta: S.01.II.G.220. (US\$ 10.00), 2001. [www](#)

- 22 Production sharing in Latin American trade: a research note, Vivianne Ventura-Dias and José Durán Lima, (LC/L.1683-P), Sales N° E.01.II.G.221 (US\$ 10.00), 2001. [www](#)
- 23 El camino hacia las nuevas negociaciones comerciales en la OMC (post-Doha), Verónica Silva, (LC/L. 1684-P), N° de Venta: S.01.II.G.224 (US\$ 10.00), 2001. [www](#)
- 24 Legal and economic interfaces between antidumping and competition policy, José Tavares de Araujo Jr., (LC/L. 1685-P), Sales N°: E.01.II.G.222 (US\$ 10.00), 2001. [www](#)
- 25 Los procesos de integración de los países de América Latina y el Caribe 2000-2001: avances, retrocesos y temas pendientes, Renato Baumann, Inés Bustillos, Johannes Heirman, Carla Macario, Jorge Mattar, Esteban Perez., (LC/L. 1780-P), N° de Venta: S.02.II.G.95 (US\$ 10.00), 2002. [www](#)
- 26 La calidad de la inserción internacional de América Latina y el Caribe en el comercio mundial, Mikio Kuwayama, José Durán (LC/L.1897-P),), N° de Venta: S.03.II.G.56 (US\$ 10.00), 2002. [www](#)
- 27 What can we say about trade and growth when trade becomes as a complex system?., Vivianne Ventura-Dias, (LC/L.1898-P), Sales N°: E.03.II.G.57 (US\$ 10.00), 2003. [www](#)

-
- Publications available for sale should be ordered from the Distribution Unit, ECLAC, P.O. Box 179-D Chile, Fax (562) 210 2069,
 - publications@eclac.cl.

[www](#): These publications are also available on the internet: <http://www.eclac.cl>

Name:

Activity:

Address:

Postal Code, city, country:

Tel.: Fax: E.mail address: