

Globalization – the maritime nexus

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Abstract

Trade in merchandise and unfinished goods increases faster than the world's GDP, and so does the demand for maritime transport services. These services form part of the global logistics chain that determine a good's competitiveness. At the same time, the maritime business is itself strongly affected by globalization. Trade in maritime services is one of the most liberalized industries, and its "components" such as vessels, flag registration, class inspections, insurance and the work of seafarers are purchased globally.

As mainstream economists attempt to tackle the causes and impacts of globalization, international transport is re-entering the debate on trade models and development theories. This chapter attempts to contribute to this debate. It analyses the mutual relationships between trade and its maritime transport, including the specialization of countries in different shipping sectors, the determinants of transport costs and their relation to trade volumes, and the externalities of growing trade and maritime transport.

I. Introduction: Globalized business in a globalized economy

“Globalization” means different things to different people. For some, it is the culprit of poverty and war, for others, globalization is a requirement to economic development for a growing world population. Even “when did globalization begin” (O’Rourke and Williamson 2000) is a disputed topic. For us, in this brief chapter about maritime economics, it is simply a concept that describes a *trend* in international trade: It means a) that trade is growing faster than the world’s GDP, and b) that this trade is not only in finished goods and services, but increasingly in components and services that are used within globalized production processes. Maritime transport is growing because it is required to move traded goods and components, and trade in maritime services is itself also taking place on an ever more global scale.

Transport is one of the four cornerstones of globalization. Together with telecommunications, trade liberalization and international standardization, the increased efficiency of port and shipping services has made it ever easier to buy and sell merchandise goods, raw materials and components almost anywhere in the world. International standards and homogenous products foster global competition. Trade liberalization allows the efficient international allocation of resources. Finally, telecommunication and transportation are the necessary tools to transfer information and goods. “Despite all the headlines and political bluster surrounding the World Trade Organization, NAFTA and other trade pacts, the real driving force behind globalization is something far less visible: the declining costs of international transport” (*The Journal of Commerce*, 15 April 1997).

At the same time, maritime business itself is probably the most globalized industry. Most maritime transport is provided between two or more countries, and the service providers no longer need to be nationals of the same countries whose cargo they move. In fact, a simple commercial transaction may easily involve people and property from a dozen different countries: A Greek owned vessel, built in Korea, may be chartered to a Danish operator, who employs Philippine seafarers via a Cypriot crewing agent, is registered in Panama, insured in the UK, and transports German made cargo in the name of a Swiss freight forwarder from a Dutch port to Argentina, through terminals that are con-

cessioned to port operators from Hong Kong and Australia. International standardization, an important component of globalization in general, also affects shipping. Thanks to containerization, any liner shipping company from anywhere in the world can now easily enter new markets and provide its services globally. Equivalently, international operators are now in a position to take a concession of a container terminal in any port of the world, suppliers of port and ship equipment produce and sell globally, and ISO's and IMO's standards concerning quality, safety and training apply equally on all international waters.

The remainder of this chapter will look at the mutual relationship between maritime business and globalization. Section II discusses how trends in international maritime transport affect globalization, and section III looks at the same relationship, but from the opposite direction, i.e. how the maritime business is affected by globalization.

II. Maritime transport and its relevance for globalization

II.A. Global trade, and how it is being moved

Shipping continues to be the dominant mode of transport, accounting for almost two thirds of world trade (metric tons). World seaborne trade has grown almost continuously since World War II, increasing more than two-fold since 1970 (UNCTAD 2001). The Asia Pacific region accounts for one third of this trade. Industrialized countries have a trade deficit in terms of weight (in metric tons), whereas the exporters of commodities in developing countries have a surplus (Table 1).

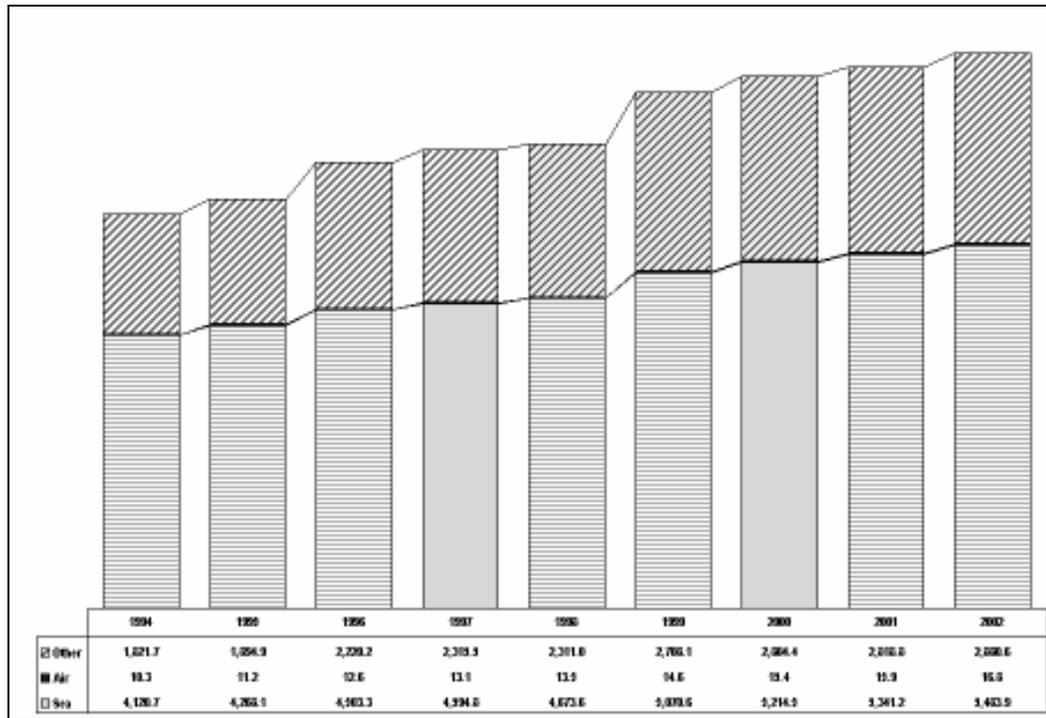
Table 1: World seaborne trade, by region, 2000, in metric tons

	Exports	Imports	Total
Asia Pacific	1,395,048,612	2,106,116,904	3,501,165,517
Europe	673,405,518	1,421,793,751	2,095,199,269
North America	536,183,767	910,728,180	1,446,911,947
Latin America and the Caribbean	948,292,825	313,012,648	1,261,305,473
Persian Gulf	832,325,214	76,224,353	908,549,566
Other	829,195,627	386,575,726	1,215,771,353
TOTAL	5,214,451,562	5,214,451,562	

Source: Authors, based on DRI-Wefa, August 2001.

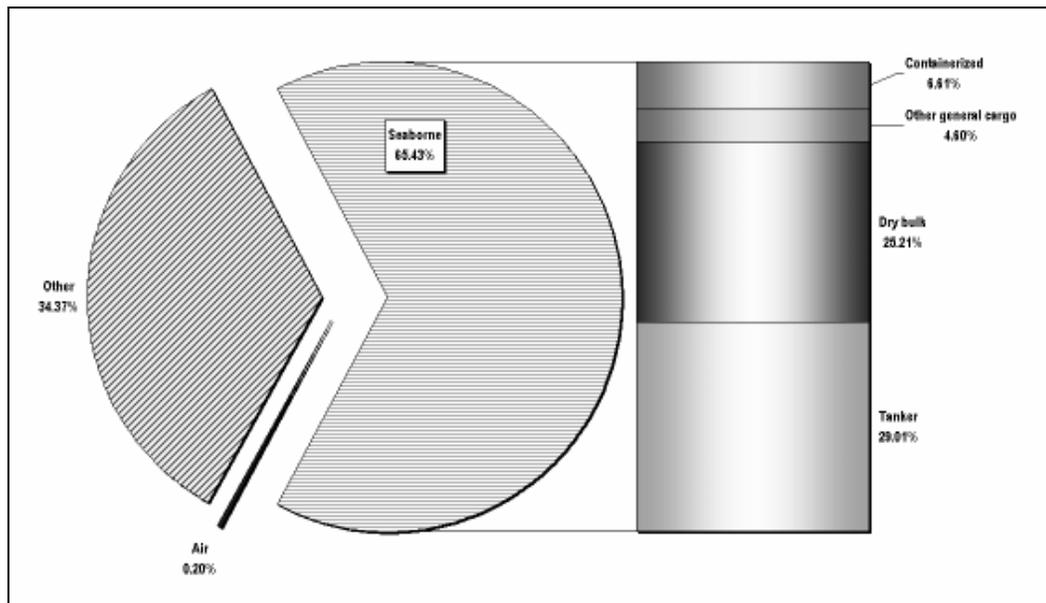
Chart 1 (page 6) illustrates the growth of global trade, and its modal split into air, seaborne and other modes of transport. The latter include pipelines, rail, and trucking, which has grown particularly within Europe. Air cargo, albeit starting from a very low base, has the highest growth rate. During the eight years covered in Chart 1, it grew by almost 63%, compared to 57% for sea and 58% for other. Air cargo has particularly grown on intercontinental routes, where it competes mainly with maritime transport. This relative increase reflects the globalization of markets and production processes; higher valued products with shorter life cycles and components used for Just-In-Time delivery require faster (air-) transport. The growth of air transport on intercontinental routes is somewhat offset by the growth of intraregional trade, such as intra-EU, intra-NAFTA or intra-MERCOSUR, which has gained relevance compared to intercontinental trade, and which is mainly moved by trucks.

Chart 1: World trade by mode of transport, billion metric tons



Source: DRI-Wefa, August 2001.

Chart 2: World Trade by type of transport service, forecast 2002, percent of metric tons



Source: Authors, based on data from DRI-Wefa, August 2001.

For the same period, between 1994 and 2002, containerization of seaborne trade has increased from 8.8% to 10.1%, if measured as percent of all seaborne trade, and from 17.2% to 18.1% if measured as a proportion of dry cargo only (Chart 2). Container vessels have increased their share of the world fleet from 8% to 8.6% between 1999 and 2000. During the same year, ton-miles have grown by +4.6% (UNCTAD 2001).

The relative importance of airborne cargo becomes clearer if the value of trade rather than its volume is analyzed (Table 2). Data for Latin American countries clearly confirms that it is the higher valued goods that are moved by air, whereas cargo with a lower value per ton tends to be transported on ships.

Table 2: Modal split of foreign trade of Latin American countries, 2000

	Waterborne	Airborne	Other	% water	% air
Metric tons					
Argentina	93,957,510	682,415	20,111,550	81.9%	0.6%
Brazil	324,991,224	694,280	12,138,087	96.2%	0.2%
Chile	88,924,018	514,559	9,690,672	89.7%	0.5%
Colombia	76,028,013	431,106	2,985,532	95.7%	0.5%
Mexico	198,857,095	1,031,833	885,890,600	18.3%	0.1%
Peru	25,376,372	153,151	699,142	96.8%	0.6%
Uruguay	6,121,614	20,962	2,330,273	72.2%	0.2%
USD					
Argentina	30,803,450,978	6,610,214,390	12,847,589,316	61.3%	13.2%
Brazil	77,131,549,173	20,737,749,036	13,279,384,005	69.4%	18.7%
Chile	25,121,557,671	4,060,155,106	4,407,174,136	74.8%	12.1%
Colombia	16,320,897,681	5,004,128,509	2,573,655,568	68.3%	20.9%
Mexico	53,293,421,982	27,744,495,395	259,642,986,404	15.6%	8.1%
Peru	10,567,412,782	2,731,755,335	409,752,032	77.1%	19.9%
Uruguay	2,980,842,542	636,039,812	1,954,864,886	53.5%	11.4%
USD per metric ton					
Argentina	328	9,687	639		
Brazil	237	29,869	1,094		
Chile	283	7,891	455		
Colombia	215	11,608	862		
Mexico	268	26,889	293		
Peru	416	17,837	586		
Uruguay	487	30,343	839		

Source: Authors, based on ECLAC, www.eclac.cl/transporte/perfil (April 2002).

In terms of weight (metric tons) air transport accounts for only 0.1 to 0.6% of Latin American foreign trade, whereas in terms of value (USD) air cargo represents between 8 and 21% of Latin American imports and exports. Table 2 also illustrates that sea and air transport are for obvious reasons the preferred mode of transport for inter-continental trade. Most South American imports and exports from and to more industrialized countries simply cannot be moved otherwise. Mexico, on the other hand, predominantly trades with the United States, using mainly trucks and also some rail and pipelines. Also Uruguay has relevant land based trade with neighbouring Argentina and Brazil.

II.B. Trade and transport in economic theory

International trade and economic growth

Allowing and facilitating trade has obvious positive impacts on economic growth. If Chile can produce bananas only under glass, and Ecuador grow grapes only on an inaccessible highland, then both countries' populations can eat more bananas and grapes (i.e., achieve measurable economic growth) if they specialize and trade – as long as the shipping services are less expensive than the savings in production costs.

Going a step further, even if one country could produce both commodities with less land or manpower than the other country, according to David Ricardo's (1817) theory of the comparative advantage, it still makes sense for both countries to specialize and trade. Ricardo's example uses the production of cloth and wine, where Portugal has an *absolute* advantage concerning both: It needs 80 man-months to produce X litres of wine and 90 man-months to produce Y metres of cloth, whereas England needs 120 and 100 man-months respectively. England has a *comparative* advantage concerning cloth, and a rational decision of Portugal and England will imply that the first specializes in growing wine and the latter in producing cloth, consequently leading to English exports of cloth to Portugal and Portuguese exports of wine to England. This type of specialization, and thus also the resulting trade, can partly be explained by the "Factor Proportions Model", which was developed by Eli Heckscher and Bertil Ohlin in the 1920s (Ohlin 1933). This model expands Ricardo's basic version by including differences in the endowment of re-

sources. Linking both models thus allows to explain trade flows by differences in available technology, capital, manpower and natural resources.

Today, the academic discussion on why and how much countries trade with each other is far developed. The impetus for new trade theories came from the limitations of the classical models because of their relatively simplistic assumptions and also their empirical weaknesses. This was illustrated by the Leontief Paradox (1953) when the Factor Proportions Model, discussed earlier, was applied to the U.S. The empirical analysis did not support the theory's prediction that a nation's abundance in a particular factor of production would dominate its exports. New contributions in the post-WWII era include Vernon's product life-cycle theory of the mid-1960s, the new trade theory of the 1980s (Krugman 1981, Lancaster 1980) and Porter's (1990) national competitive advantage trade theory. The product life cycle theory explained the international trade patterns of the 1960s when the U.S. dominated the global economy and most new products originated in that country (Vernon and Wells 1986). As demand for the product increased gradually in other developed nations, it was initially met through U.S. exports until the production itself moved to those countries because of higher U.S. labour costs. Furthermore, once the product became standardized, U.S. production was typically replaced with exports from other developed nations first and, in the long-run, exports from developing countries. However, the limitations of this theory are far too many in the contemporary global economy where production is dispersed to different parts of the world simultaneously and no one particular nation is in a position to claim hegemony in international trade.

The new trade theory is based on the increasing returns to specialization that arise in an industry when it is characterized by high economies of scale. The presence of such economies of scale in production would lead to the existence of only a limited number of global players in the market. Those firms that are *first-movers* may benefit from their early entry and establish themselves, erecting entry barriers for others. It has been argued that to be successful in such an environment, in addition to the firm being lucky, entrepreneurial, and innovative, the nation itself must have a strategic, pro-active trade policy that facilitates first-mover advantage in key and newly emerging industries (Hill 2000).

Porter's national competitive advantage theory postulates the existence of a diamond that consists of factor endowments, demand conditions, related and supporting industries, and firm strategy, structure and rivalry. The diamond will be favourable when the four components are in place along with an element of luck and favourable government policies as was the case for the Japanese automobile industry in the 1980s (Porter 1990).

In practice, the different theories of international trade obviously complement each other and make their own contributions. They apply as much to trade in goods as to trade in services – including maritime transport services: Flag registries, for example, surely benefit from economies of scale, shipyards require an endowment of capital and labour, and London was a “first mover” concerning insurance and finance. Later on, we will look in more detail at this specialization in different maritime sectors.

And what does trade mean for economic growth and well-being? Under almost any model, it is “potentially possible to find a free trade consumption point and an appropriate lump-sum compensation scheme such that everyone is at least as well-off with trade as they had been in autarky” (Suranovic 2002). And, accordingly, “international economic integration yields large potential welfare effects” (Anderson and Wincoop 2001). The posterior distribution of these benefits within society is a different matter, beyond the scope of this chapter.

Mainstream economics and its consideration of transport

How does transport fit into this analysis of trade and economic development? Standard Economics text books, if they include it at all, do so by considering it as part of the overall transaction or arbitrage costs. Trade will take place if price differences between two countries are higher than the total transaction costs.

Until the early 1970s, transport and transport related infrastructure played an important role in location theories and development economics, including the lending policies of the World Bank and bilateral technical co-operation. It was assumed that by simply providing for infrastructure such as ports, roads and bridges, developing countries would soon become more competitive and catch up with the industrialised nations. This changed for two main reasons: first, as transport costs declined and connectivity and effi-

ciency improved, it was assumed that further improvements in transport were no longer relevant for trade and development. Second, the relationship between transport and economic growth is quite complex, and impacts of changes were – and still are – difficult to measure. Some of the measurable results of infrastructure investments were actually disappointing or even contrary to the expected and desired impact. For example, if imports suddenly became more competitive, port investments actually led to a closure of local industries (Pedersen 2001, Hilling 1996, Simon 1996).

(Only) once a Nobel Memorial Prize in Economics has so far been given to authors who worked – partly – on transport related topics; that was in 1993, when the prize was won by Robert Fogel and Douglass North. Fogel's main contributions included research on the role of the railways for the development of the national economy in the United States. Douglass North worked, *inter alia*, on the economic development in Europe and the United States before and in connection with the industrial revolution, including the roles of sea transport and changes in the pattern of regional specialization and interregional trade.

Nowadays, most trade models include transport costs or some related variables, such as distance and common borders, to explain the geographical distribution of international trade flows. In empirical research, measurable reductions in transport costs are taken as a given exogenous trend, driven by technological advances, that obviously promotes trade. O'Rourke and Williamson (1999), for example, analyze how in different historical periods trade grew as a result of reductions in freight rates.

Yet still, “there isn't nearly as much trade as standard trade models suggest that there should be. Formal trade barriers such as tariffs and quotas are far too low to account for much of the missing trade while changes in tariffs and quotas in the last 50 years explain too little of the growth in trade. Transport costs help explain the missing trade, but distance and other location variables are far too important in their trade suppressing effects to be accounted for by the effect of distance and measurable transport costs. Measured transport costs do not fall so cannot explain the growth in trade. These anomalies have until recently been ignored by the profession” (Anderson 1999).

Whether transport costs have fallen or not is surely debatable and we shall briefly discuss this question later on. What is true, however, is that by considering only transport costs and not other aspects such as connectivity, safety, security, reliability, speed, or port facilitation, many trade analysts have not been too impressed with the advances in the field of transport and their impact on trade growth. And what has apparently been ignored altogether is how increased trade, i.e. demand, influences transport costs, i.e. the supply of transport services.

II.C. Trade and its transport: a mutual relationship

Rediscovering transport

As mentioned above, the question of “why do nations trade (so little)” (Anderson 1999) is not answered satisfactorily. Perhaps – we hope – this is about to change. Since the late 1990s, in the context of globalisation and the analysis of its causes and impacts, transport is slowly moving back to the mainstream of Economics and related sciences. Thompson (2000), from the World Bank, writes he is “delighted to see the general economics profession rediscovering the importance of transportation costs and geography in international trade considerations”, and Pedersen (2001) explains that “during the 1990 transport and communication appear slowly to be on their way into the mainstream again, but now transformed into a much broader concept of logistics, which has become an increasingly important element in the organisation and restructuring of the globalizing economy. From being an external factor, transport has become an integrated part of the production and distribution system”.

Recent empirical research which incorporates transport into trade and economic policy analysis includes Limao and Venables (1999), who conclude that “halving transport costs increases the volume of trade by a factor of five”. In a related paper (Venables and Limao 1999), the same authors highlight that a “theory of trade that ignores transport costs will yield systematically incorrect predictions about trade patterns, industrial structure, and factor incomes”.

What are the determinants of international maritime transport costs?

Limao, Venables, and also Radelet and Sachs (1998) not only use transport cost data to explain trade, but also undertake regressions to explain transport costs. The explanatory variables used in their analysis are basically related to distance and connectivity, such as if countries are land locked, or if trading partners are neighbours, and to country characteristics such as GDP per capita. García Menéndez et. al. (2002) investigate the determinants of maritime transport costs and the role they play in allocating trade across countries for the case of the ceramic sector (tiles). They include a discussion on the sensitivity of trade flows and transportation costs to the existence of back hauling, and suggest that higher distance and poor partner infrastructure increases transport costs notably. Inclusion of infrastructure measures improves the fit of the regression, corroborating the importance of infrastructure in determining transport costs. Higher transport costs significantly deter trade, and distance does not appear to be a good proxy for transport costs, at least not in the ceramic sector. For Latin America, continuing work by Micco and Pérez (2001), Sanchez et. al (2002) analyze the impact of port reform on transport costs, and also possible determinants of the port reforms themselves. Hummels (1999a, 1999b, and 2000) discusses if “international transport costs have declined”, and he introduces “time as a trade barrier”. One of his conclusions is that that “each day saved in shipping time is worth 0.5 percent ad-valorem, approximately 30 times greater than costs associated with pure inventory holding” (Hummels 2000). Fink et. al. (2001) analyze how liberalization in trade in transport services leads to further reductions in transport costs, which in turn lead to a further promotion of trade in goods. Although criticized in its methodology and specific conclusions concerning liner shipping’s anti trust immunity (World Shipping Council 2001), there is no doubt that the liberalization and globalization of the maritime business (see section III of this chapter), have led to a reduction of transport costs, which is contributing to the globalization of trade and global production.

What appears to be missing in the reviewed literature is a more thorough consideration of the mutual relationship between trade volumes, transport costs, and the quality of transport services. Some preliminary research for intra Latin American trade suggests that

higher quality of service implies higher transport costs, yet also promotes trade. Economies of scale from high trade volumes have a strong negative (i.e., decreasing) impact on transport costs. Therefore, it appears very likely that the strong relation between trade and transport costs detected by Limao and Venables (1999) quoted above (see page 12) does not only reflect the elasticity of trade towards transport costs, but also almost certainly reflects the economies of scale through which higher volumes lead to lower costs of transport.

For the case of Intra-Latin American trade, ongoing research of ECLAC analyzes the impact of a number of factors on transport costs. The results suggest a number of interesting conclusions. For example, the unit value of traded goods and economies of scale appear to have a stronger impact on transport costs than distance (Table 3).

Table 3: Determinants of international maritime transport costs for intra-Latin American trade, containerizable commodities and general cargo, 2000

Variable (Logarithm)	Estimated parameter (t-value)	Standardized coefficient	Partial correlation, zero-order	Partial correlation, Regression
Constant	1.114 (21.400)			
Unit fob value of transported cargo per transaction (US\$ per ton)	0.340 (138.476)	0.480	0.631	0.513
Volume of transported cargo per transaction (tons)	- 0.127 (- 102.931)	- 0.353	- 0.586	- 0.406
Distance between both countries' main ports (km)	0.237 (37.480)	0.190	0.149	0.160
Liner shipping services between both countries (number of services per month)	- 0.094 (- 22.713)	- 0.116	- 0.135	-0.097
Land transport connection between both countries (Dummy variable: "1" if countries are connected by road transport; "0" otherwise)	- 0.048 (- 5.820)	- 0.020	0.003	- 0.025
Successful advances in port privatization of the exporting country (qualitative variable from a poll, values between 1 and 10)	- 0.167 (- 13.546)	- 0.044	- 0.079	- 0.058
Bilateral trade balance of containerizable cargo (tons, exports divided by imports)	- 0.042 (- 23.732)	- 0.073	- 0.082	- 0.102
Speed of liner shipping services between both countries (km per day of fastest available service between both countries)	0.051 (6.669)	0.024	0.022	0.029
Dependent variable: International transport costs (maritime freight and insurance) per individual commercial transaction (US\$ per ton). Trade in containerizable commodities between 15 exporting and 6 importing Latin American countries.				
Number of observations	53770			
Adjusted R²	0.564			

Source: Authors, based on regressions undertaken by ECLAC.¹

Explanatory notes: The estimated parameter reflects an elasticity, e.g. a 1% increase in the distance leads to an increase of transport costs per ton of 0.237%. The "t-value" is a division of the estimated coefficient by its standard deviation, and a value above approximately 2 or below -2 indicates that the estimated parameter is "significant" at the 95% level (i.e. all estimated parameters in our regression are highly significant). The standardized coefficient is equivalent to the estimated parameter, but based on deviations from the mean. The partial correlation coefficient, zero-order, is independent of the regression and varies between 1 and -1. The partial correlation coefficient in the regression reflects each variable's contribution to the explained variance of the transport costs; e.g., although the estimated parameter for distance is higher than that for transaction volume, the fact that distance varies far less than the transaction volume has the effect that the latter has a bigger contribution to the explanation of the variance of transport costs.

The regression results can be interpreted as follows:

- As expected, more expensive goods also require higher transport and insurance costs.
- Moving a higher volume reduces transport costs thanks to economies of scale.
- A longer distance obviously increases transport costs, albeit by far not with a linear relationship.
- “More services” are closely related to the transport system’s overall economies of scale and may also be an indicator of the intensity of competition.
- When shipping competes with land transport, maritime transport costs tend to be slightly lower (4.2%), which may reflect competition from truckers, and also the fact that goods that are particularly difficult to handle by waterborne transport are taken onto trucks – an option that exists between, say, Peru and Ecuador, but not between Peru and Mexico.
- Advances in port privatization do, as expected, reduce transport costs. Not only may ports operate less expensively, but above all reduced waiting times and risk also lead to lower shipping freight rates.
- If exports exceed imports, the latter tend to be less expensive because empty transport capacity is required for the exports.
- Higher speed implies fewer stopovers and thus possibly loss of business opportunities, plus additional fuel consumption.

In sum, econometric regressions confirm basic assumptions about the determinants of maritime transport costs. Above all, they strongly suggest that transport costs cannot be taken as fixed or exogenous in trade analysis.

Transport and regional integration

If it is true that international transport (unit-) costs are declining, and distance has a decreasing impact on these transport costs, why then apparently regional trade is growing

(even) faster than inter-regional trade? Intra-Asian container traffic is growing faster than global container traffic. Intra-European or intra-MERCOSUR trade has been increasing at a higher rate than trade between these two regional blocks.

Some of the intra-regional trade growth certainly has less to do with transport but rather with language barriers, historical trends, trade facilitation at common borders, and lower intra-regional tariffs. But some of the reasons do have a relation with transport costs and options: as shown above, due to larger traded volumes, unit transport costs decline (economies of scale) and frequencies and even possibly speed increases. Also, on a regional level, more options (road, rail) are available. This in turn reduces delivery times, allows for more Just-In-Time delivery, and thus increases the demand for goods and components. In other words, more trade leads to better and less expensive transport services, which in turn again lead to more intra-regional trade.

The impact of better and less expensive transport on trade is equivalent to the impact of lower tariffs, and the relatively faster growth of intra-regional trade does not contradict the previous statement that goods and components are increasingly purchased globally. A large part of the growth of intra-regional trade replaces previous national “trade”, i.e. between counties or regions of the same country, and is not a diversion of imports or exports that would otherwise be bought from or sold to countries outside the region. Just as “most analyses of most Free Trade Agreements, including most importantly by far the European Union, conclude that trade creation has dominated trade diversion” (Bergsten 1997), improved transport costs and services on a regional level are to be seen as a result and a component of the entire process of globalization.

Just as in the relation between globalization and international transport, the relation between regional integration and regional transport is also two-fold: Less expensive and better intra-regional transport services lead to further regional integration, and at the same time regional integration also affects the markets for transport services. Within the European Union, maritime cabotage services are liberalized for European registered vessels, trucks from all Member Countries have liberty to move national cargo in all other countries, and common standards help to create not only a common market for goods, but also a common market for transport services.

II.D. Outlook

Trade, and its transport, will continue to shape the world's economic development. Historically, when transport costs were prohibitive for most products, each country, or even town, would produce its own goods. Most countries made their own toys, furniture, watches and even cars. Then came the international economy; as transport costs went down and delivery times and reliability improved, many national industries died out and production became concentrated in a few, specialized places, from where world markets were being served. Cars, and car parts, were made in Detroit; watches, and batteries, in Switzerland; furniture, and the required wood, were made in Sweden.

At present, we are observing how the international economy gives rise to globalization. As transport costs decrease even further, and delivery times and reliability continue to improve, production is again becoming less concentrated, albeit in a different manner: cars may still be designed in Detroit, yet car parts may be made in Mexico and assembly takes place in Malaysia; watches may still be marketed as "Swiss", yet most components are likely to be imported; and a Swedish producer of furniture will franchise his name and design, to produce local furniture with imported materials and components from wherever these are provided at the best price and quality.

The same applies to shipping. A ship may be registered in Antigua and Barbuda, but its owner can be German, and the "components" of the shipping service, such as insurance, equipment, the work of seafarers, or certificates of classifications societies, are very likely to have been purchased in many different countries. "The claim that 'trade follows the flag', often used in the past to justify support for national fleets, has become primarily an argument of special interest groups seeking support for maritime sector enterprises. It is agreed that access to efficient maritime transport is a key variable in economic development. This does not necessarily imply fleet ownership or government control" (Audigé 1995). The next section will look in more detail at how globalization affects maritime business.

III. Globalization and its relevance for maritime business

III.A. The global supply chain

Global supply chain management

Although globalization is sometimes referred to as being Janus-faced for its inequitable distribution of benefits among nations of the world, the perceptible impact that it has had on international production and marketing are beyond cynicism. Porter (1985) thinks of the firm as a value chain composed of a series of value creation activities, some of them (such as production and marketing) being primary activities and the others (such as logistics services that include shipping movements) being support activities. As firms tend to focus more on their core competencies and maintain their competitive advantage in the global marketplace, the orientation towards procuring raw materials and sub-assemblies from sources all over the world, based on optimal purchasing arrangements, becomes even more crucial. This, along with the reduction in numerous trade barriers (because of the role of the World Trade Organization) and the apparent diminution of ideological conflicts between leading nations of the world have led to greater levels of outsourcing and thus, the diffusion of the value chain across the oceans, and hence, the evolution of global supply chains.

Mentzer et al (2001) argue that firms must have a supply chain orientation to effectively manage the supply chain that could result in lower costs, increased customer value and satisfaction, and competitive advantage. Leading edge logistics firms have recognized that it is the supply chain of a firm that is in competition with that of its competitors rather than the firms themselves (Christopher 1992). The establishment of such a supply chain requires the formation of strategic alliances with channel members that include transportation service providers such as shipping companies. Integration of transport activities is essential for the success of a supply chain and a well-integrated transportation system's contributions to the supply chain could include time compression, reliability, standardization, Just-In-Time delivery, information systems support, flexibility and customisation (Morash and Clinton 1997). Although the emphasis on building supply chain

partnerships is a relatively new trend in corporate strategy, it is not a novel concept in the maritime business, two early examples being the evolution of the open registry concept and that of the ship management industry.

The objective of outsourcing non-core activities in search of efficiency and adding value to the end customer is potentially advantageous and adds to societal welfare – as long as the functions are being performed at acceptable levels of quality which in today’s lexicon for product standards is one of “zero defects”. The ship owner’s effort to create a “least cost system” in the maritime business is tantamount to designing a global supply chain based only on least cost channel members.

Whereas this may lead to a loss of market share and corporate profits for the channel members of a supply chain, deficiencies of the least cost maritime system could have more drastic consequences, ranging from loss of life to environmental degradation that impacts society at large besides the more traditional commercial losses of the business enterprise. Hence, while the temptations of using the cheapest crew and registering the ship in a lax ship registry might be appealing to the business acumen, the likely catastrophic magnitude of a mishap would make the ship owner think hard before making such choices. Globalization and its underlying market forces appear to provide some guidance in this regard as there are perceptible specialized markets for virtually any aspect of the maritime business today that parallel the developments in specialization in a broader context.

Specialization in maritime business

Readily observable examples of specialization exist in ship construction, technical management of ships, ship repairs and dry-docking, ship registration, crewing, shipping finance, ship chartering and brokering, and marine insurance. Analogous to the economic philosophy driving the new trade theory in international business, some areas of specialization in shipping are an outcome of pro-active trade policies in combination with luck, entrepreneurship and innovation that created a new breed of first-movers in areas like open registries, and ship construction and repairs. However, the socio-economic condi-

tions of the leading nations (in specific areas of maritime specialization) have also contributed toward their evolution as global leaders.

Examples of this include small service economies that have specialized in open registries (such as Panama, Cyprus, Bahamas, or Bermuda), and large populous Asian nations that provide seafarers (such as the Philippines, India, Indonesia and China). Norway, combining tradition and financing from its oil exports, is strong in shipping finance. London is a leading supplier of insurance and brokering services in general, including shipping. Korea and Japan are highly industrialised countries that build most of the world's shipping tonnage. There appears to exist a close relation between a country's endowment of resources and general specialization in services or industrial production and its specialization in specific maritime sectors, whereas the relation between the different maritime sectors themselves appears to be increasingly weak.

The other side of that same coin is of course "concentration"; as countries specialize, the market share of the major players is increasing (Hoffmann 1998). Between January 2001 and 2002, Panama's share of the world fleet (Gross Tons, GT) has further grown from 21 to 22% (ECLAC 2002). Maersk-Sealand now controls 11% of the world's container carrying capacity (www.alphaliner.com), up from around 6% for Maersk only in 1997. Four Asian nationalities provided around 40% of the world's seafaring personnel in 2000, forecasted to grow to 48% by 2005.

If the world were still divided into "maritime nations" and others, non-maritime nations that do not participate in the maritime business, then the same countries where carriers are based would also build and register the ships and provide the seafarers. A cross country comparison based on indicators for these maritime activities would produce very high correlation coefficients. The reality under globalization, however, is quite different, as the following example of Latin America and the Caribbean illustrates.

Specialization and clustering: The case of Latin America and the Caribbean

For Latin American and Caribbean countries, a clustering and principal component analysis of main maritime sectors confirms that, today, the countries that provide seafarers to the industry are very different from those that provide the registries or the ship

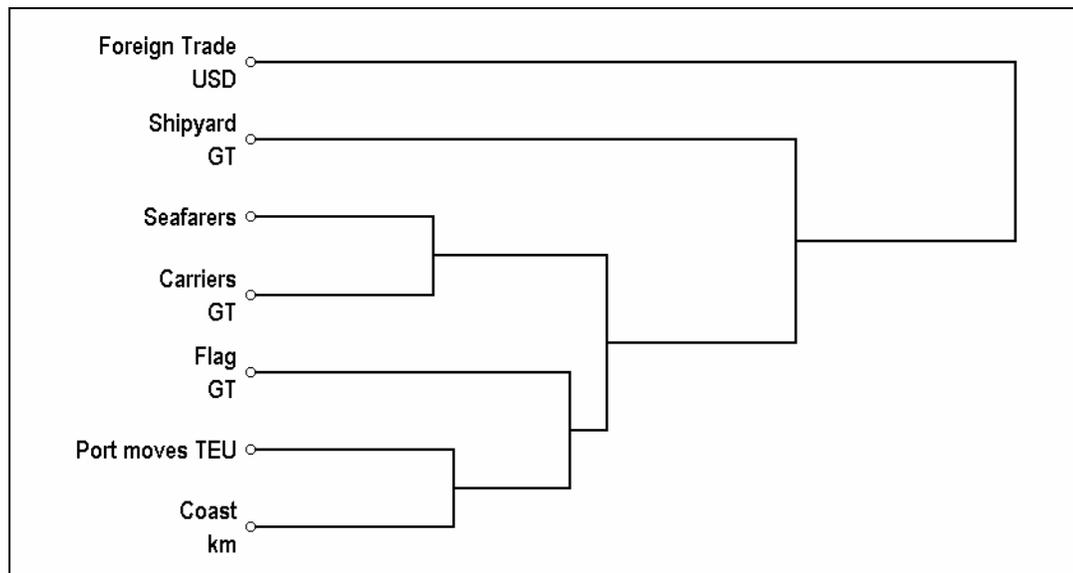
building. On a per-capita basis, some positive correlation remains between carriers and registries. Other positive correlations appear to be rather a coincidence; the same small countries in the Caribbean with a long coastline per capita are also home to transshipment ports, and some provide open registries. It should also become clear that foreign trade is hardly related to most maritime business, i.e., a statement such as “trade follows the flag” is not supported by empirical evidence (Table 4).

Table 4: Correlation coefficients between different maritime sectors in Latin America and the Caribbean

Per capita indicator	Coast	Port	Flag	Carriers	Shipyard	Seafarer	Trade	GDP
Coast, km	1.00							
Port moves, TEU	0.68	1.00						
Flag registration, GT	0.74	0.85	1.00					
Carriers, GT	0.26	0.66	0.56	1.00				
Naval construction, GT	-0.09	-0.15	-0.10	0.31	1.00			
Seafarers, persons	-0.02	0.08	0.07	0.21	-0.07	1.00		
Trade, US\$	-0.03	0.42	0.18	0.36	-0.22	0.34	1.00	
GDP, US\$	0.45	0.30	0.34	0.19	0.39	-0.21	-0.36	1.00

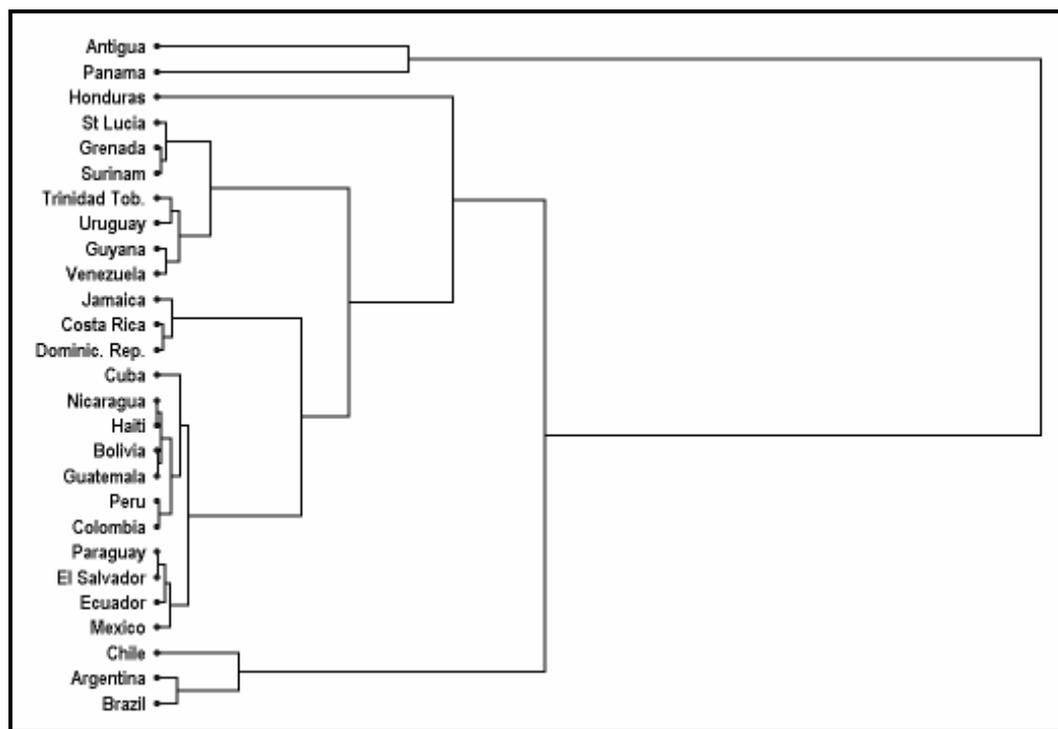
Source: Authors, based on per capita indicators for 27 Latin American and Caribbean countries from www.eclac.cl/transporte/perfil.

Chart 3: Clustering of maritime industries in Latin America and the Caribbean



Source: Authors, based on normalized industry per capita indicators for 27 Latin American and Caribbean countries from www.eclac.cl/transporte/perfil. Clustering with software xlstat.

Chart 4: Grouping of Latin American and Caribbean countries according to similar specialization in maritime industries



Source: Authors, based on data from www.eclac.cl/transporte/perfil. Clustering undertaken with normalized per capita indicators, utilizing software xlstat. To request the underlying data in xls format, contact jhoffmann@eclac.cl.

In what maritime sectors do countries specialize (Chart 4)? Antigua & Barbuda and Panama are specializing in services and provide open registries. Honduras has a very low income and exports the highest number of seafarers per capita. Chile, Brazil and Argentina are home to the region's main shipping companies, and they are also among the few countries that have maintained some ship building during the last five years. In the latest edition of Fairplay Newbuildings (March 2002), these three are the only Latin American and Caribbean countries at all with any vessels on order in their national shipyards.

Except for GDP per capita, the statistical comparison that underlies Chart 4 only contains maritime indicators. Nevertheless, it appears that the grouping of countries coincides with other common characteristics of the countries in the same group. Chile, Brazil and Argentina are also among the more industrialized countries of the region; Antigua & Barbuda and Panama are service economies; and Suriname, Grenada and St. Lucia are among the smallest economies of the continent. In other words, the specialization in ex-

ports of particular maritime services has ever less to do with other maritime businesses, but rather with geographic location, natural resources and other comparative advantages – just as trade in any other good or service in a globalized economy.

As globalization in maritime business has led to increasing levels of specialization in the industry, this has had varying impacts on nations. Along with the traditional maritime nations, a number of new maritime players have evolved, some of which have very little maritime history or even a coastline. A good example is Switzerland, a land-locked nation, which is home to the world's largest freight forwarder and to Mediterranean Shipping Company, one of the top five liner shipping companies in the world. According to UNCTAD (2001), there are 246 Swiss ships – 13 flying the national flag and the rest open-registry – that constitute 0.92% of the world fleet. The following sub-section discusses salient policy developments in traditional maritime nations as well as newcomers that have shaped the course of maritime business.

III.B. Policy issues

The decline of traditional maritime nations

The globalized economy and the relatively invisible role played by the maritime sector in facilitating it have led to predictable outcomes for the sector in general. No one attaches the same prominence to shipping today as Sir Walter Raleigh did in the early 1600s when he linked the command of the sea to the possession of the riches of the new world. The irony is that the relative decline of the maritime political power is partly because of the sophistication of contemporary shipping operations wherein a cargo movement from Argentina to Zimbabwe or Mumbai to Marseilles is as predictable as a commute to the suburbs. Thus, shipping operations have become literally invisible in the global chain of commerce, albeit still important and unavoidable. Accordingly, the declining importance given to maritime issues is understandable.

Lovett (1996) provides an excellent discussion of the rise and fall of various maritime empires, from the Greeks and Phoenicians (480 B.C.) to the British, West European and the U.S. merchant fleet as of the early 1990s, and makes a strong argument for a re-

surge of maritime policy-making in the United States. Maritime economists have offered remedial measures to stem the flow of maritime business interests of developed nations like the U.S. (e.g., Kumar 1994). However, two powerful forces, in combination, have solidified the ongoing decline of traditional maritime nations. One is the power of the market forces driving the global economy and specialization in general, discussed earlier, and the other, the political reality at the bargaining table.

The political reality in the developed economies today is such that shipping-related issues are subservient to the trade needs of those nations. The balance of power has swung visibly in favour of the cargo owners from that of the transportation service providers (Kumar 1987). This has impacted current transport policy-making, in the maritime sector as well as in other modes. Sletmo (2001) captures the contemporary maritime policy-making trend by emphatically placing the supremacy of global trade perspectives over maritime issues. Accordingly, mode-specific transportation policy has become a doctrine of the past in developed market economies, most of who were the most important maritime nations of the past. Although one could argue that air movements are still an exception because of the extensive use of bilateral negotiations involved in air transportation, major developed nations today advocate a transport policy that favours seamless multimodal freight movements in general.

These nations have thus assumed a more holistic approach in national transportation policy-making that is conducive to the facilitation of a seamless movement of its commerce. Accordingly, the emphasis today in many developed nations is not in the size of their fleet or their tonnage, but on eradicating the barriers to the through movement of cargoes. An excellent example of this is the United States, the world's largest importer and exporter, and the home of many prestigious shipping firms of the past. Today, it is left with relatively very little presence in the deep-sea fleet, in spite of the Jones Act and other protectionist measures that oblige carriers to use US flagged, built and manned vessels for cabotage services.

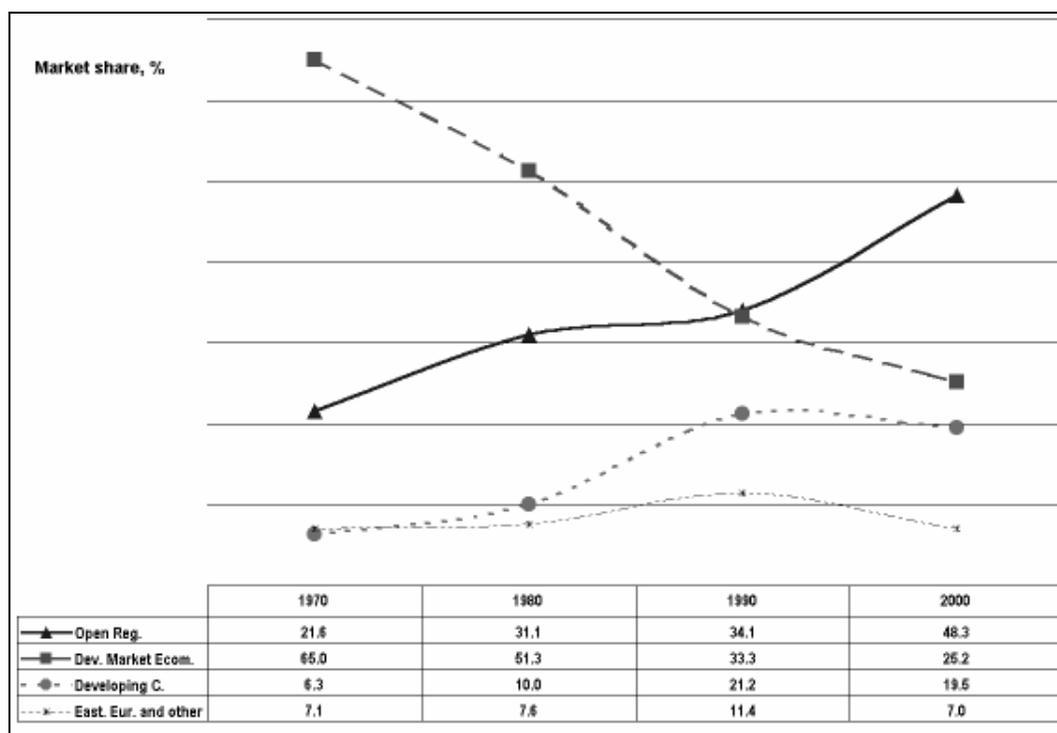
Table 5: Maritime engagement of traditional maritime nations, end 2000

Country	Percent value share of world trade generated	Percent share of world fleet in dwt
United States	15.7	7.87
Germany	8.1	4.11
Japan	6.6	12.74
United Kingdom	4.7	3.76
France	4.6	1.48
Italy	3.6	1.84
Netherlands	3.1	0.85
Belgium-Luxembourg	2.9	0.99
Spain	2.0	0.71
Russia	1.1	2.09
Norway	0.7	10.90

Source: UNCTAD, Review of Maritime Transport, 2001, Table 30.

Table 5 shows the maritime engagement of traditional maritime nations as of end 2000. It is to be noted that among the nations listed, only Japan, the Russian Federation and Norway have a greater percentage share of world fleet in deadweight than their share of world trade in value. Chart 5 (Page 27) shows the precipitous decline in the shipping fleet registered in developed market economy nations, most of who also fall under the traditional maritime countries category. The decline in the fleet of these nations during the past 30 years is in direct contrast to the gains made by fleets registered in open registry nations and developing countries. Presently, almost two out of every three ships are registered either under an open registry flag or in a developing country.

Chart 5: Ship registration trends



Source: UNCTAD, *Review of Maritime Transport, 2001, Table 29.*

The rise of a new order in maritime business

While the traditional maritime nations in general are losing their supremacy in the business, a new group of nations have proactively enacted maritime policies that favour their shipping base. A 1996 attempt to classify nations based on their attitude towards shipping in general listed these new centres of maritime business as shipping-friendly whereas the policies of many of the traditional maritime nations were listed under the shipping-hostile category (Lovett 1996). Examples of the shipping-friendly category include nations such as South Korea, Taiwan and Singapore. The ascendancy of these nations is usually focused on specific aspects of the shipping business, such as ship operation and construction in South Korea, or ship registration in smaller service economies.

Some, such as Singapore or Brazil, do apparently pursue all-out efforts to build the entire shipping milieu. A recent announcement from the Ministry of Maritime Affairs and Fisheries, South Korea is another example. Coincidentally, the day this segment was written, the Journal of Commerce reported the South Korean government initiative to es-

establish a ship-registration site in the southern island of Cheju to complement the international logistics centres being planned for Pusan and Kwangyang in South Korea. Reportedly, the new plan is to provide various incentives to lure ship owners to the Korean registry and make it the fifth largest in the world (www.joc.com, 15 April 2002). In a similar move, Jamaica, two years ago, tried to establish its own open registry, in an attempt to generate synergies between its transshipment business and other maritime activities. So far (January 2002), only five ships have made use of this registry, three more than in January 2000 (ECLAC 2002). In Brazil, the aim to maintain a broad spectrum of maritime industries has been achieved more successfully, albeit at a cost to users; “the Brazilian model of support to maritime industry implies net economic benefit transfer from the Brazilian importers to private maritime investors and shipbuilding domestic input suppliers” (Pires 2001).

Even in countries that are strong (per capita) trading nations and have a high market share in shipping services, these two situations usually have very little to do with each other. By way of example, the Chilean carrier CSAV generates 82.7% of its freight income from outside Chile, and moves just 5.9% of Chilean foreign trade. Hardly any of this foreign trade (0.1%) is transported under the Chilean flag. Concerning ownership of vessels, 86 000 TEU of a total of 91 000 TEU operated by CSAV are chartered capacity, i.e. the ships are not even owned by CSAV (Hoffmann 2001). In other words, whereas CSAV historically depended on Chile’s foreign trade, today, as a result of globalization, the company depends far less on this traditional basis, and, at the same time, its host country relies increasingly on foreign carriers and flag registries for its own foreign trade.

It is noteworthy that despite the efforts by shipping and seafarer organizations from some traditional maritime nations, the open registry fleet has continued its spectacular growth during the last two decades (see Chart 5, page 27). Furthermore, the open registry nations have also contended with increasing competition from some traditional maritime nations like Norway that have established international ship registers to stem the outflow of their domestic tonnage to foreign registries if not attract some of the previously lost tonnage back to the national fleet. An attempt to control the growth of open registry fleet through a United Nations Convention on Conditions for Registration of Ships introduced

in 1986 (that emphasises the existence of a *genuine link* between the ship and its flag of registration) has so far received the support of only eleven contracting states, none of which have any significant maritime clout. It is to be expected that the open registry fleet will continue to surge ahead in future years.

Governmental interference in shipping has a long history (Farthing 1993). Ever since the British enacted their restrictive Navigation Acts in the mid-1600s the global maritime business has never operated in so liberal a commercial environment as it exists today. A rational justification for this new wave of liberalism is the impact of globalization. As maritime policies have become subservient to the overall trade policies of major trading nations, the crux of the issue is not the flag of registration but the overall fit of the shipping services in the global supply chain. Under such circumstances, the specialization referred to earlier has led to a new breed of maritime players where nationality is once again irrelevant. As an example, the concept of giving away one's flag to a ship owned by a foreign entity (although not *pro bono*) and staffed by foreign crew is an illustration of high shipping liberalism.

A cursory examination of the current breed of ship owners will show relatively few of the historic shipping families but more so of investment firms, pension funds and business conglomerates, none of which have any shipping heritage typically. Thus, it is ironic that globalization has led to a certain loss of identity and respectability for the industry. A perfect example of this irony is the high public attention that the industry receives when there is a shipping accident but the total lack of coverage that it receives from the media when it performs normally. The average citizen today is more aware of the mistakes made by the maritime industry rather than its contributions to the global commerce because of the extreme negativity it receives from the press. The following sub-section examines issues related to safety at sea and employment conditions. It suggests that the neo-liberalism in shipping policies has not meant a decline in operating standards but on the contrary, a general improvement in the safety of ships and the environment.

III.C. Safety and employment: the victims of globalization?

Safety at sea

The increasing environmental awareness of the global community is vividly marked in all aspects of life today including maritime business. Given the inherent operating environment of merchant ships and their propensity to be a major environmental polluter, the increasing safety regulations imposed on the industry are only to be expected. A number of major shipping accidents in certain locations and the subsequent investigations, such as the *Ships of Shame* Inquiry (House of Representatives 1992) in Australia, have also provided further momentum for an increase in maritime safety regulations.

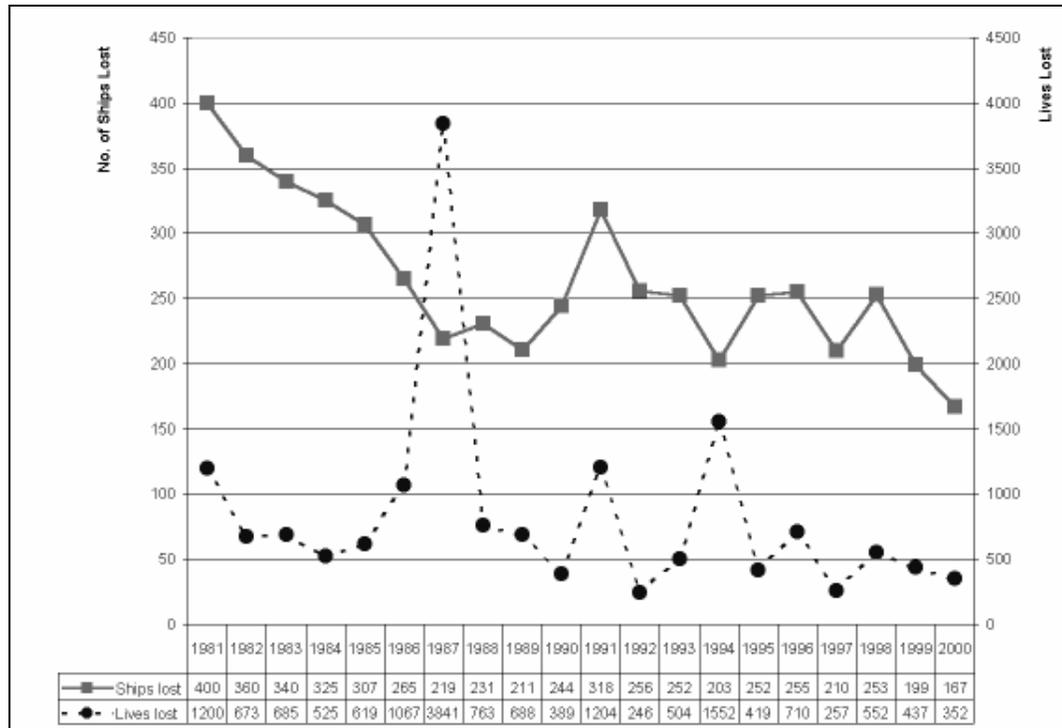
The International Maritime Organization (IMO), established under the auspices of the United Nations to promote safety standards in shipping and cleaner seas, has a number of provisions aimed toward these objectives. Although some of these conventions date back to the 1960s and 1970s, they have been amended extensively to enhance the overall safety standards in a globalized operating environment. Two recent developments are particularly noteworthy, those being the *ISM (International Safety Management) Code Amendment to the Safety of Life at Sea Convention* and the *Amendments to the STCW (Standardization of Training, Certification and Watchkeeping) Convention*. The *ISM Code for the Safe Operation of Ships and Pollution Prevention* extends the scrutiny of shipping operations and management to the shore office and the decision-makers therein. This is a drastic change from prior efforts and aims to establish an all-encompassing safety management system in compliance with legislative and company requirements. The recent amendments to the *STCW Convention* introduced globally accepted minimum standards for maritime training, evaluation criteria and assessment mechanisms. Given the diversity in national origin of seafarers today and their varying levels of skill and proficiency, the new amendments have been propitious and timely.

There is a concerted multilateral effort now for ongoing scrutiny of the hardware and software of the maritime business. Some multilateral efforts originated as a unilateral initiative to enhance safety and prevent pollution (such as the *U.S. Oil Pollution Act of*

1990 that made double-hulls mandatory for oil tankers and certain other ships calling the U.S. ports and was subsequently matched by the IMO through Amendments to the multi-lateral *MARPOL Convention*). Aside from these, individual nations have signed agreements to enforce safety standards by inspecting the ships that call their ports. Such Port State Control agreements cover all major ship operating areas today and the respective national enforcement authorities arrest ships that do not meet the accepted minimum safety standards. As a further embarrassment (and incentive to scrap unsafe ships), some national authorities (e.g., the U.K.) publish the list of “rogue” ships in the trade media. Equasis (www.equasis.org) publishes inspection results from many P&I Clubs, classification societies, and port state control organizations on a global level (an unfortunate exception is the Latin American “Viña del Mar Agreement”, which does not share the results of its port state control inspections with Equasis).

Along with the governmental agencies, a number of non-governmental agencies such as labour organizations (e.g., the International Transport Workers’ Federation), ship owners’ association, ship charterers, classification societies, marine insurance firms and others have also raised the barriers and discourage the operation of sub-standard ships. The overall effect of these multi-pronged initiatives is visible in the following chart that shows the trend in maritime casualties, both ships lost (actual or constructive total loss) as well as lives lost. Despite the increase in global shipping tonnage and maritime activities in general, and despite the diffusion of ship registration (in the neo-liberal maritime environment) to open registry and developing nations, the safety record of the industry is laudable. Even one life lost at sea is one too many, and the authors are not arguing that the current level of lives lost at sea is acceptable, but quite the contrary. However, all numbers strongly suggest that the overall trend in safety at sea is optimistic. I.e., especially if we consider the growing volumes of trade (Chart 1, page 6), the decline in the number of lives lost (Chart 6) must be viewed as a positive trend.

Chart 6: Losses of life and vessels at sea



Source: World Casualty Statistics, Lloyd's Register, various annual issues.

The seafarer dilemma

Any discussion of the impact of globalization on maritime business will be incomplete if the human element is not included. Various technological advances have helped reduce the number of crew required on board a ship compared to the period before the 1980s. This has by no means diminished the role of seafarers in the maritime business; on the contrary, crewing costs still constitute a major component of the operating cost of a ship, and crew-related issues remain relatively complex (IMO - Globalization and the Role of the Seafarer 2001). The impacts of globalization on seafaring serve as excellent illustrations of the pros and cons of globalization in general.

Seafaring is a glorious profession and has no room for error or negligence. Indeed the education of a young sailor is incomplete if it does not include indoctrination for facing calamities at sea or ashore. Successful seafarers are unique individuals. The uniqueness comes not from the possession of any extraordinary intellectual capacity but from the possession of simple commonsense (euphemistically referred at sea as behaving in a

"seaman-like manner") and from the willingness to subject oneself to the rigors of self-discipline of the highest order and separation from near and dear ones for prolonged periods of sailing. It also comes from the individual's mental and physical aptitude to face the unknown, be that hurricane force winds at sea, pirates, or militant stevedores trying to pilfer cargo in port. The sea is certainly no place for incompetence, negligence or complacency for it can be tranquil one day, and ruthless the other. The only way a seafarer can gain respect from fellow shipmates is by knowing his/her job and carrying it out in the most professional manner. These skills are by no means restricted to any particular nationality, race, religion or creed. On the contrary, well-trained seafarers from a poor country can do the same job as effectively as their well trained, colleagues from a developed nation at drastically reduced cost to the ship owner. Herein lies the dilemma – globalization has opened up avenues of opportunity for seafarers from developing countries at the expense of those from traditional maritime countries such as the North European nations, the United States and Japan. Today's labour market for seafarers is perhaps the most globalized; standards and minimum wages are agreed globally, as for example in the "Geneva Accord" (ILO 2001), where "Representatives of shipowners and seafarers (...) adopt a historic accord on the future development of labour standards in the international shipping industry".

This has created a schism and ruptured the historic common bond among seafarers of the world, built over the years based on their professional pride and their wider view of the world that their land-based colleagues often did not fathom. We live in an era today where seafarer organizations in developed nations look upon those from poorer nations as a potential threat to their livelihood, and as a result, lobby for protectionist policy measures that restrict the mobility of foreign crew members within their national borders.

During the last few decades, we have witnessed a tarnishing of the image of some seafarers, in particular those from less developed countries who crew a majority of the open registry and international registry vessels (*Ships of Shame 1992*). However, it is important to differentiate the cause and the symptom. How many seafarers truly want to go to sea and work on board an unsafe ship without the expectation of coming back to their near and dear ones? So, the fault does not lie with the seafarers who crew substandard

vessels, but with those responsible for putting them on such ships without adequate training and proper quality control in the first place. Furthermore, the argument that seafarers from developing countries are responsible for all maritime disasters does not appear to be true as a number of the recent maritime casualties involved ships that were crewed by seafarers from developed nations (an example being the grounding of the *Exxon Valdez* off Alaska in the U.S.).

Another dilemma facing the global seafarer, especially those working on board open registry vessels, can be attributed to the declining number of traditional ship owners discussed earlier. As ship ownership and operation shift from traditional ship owners to pension funds and conglomerates that seek instant gain from the sale and purchase market (for ships) or from certain tax exemption loopholes, the seafarers' roles and functions have been marginalized and their loyalty made meaningless. With the increasing number of open registry vessels and the outsourcing of ship and crew management (discussed earlier), the relationship between the management entity and the ships' crew hardly exceeds the length of a contract today unlike the life-long relationship of the bygone pre-globalization era. Furthermore, ship managers providing the crew for open registry vessels as well as other fleets often find themselves in a highly competitive market where there is little room for the ongoing training of seafarers, especially given the tendency of some of their principals to switch their management companies frequently. This is truly an irony as the challenges of seafaring have never been more than what they are now, despite all the technological advances made by humankind.

III.D. Outlook

The conflicting nature of public arguments regarding the impact of globalization in general was mentioned earlier. There is a strong sentiment in the media that multinationals and their home nations (typically, developed countries) would benefit more than the developing countries who are likely to suffer from the abuses of globalization ranging from exploitation to cultural degradation. It is remarkable that the arguments are quite the contrary when one looks at the impact of globalization on maritime business. The traditional maritime nations appear to be on the losing end in terms of national tonnage and

loss of shipping-related jobs, and perceive the new centres of shipping business (and specialization) as potential threats to their maritime interests. Developing and newly industrialized nations, on the contrary, appear to be the winners with increasing number of ships under their control and better career opportunities for their seafarers. This trend will continue in the neo-liberal era of maritime policies and business environment.²

The most encouraging outlook from our perspective is the increasing level of safety at sea which we hope will continue to improve. This means that, so far, the improvements in the quality, frequencies, reliability and costs of maritime transport have not implied an increase in negative externalities. The challenge for policy makers will be to observe and monitor potential future monopolistic abuses in a concentrating industry, and to assure adequate standards of training, working conditions and pay levels for seafarers, the pioneers on the world's most globalized labour market.

IV. Summary and conclusions

As trade in merchandise and unfinished goods increases, so does demand for maritime transport services. These services form part of the global logistics chain that determines a good's competitiveness.

At the same time, the maritime business is itself strongly affected by globalization. Trade in maritime services is one of the most liberalized industries, and its "components" such as vessels, flag registration, class inspections, insurance and the work of seafarers are purchased globally.

The results of these two trends are manifold, and some may even appear to be contradictory:

- The market for maritime transport services is growing. Nevertheless the specialization of countries in certain maritime areas has implied that today there are fewer remaining players in individual maritime sectors.
- A country's national shipping business has ever less to do with its national external trade. Whereas in the past, for historic reasons and due to protectionist cargo reservation regimes, foreign trade was mainly moved by vessels registered and owned by companies of the trading partners themselves, who employed national seafarers and nationally constructed vessels, today most carriers earn their income transporting other countries' trade, and the trade of most countries is largely moved by foreign shipping companies.
- We observe increased concentration in the maritime industry, yet at the same time the intensity of competition has not declined. This does not mean that fewer suppliers are *per se* good for competition, but the impact of globalization leads to both – fewer suppliers and more competition.
- Transport unit costs decline, and yet the incidence of maritime transport costs in the final value of a good increases. The value of the final good not only in-

cludes its transport costs from origin to destination, but also the transport costs of all the components that have been purchased internationally.

- Lower transport costs are closely related to more trade. This is partly because lower prices (freight rates) obviously encourage demand, and also because economies of scale lead to lower unit transport costs.
- Ever more cargo is being moved across the oceans, benefiting from better maritime transport services and lower costs. This has generally not been at the cost of safety at sea, but, on the contrary, the globalization of standards by IMO and ILO help to reduce the negative externalities of shipping.

“Transport undoubtedly belongs to the most complicated, and therewith fascinating economic sectors” (Verhoef et. al. 1997). As mainstream economists attempt to tackle the causes and impacts of globalization, international transport is re-entering the debate on trade models and development theories. As maritime transport is the true nexus between all trading nations, the role for maritime economists (and IAME) in this ongoing debate is clear and beyond doubt.

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Endnotes

¹ In an ongoing research project, the Transport of the United Nations Economic Commission for Latin America and the Caribbean (ECLAC) is analyzing trade flows between 15 exporting Latin American countries into 6 importing Latin American countries, i.e. 120 trade flows: the correlation between trade volumes, modal split, and transport costs. For information about the database, see www.eclac.cl/transporte/perfil/bti.asp. For further information about the research project, contact Gordon Wilmsmeier (Wilmsmeier@aol.com) and Jan Hoffmann (JHoffmann@eclac.cl). Sources of data: Trade flows, volumes, trade balances, values and transport costs: International Transport data Base (BTI) www.eclac.cl/transporte/perfil. Distances: Fairplay ports guide. Liner shipping services: www.ci-online.co.uk. Advances in Port Privatization: *IJME* 2001, 3, p. 226. The regressions were undertaken with SPSS 10.

² In order to keep to the assigned limits, the authors had to make a conscious decision to stay away from certain other potential impacts of globalization on maritime business such as the structural changes in the industry (particularly in the tanker and liner markets), the relative commoditization of the liner market, and piracy and terrorism issues.