



タイトル Title	Rise in Economic Interactions in the Indian Ocean Rim : Implication for Maritime Policies in African Countrie
著者 Author(s)	Takahashi, Motoki
掲載誌・巻号・ページ Citation	Journal of maritime researches,2(1):25-46
刊行日 Issue date	2012-03
資源タイプ Resource Type	Departmental Bulletin Paper / 紀要論文
版区分 Resource Version	publisher
権利 Rights	
DOI	
JaLCDOI	10.24546/81004321
URL	http://www.lib.kobe-u.ac.jp/handle_kernel/81004321

RISE IN ECONOMIC INTERACTIONS IN THE INDIAN OCEAN RIM

Implication for Maritime Policies in African Countries

Motoki TAKAHASHI*

ABSTRACT

The Indian Ocean was once the world's economic gravity center and the sea of treasures. Sub-Saharan Africa was an integral part of trade networks spreading in the Indian Ocean Rim (IOR). The IOR, however, was economically marginalized after it was colonized by Western powers and the trade networks were vertically divided by them. Recently, intra-regional trades in the Indian Ocean Rim (IOR) have been rapidly increasing as if reviving the region's past prosperity. It is due largely to extension of global supply chains among Asian countries in the region. The extension has been underpinned by development of international logistics and shipping services, notably spreads of containerization and reliable liner services. On the contrary, Africa, the poorest region in the world, has lagged behind the rapid intra-IOR trade expansion. Africa is still faced with serious underdevelopment of maritime infrastructure and human resources. Also, insecurity in the north-western part of the Indian Ocean caused by rampant piracy is another serious problem. It is expected that Japan will take initiatives to overcome these bottlenecks.

Keywords: Sub-Saharan Africa, industrialization, global supply chains, containerization, development of liner shipping services

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1. INTRODUCTION

The recent years have witnessed the growth of trade in countries in the Indian Ocean Rim. The Indian Ocean Rim (IOR) has increased its share in the global market steadily over the long term, and therefore is seen as becoming increasingly important in international trade. It also accounts for substantial proportions of energy and container shipments as cargoes cross this Ocean to be exchanged between the East and the West. The most remarkable phenomenon, however, is that the ocean not only has been bridging the East and the West but also is rising due partly to growing intra-regional trades.

Countries of the IOR have, however, contributed to this growth unevenly; particularly the countries with low trade intensity areas in Sub-Saharan Africa (hereinafter Africa) lagged behind their counterparts in the region. The countries in Africa had long stagnated in trade until the beginning of the 21st century and find it still difficult to restore national share in the world sea trade.

The Indian Ocean had been historically the center of the world trade and human interaction for millennia before Pacific and Atlantic Oceans became open to trade. However, trade and cargo flows seemingly have resumed to grow fast in recent years. This recent growth is mostly underpinned by a rise of Asian economies, which has been at least partly caused by extension of global supply chains. In fact, a significant growth has been noticed from Asian countries of the region, while Africa is yet to fully participate in this extension. One could hope that there would be a potential for the economic gravity center to return around the globe back to the Indian Ocean, if Africa could make the best use of the dynamism and opportunity offered, and this could help development of Africa, the poorest region in the world.

This study is concerned with a rise in economic interactions in the IOR. It aims: first, to highlight recent changes in trades both inside and outside the IOR with special attention to African countries in the region; second, to speculate factors for the changes briefly in order to propose hypothetical frameworks to identify them through more rigorous and comprehensive analyses; and finally, to grasp implication of vibrant economic dynamism now emerging in the IOR for maritime policies which would enable African countries to ride on the tide of the dynamism. Hypothetically, a key for Africa to do so is participation in extension of global supply chains through more strengthened maritime transportation services.

The remainder of this article begins by presenting the historical background to trade across the Indian Ocean, followed by reviewing the recent rapid expansion of trades, especially those inside the IOR, and Africa's lagging performance. Then, this paper briefly considers possible factors for dramatic expansion of intra-IOR trades to hypothetically propose that intensification and extension of global supply chain is partly causing the expansion and indicate that global supply chain extension is mutually reinforcing with development of logistics and shipping services. Subsequently the paper discusses Africa's underperformance in trades, which is

possibly caused by absence of global supply chain networks and logistics and shipping services. Finally the paper claims that on the basis of discussion so far, hypothetical framework for more rigorous and comprehensive future analyses are put forward and the implications for what to be done to enhance Africa's involvement in global trade are proposed.

2. HISTORICAL BACKGROUND

Economic size of the IOR region is relatively small. This reflects the fact that economies in both Asia and Africa in the Indian Ocean had long stagnated until recently. Among oceans, however, the Indian Ocean was once the most vibrant economic zone of human interaction and of movements of goods, knowledge, and technology. Trade routes on the ocean could be called as the Silk Roads on the sea. Economic exchanges flourished along, connecting the countries bordering the Indian Ocean between the East (East Asia) and the West (Europe and Mediterranean Sea). But if one just focuses on the role of the Indian Ocean just to connect the East and the West, it would be largely misleading. There were very vibrant trades, cultural exchanges, and cargo flows inside the IOR region. The Indian Ocean itself was the sea of treasures (Takahashi 1996).

That is why the Chinese Treasure Fleets were seconded by the Ming Dynasty from 1405 to 1433. The Ming Imperial Court despatched large-scale naval expeditions seven times to the Indian Ocean, over a half century before Columbus' voyage to America. The gigantic treasure fleets were led by Admiral Zheng He. His fleets visited basins along the Indian Ocean to East Africa, dispensing and receiving goods along the way. Visits by one of Zheng He's fleets in Africa indicate the then prosperity of African port cities back in those days. These seven great expeditions strengthened a vast web of trading links and economic ties both inside and outside the IOR region. A symbolic event of the strengthened tie was that the king of Malindi in East Africa presented a giraffe to a Ming emperor (Dryer 2006).

Also, merchants from Western Asia, such as Arabs, Persians, or Shiraz people extended their commercial networks beyond the Ocean to many places in the region, including coasts and some inland areas in Africa. Swahili merchants from East African coasts also actively participated in trades with other areas. Apart from these interactions with economic transactions, human migration was taking place here and there in the region. The most remarkable example with the longest distance was perhaps migration of Malay-speaking people from Kalimantan and other Southeast Asian islands to Madagascar. They learned to tide currents of the Ocean.

After revolutions of naval and military technologies took place in the late 15th century, Western powers all attempted to intrude the region to seize wealth generated by trades. Portuguese, spearheading the intrusion, destroyed African coastal cities such as Kilwa which served as junctions of vibrant trades in the western IOR (Davidson

1974). Despite Western intrusions, the IOR continued to be a source of prosperity well into the 19th century; it was the central field of the British Empire and the basis of wealth of Sultanate of Zanzibar. Zanzibar evidences that African coast was an integral part of the trade networks of the IOR. Considering such historical background, it does not seem too unrealistic to hope that these past experiences will be revived, though perhaps in a different manner, if Africa steers the trade and maritime policies well.

In terms of cargo flows, however, the IOR region had been marginalized in modern times afterwards. After European invasions to both Americas, the center of global economic gravity shifted away from the IOR to the Atlantic Ocean. In the first half of the 20th century, colonial vertical structure of economic relations weakened economic ties between the IOR countries in both Asia and Africa. In the latter half of the 20th century, the center of economic gravity shifted further to the west from the Atlantic to the Pacific Ocean, due to a rise of East Asia and vibrant trades and investments across the Pacific.

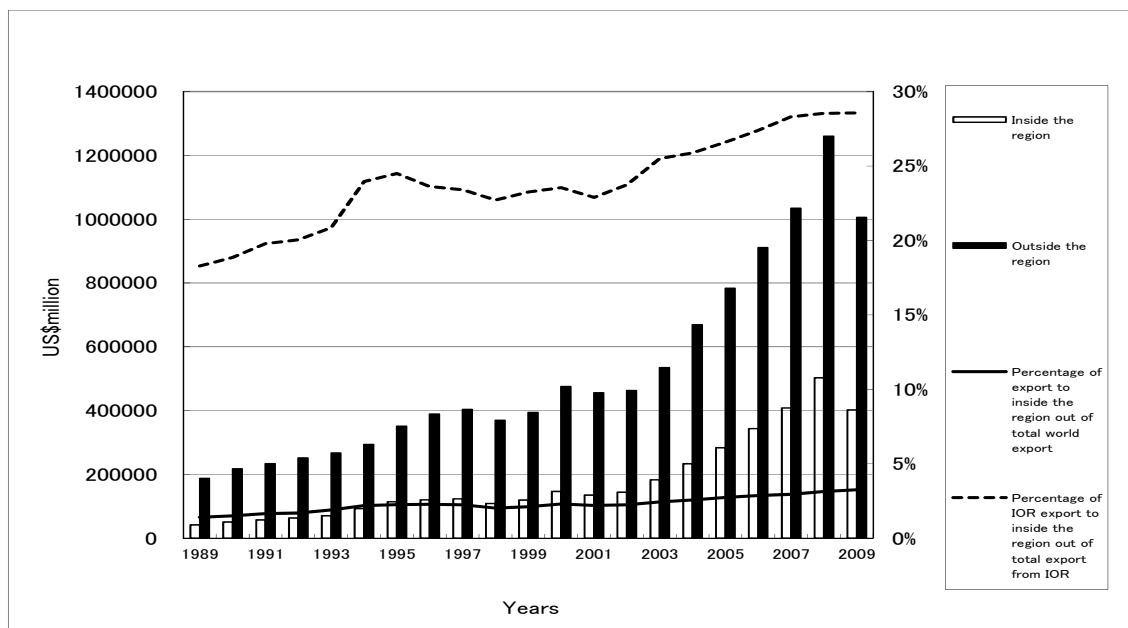
In recent years, the center of global economic gravity is seemingly heading westward on the Pacific possibly in the direction of the IOR again, thanks to high growth of Southeast and South Asia and a global resource boom which is benefitting West Asia. Associated with this trend, a couple of questions arise. One is a question of whether this could lead to Africa's development and integration to the global economy or it is only a temporary respite for Africa from a long term trend of economic stagnation. The other question is how to ensure that Africa makes the best possible use of the regional upward trend of trades to become an integral part of trade networks across the Indian Ocean as it once used to be. What is required to materialise it in terms of maritime policies is a key question Africa needs to deal with in the 21st century.

3. CHANGES IN TRADE IN THE INDIAN OCEAN RIM

This section shows the trend and changes in trading in the IOR from 1989 to 2009, along with the growth pattern of intra-regional trade between the countries of the IOR and of extra-regional trade with outside the IOR countries. It presents import and export by country in 1989 and 2009 respectively to reveal a difference between sub-regions or countries. It also outlines the development of shipping services and issues related to maritime policies. In the meantime, Sudo (2003) is among very limited previous literature on the IOR trade, which developed an in-depth study on IOR.

3.1 Export of the Indian Ocean Rim from 1989 to 2009

Figure 1 displays changes in the IOR countries' exports in the IOR region from 1989 to 2009. White bars represent annual amounts of the IOR countries' exports towards destinations inside the region. Black bars show amounts of the IOR exports to destinations outside the region. Scales of these amounts are indicated by the left-hand axis.



Source: IMF Direction of Trade Statistics, various years.

Figure 1 Export in the IOR region from 1989 to 2009

The heavy line of the figure traces percentages of annual exports from IOR to inside the region out of total world export. It shows trajectory of change in global significance of intra-IOR trades. The dotted line shows percentages of annual IOR exports to inside the region out of total exports from IOR. It demonstrates trajectory of change in the relative importance of intra-regional exports for countries in the region. Scales of these percentages are indicated by the right-hand axis.

Bars in the figure indicates that both absolute amounts of the exports to inside and outside the region have dramatically increased over a period from 2003 to 2008, although the amounts of both inside and outside exports dropped in 2009, surely because of the global financial crisis triggered by the Lehman shock.

The heavy line of Figure 1 shows that the share of export to inside the region in global export has increased slowly but steadily to reach at 3.3% in 2009. It demonstrates a long-term steady trend of increase in global significance of intra-IOR trades. The dotted line indicates that, over the period, the share of IOR exports to inside the region in total exports from IOR has increased more rapidly than the global share, reaching at 28.5% in 2009. The relative importance of intra-IOR trades for the region dramatically increased during these twenty years.

Table 1 shows each IOR country's export data from 1989 to 2009. 23 countries in the table are selected, according to adjacency to the Indian Ocean, membership of an international organization, and data availability. These countries are spreading from Oceania, Southeast Asia, South Asia, West Asia (or the Middle East), to Sub-Saharan Africa. The selection should inevitably involve arbitrariness, as one at first could not define geographical adjacency clearly. There would be countries in "the grey zone" such as United Arab Emirates (UAE), Djibouti, and Thailand which can be said to face

the Ocean only scantily. For these countries, the author selects them if they are members of Indian Ocean-rim Association for Regional Cooperation (IOR-ARC), a sole international organization covering the whole area of the IOR region whose membership is based upon sovereignty of nations (Sudo 2002). According to these criteria, Djibouti is excluded while UAE and Thailand are included. It should be also remarked that Myanmar, Pakistan and Somalia are included though they are not IOR-ARC members. There are eight African countries, namely Somalia, Kenya, Tanzania, Mozambique, South Africa, Mauritius, Madagascar, and Seychelles in the said 23 countries. Finally, Comoros, a small island nation, is excluded due to problems in data availability.

Table 1 IOR export to inside and outside the region by country (1989-2009)

<unit: US\$ million>

	Export inside the region, 2009	Magnification Ratio ^{*3}	Average annual growth rate	Export outside the region, 2009	Magnification Ratio ^{*3}	Average annual growth rate
Australia	291,090.76	6.46	9.77%	1,398,559.64	3.76	6.85%
Bangladesh	6,436.60	3.65	6.69%	133,347.18	9.98	12.19%
India	331,973.04	37.36	19.85%	1,140,209.46	6.76	10.02%
Indonesia	309,335.45	11.13	12.81%	1,184,065.45	3.44	6.37%
Iran, Islamic Republic of	109,367.83	16.39	15.01%	599,989.27	3.22	6.01%
Kenya	12,210.59	9.73	12.05%	42,630.04	2.03	3.61%
Madagascar	1,285.70	2.44	4.55%	16,458.31	2.28	4.20%
Malaysia	639,571.47	7.89	10.88%	1,776,254.93	5.35	8.75%
Maldives	736.88	2.00	3.54%	6,733.82	0.90	-0.52%
Mauritius	336.10	16.70	15.12%	3,221.59	2.77	5.23%
Mozambique	3,397.68	7.24	10.40%	14,890.09	2.94	5.54%
Myanmar	27,207.04	51.65	21.80%	21,950.08	2.58	4.86%
Oman	76,912.94	2.71	5.10%	173,995.89	11.43	12.95%
Pakistan	42,699.67	5.80	9.19%	185,816.54	2.99	5.64%
Seychelles	388.16	1.58	2.32%	4,309.57	3.76	6.84%
Singapore	1,049,331.08	7.83	10.84%	1,254,611.02	5.12	8.51%
Somalia	2,529.83	9.52	11.92%	1,758.06	0.10	-10.94%
South Africa ^{*1}	76,571.14	3.55	12.21%	723,630.86	2.70	5.09%
Sri Lanka	13,307.07	4.84	8.20%	86,044.93	3.09	5.81%
Tanzania	5,168.44	9.90	12.15%	14,402.06	1.87	3.18%
Thailand	362,164.78	11.32	12.90%	1,347,888.02	6.49	9.80%
United Arab Emirates	350,023.23	10.39	12.42%	739,171.97	4.63	7.96%
Yemen, Republic of ^{*2}	28,865.59	21.67	16.63%	47,747.43	1.77	2.91%
Total	3,743,936.00	9.59	11.97%	10,946,680.52	4.39	7.68%

*1: Data on South Africa's intra-regional export is only available between 1998 and 2009.

*2: Data on Republic of Yemen in 1989 is a sum of the data form 'YEMEN, P.D. REP.' and 'YEMEN ARAB REP.'

*3: 'Magnification Ratio' is calculated as the export volume of 2009 divided by that of 1989.

*4: Countries highlighted by grey color are in Africa.

Source: same as Figure 1.

In Table 1, one can find the amount of intra-regional export, that of extra-regional export, the magnification ratios of both export amounts over the period, and average annual growth rates of both, regarding each country. Here, we can find that expansion of intra-regional exports is very impressive while that of extra-regional exports is also quite fast. All the 23 countries, including the two which decreased their extra-regional export amounts, increased their intra-regional exports. Even Somalia, which is one of the said two and is well-known for its serious failure in the state governance, increased its intra-regional exports while the country's extra-regional exports miserably dropped down to one tenth of twenty years ago. Magnification ratios or average annual growth rates of intra-regional exports surpass those of extra-regional exports in 20 among the 23 countries.

The total intra-regional exports, though still smaller than the total extra-regional exports, achieved an average annual growth rate of 11.97%, while that of the extra-regional export was 7.68%. This phenomenon contributed to the dramatic increase in relative importance of intra-regional exports as shown in Figure 1. In fact, the amounts of intra-regional exports from Myanmar and India were sky-rocketing. An anti-democratic Myanmar probably increased the amount as a result of searching export destinations inside the region, which imposed looser trade sanctions against its commodities. Above all, it is worth noting that India, a rising economic giant, was leading the trend of intra-IOR trade expansion. Increases in intra-regional exports were also impressive for countries such as Yemen, Mauritius, Iran, Thailand, Indonesia, and UAE.

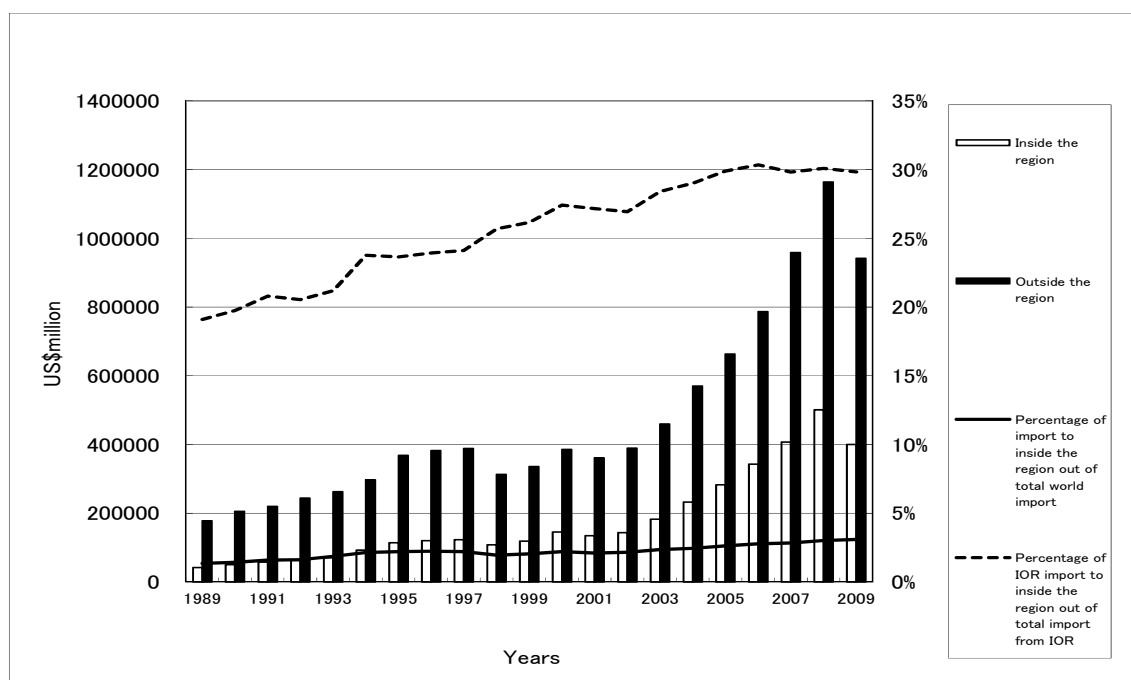
In 1989, in the 23 IOR countries, only Singapore's intra-regional export exceeded US\$ 10billion, followed by Malaysia and Australia. Whether it is intra-regional or extra-regional, export amounts of African countries in 1989 were minimal, except for South Africa. South Africa, however, had almost no export to inside the region but exported to countries outside. For other African countries, shares of the exports to inside the region were also very low.

In 2009, intra-regional exports exceeded US\$ 10 billion in 15 countries, which include two African countries, namely South Africa and Kenya. All the eight African countries except for Seychelles increased their intra-regional exports faster than extra-regional exports. There was a large disparity between non-African and African nations in terms of amounts of intra-IOR exports, however. In the same year, eight countries' intra-IOR exports were more than US\$ 100billion. Singapore exceeded US\$ 1 trillion, followed by Malaysia and Thailand. We had better pay attention to the fact that in the eight surpassing US\$ 100billion, six were non-oil exporters and four of them concentrated in Southeast Asia. No African nations were included in the eight.

In the meantime, Africa's share in the total intra-regional export was only 2.7% in 2009.

3.2 Import of the Indian Ocean Rim from 1989 to 2009

Figure 2 demonstrates amount of imports of IOR countries from 1989 to 2009. White bars indicate the amount of IOR imports from inside the region and black bars do that of IOR imports from outside the region. The heavy line shows series of annual shares of imports by countries within the region out of total world imports, while a dotted line shows series of annual percentages of IOR import from inside the region out of total IOR import. Both intra-regional imports and extra-regional imports have dramatically increased from 2003 to 2008 as same as the trends of exports shown in Figure 1. The share of imports from inside the region in total world imports has increased slowly but steadily to reach at 3.1% in 2009, which is similar to its counterpart share of exports shown in Figure 1. The percentage of IOR import from inside the region out of total IOR imports has dramatically increased over the period to reach at 29.9% in 2009, again as well as its counterpart percentage of export, although there was certain stagnation from the mid-2000s.



Source: same as Figure 1.

Figure 2 Import in the IOR region from 1989 to 2009

Table 2 shows import data of each of 23 IOR countries which are same as Table 1 from 1989 to 2009. In the table one can find the amount of intra-IOR import, that of extra-IOR import and their magnification rate and average annual growth rate by country. If compared imports from inside the IOR region with those from outside the region, the increase rates of the former is higher than that of the latter in all the 23 IOR countries in Table 2. It means that IOR countries including Africa had become more dependent upon imports from inside the region. Although the total intra-regional

imports was smaller than the total extra-regional imports as well as the case of exports, the total intra-regional import achieved an average annual growth rate of 11.94%, which was higher than the same rate of the total extra-regional imports, 8.70%.

Table 2 IOR import from inside and outside the region by country (1989-2009)

<unit: US\$ million>

	Import inside the region	Magnification Ratio ^{*2}	Average annual growth rate	Import outside the region	Magnification Ratio ^{*2}	Average annual growth rate
Australia	275,421.97	9.86	12.12%	1,350,770.03	3.42	6.33%
Bangladesh	64,096.94	6.91	10.15%	116,316.18	5.25	8.64%
India	391,133.32	19.60	16.04%	1,197,562.38	8.89	11.54%
Indonesia	324,343.57	25.94	17.68%	697,129.63	6.09	9.45%
Iran, Islamic Republic of	114,517.58	7.90	10.89%	404,139.00	5.01	8.39%
Kenya	29,672.35	9.31	11.80%	62,329.50	4.11	7.33%
Madagascar	6,088.23	32.64	19.04%	16,986.65	6.49	9.80%
Malaysia	645,272.08	6.54	9.85%	1,013,131.92	5.99	9.36%
Maldives	7,216.99	7.74	10.77%	2,449.44	6.87	10.12%
Mauritius	16,870.93	11.86	13.16%	29,766.37	2.17	3.94%
Mozambique	17,959.20	17.35	15.34%	15,883.55	2.54	4.76%
Myanmar	27,053.22	23.30	17.05%	28,432.93	6.49	9.80%
Oman	53,894.06	8.85	11.52%	91,741.59	6.71	9.98%
Pakistan	90,400.30	9.31	11.80%	241,298.86	3.49	6.45%
Seychelles	2,490.31	8.49	11.29%	6,117.92	2.70	5.08%
Singapore	760,607.13	5.43	8.82%	1,927,032.37	4.61	7.94%
Somalia	3,023.17	10.11	12.27%	4,771.06	1.33	1.43%
South Africa	97,483.87	80.66	24.55%	618,367.03	4.44	7.74%
Sri Lanka	56,444.62	7.05	10.26%	74,776.09	3.15	5.90%
Tanzania	20,566.04	22.41	16.82%	28,399.45	4.01	7.19%
Thailand	413,967.98	8.91	11.56%	1,029,080.02	4.66	8.00%
United Arab Emirates	289,387.02	11.74	13.11%	863,600.98	10.70	12.58%
Yemen, Republic of ^{*1}	27,602.61	7.06	10.26%	55,612.09	3.87	7.01%
Total	3,735,513.49	9.54	11.94%	9,875,695.03	5.30	8.70%

*1: Data for Republic of Yemen in 1989 is a sum of the data from 'YEMEN, P.D. REP.' and 'YEMEN ARAB REP.'

*2: 'Magnification Ratio' is calculated as the import volume of 2009 divided by that of 1989.

*3: Countries highlighted by grey colour are in Africa.

Source: Same as Figure 1.

Average annual growth rates of each country's intra-regional imports over the 20 years ranged from 24.55% in South Africa to 8.82% in Singapore. Even Somalia increased its intra-regional imports at as high a rate as 12.27% annually. Not only South Africa or Somalia but other African countries including Madagascar, Tanzania, Mozambique, and others rapidly increased their intra-regional imports. Also in Asia, growth rates of intra-regional imports of some countries such as Indonesia and Myanmar were outstanding.

In 1989, as well as intra-regional export, only Singapore's intra-regional import surpassed US\$ 10billion in the 23 countries, followed by Malaysia and Thailand. As

well as export, import amounts of African countries in 1989 were minimal, again except for South Africa. South Africa, however, had a very small amount of import from inside the region. For other African countries, shares of the imports from inside the region were very low.

In 2009, intra-regional imports exceeded US\$ 10 billion in 19 countries, which include five African countries. African nations surpassing US\$ 10 billion were two in terms of intra-regional exports and five in terms of intra-regional imports. It reflects the facts that Africa tends to be an importer rather than an exporter in trade with others in general and in intra-IOR trade in particular. According to Tables I and 2, the eight African countries' total amounts of intra-regional exports and intra-regional imports were US\$ 102 billion and US\$ 194 billion respectively, which means Africa had a large trade imbalance vis-à-vis other IOR countries. Each of the eight African countries also carried trade deficits in relation with other IOR.

There was also a large disparity between non-African and African nations in terms of amounts of intra-IOR imports as well as exports. In the same year, intra-IOR exports were more than US\$ 100 billion in eight countries, which did not include African countries. Singapore was in the top position importing US\$ 761 billion, again followed by Malaysia and Thailand. In the eight whose intra-imports surpassed US\$ 100 billion, six were non-oil exporters and four of them concentrated in Southeast Asia. In 2009, the share of eight African countries in the total IOR intra-imports was 5.1%, which was substantially higher than that of intra-exports.

4. FACTORS FOR CHANGES IN TRADE SITUATION IN IOR

To understand factors behind situation and changes in the IOR trade we have seen, key points are probably two: what factors have brought about expansion of trades of the IOR in general and intra-regional trades in particular, especially by non-African countries?; and what factors have differentiated Africa's performance, which is largely lagging, from non-Africans?

4.1 Factors of IOR Trade Expansion: Extension of Global Supply Chains

Dynamic changes in IOR trade are no doubt reflections of development and industrialization of non-African countries in the region. It is a general empirical truth that values of trade have been historically increasing in association with industrialization of commodity production. The main reason is that values added of commodities are generally increasing due to sophistication and diversification enabled by industrialization. Manufactured commodities, therefore, have accounted for a major part of the world's traded commodity value since the Industrial Revolution.

Furthermore, especially in Southeast Asia, through the process of development and industrialization, income per capita of the people grew dramatically and commodities produced in these countries are diversified. This process has been intensified by massive inflow of Japanese corporations' foreign direct investment since

the mid-1980s, through which a number of Japanese companies have been transformed into Multi-national Corporations (MNCs). Capacities of exportation in Southeast Asia have been dramatically strengthened, partly supported by MNCs' global marketing networks. In other words, Southeast Asia became bases for MNCs' supply of commodities for global markets.

Notably from 2003 on, driven by expansion of global commodity demands, IOR countries further expanded their exports. This commodity boom was caused by the rise of China and other emerging economies, in which IOR countries such as India were to be included. During the course, strengthening of exportation capacity underpinned by industrialization spread to South Asia including India.

But phenomena mentioned above cannot fully explain increase in percentages of intra-IOR trades out of the total IOR trades, i.e. relative expansion of intra-IOR trades. As a matter of fact, IOR countries have been reinforcing mutual dependency in supplies and demands of commodities. What is notable is that the reinforcement of mutual dependency has been taking place not only between producers and consumers of final commodities, but also among producers. In other words, producers in IOR countries are buying intermediate goods (components) from other producers. This mode of transactions has been taking place across borders but within an individual industry or within a value chain of one final commodity, as specification of intermediary goods and thus division of labor have been so deeply intensified along with sophistication of manufactured goods.

In this 21st century, production processes in different countries are more and more integrated across borders, while the chain of production processes of a commodity are more and more fragmented beyond borders, whereby international division and combination of production process are extended. This phenomenon which has been formulating international value chains or global supply chains has been extensively taking place in Southeast Asia. Those which have been presiding formulation of global supply chains in the area are MNCs including Japanese companies. For example, an automobile nowadays cannot be manufactured without gathering and assembling components produced in various countries: parts such as engines which require advanced technology are from more industrialized countries; parts which require simpler technology are from other countries; they finally should be assembled somewhere possibly with cheaper labors. This international division and combination of production are designed and controlled by each MNC, whose headquarters might be located in a city in Japan or another industrialized nation (Athukolara and Yamashita 2006).

It is natural to imagine that in accordance with extension of global supply chains beyond borders in Southeast Asia, trades and thus cargo flows between countries in the area have been increasing. The progress of extension of global supply chains is presumably reflected in upward trends of percentages of intra-regional trades of IOR countries in Figures 1 and 2.

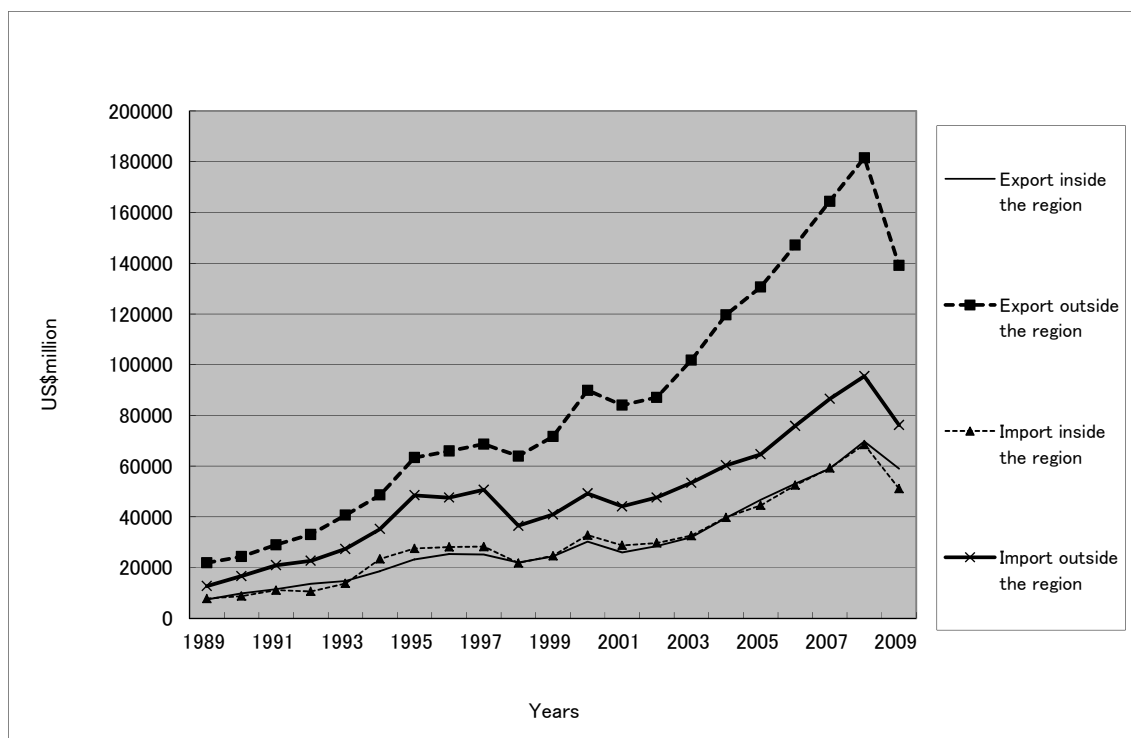
From the interests of this article, one is expected to answer another question: why the said extension of global supply chains has been taking place particularly in Southeast Asia rather than somewhere else. We need to refer to multi-faceted variables to answer the question and the author was not capable of doing it in this short article. At least the following, however, can be stated. When Japanese manufacturing giants started to consider relocation of their production places abroad due to drastic Yen appreciation after the Plaza agreement in 1985, Southeast Asian countries were the most appropriate recipients of direct investment for the relocation. They were endowed with favorable initial conditions including geographical locations and historical backgrounds, resources such as quality human capital with lower wages, and socio-political and economic stability.

Southeast Asia's geographical advantages in this context were clear. The area is close to Japan and Japanese were relatively familiar with the situation there. Ports such as Singapore and its competitors in Malaysia (Penang, Port Klang and others) are extremely well located and thus had been purposefully developed as junctions of the East-West trades. Through efforts of extension of education and healthcare, Southeast Asian countries became endowed with abundant quality human resources. Socio-political and economic stability of countries concerned helped enhance positive appreciation by would-be investors. Above all, by the mid-1980s, economic infrastructure had been developed due partly to foreign assistance by USA, Japan, and multilateral finance organizations. It is worth noting that accessibility to logistics and shipping services had been improved in not only in Singapore and Malaysian ports but also major ports in other countries, as a result of infrastructure development.

Extension of global supply chains in an area do not mean that trades in the area in question would become exclusionary, even though percentages of intra-regional trades would increase. As MNCs are trying to connect supply chains across borders in an area with global networks of business, supply chains remain open. For example, if production of a certain kind of commodities increases in Southeast Asia, demands for capital goods and sophisticated intermediary goods from Japan would increase as well. Also, global supply chains are extended to supply finished goods in not only the area in question but also somewhere else. For instance, electrical appliances produced in Malaysia as final products of a global supply chain can be either exported to Japan, USA and Europe or sold in the country. Therefore, extension of global supply chains in many cases can bring about simultaneous expansion of both internal and external trades for a country or an area (see Athukolara and Yamashita 2006).

Figure 3 shows the changes in intra-regional and extra-regional trades of Malaysia from 1989 to 2009. Each of four categories of trades shows trends similar to each other. It apparently suggests that all types of trades increased in association with each other and intra-regional trades and extra-regional trades are mutually reinforcing. Moreover, Figure 3 demonstrates that though there were clear negative impacts of the global financial crisis in 2008 across the board, all of export to inside the IOR, export to

outside, import from inside, and import from outside increased rapidly and steadily without large fluctuations, which probably mean that traded commodities of this country were well diversified and overall stably sold and purchased. One could presume that global supply chains which involve Malaysia are also diverse. Also, it could be inferred that, with favorable conditions well consolidated, intensification and diversification of global supply chains would enable a country and an area or possibly a region to have steady and rapid expansion of trades. What is striking regarding Figure 3 is Malaysia's strong capacity to generate trade surplus.



Source: Same as Figure 1.

Figure 3 Malaysia's trade from 1989 to 2009

4.2 Accessibility to Logistics and Shipping Services

For global supply chains to be extended, quick and safe transportation of cargoes are imperative as the chains require speedy, punctual, and gentle handling of commodities. Japanese and other MNCs demand just-in-time delivery and cargoes often contain precision high-tech intermediary goods. Clients who are integral segments of global supply chains prefer door-to-door transportation services, and thus shipping and land transportation should be connected as one through logistics service. Overall, these necessities of global supply chains require reliable regular shipping services which are containerized. In the mid-1980s, spearheaded by Singapore, Southeast Asian countries were increasingly equipped with conditions to develop containerized liner shipping services (see Notteboom and Rodrigue 2008).

It can be presumed that from the late 1980s on, there has been a process where extension of global supply chains, on the one hand, and development of containerized liner shipping services, on the other hand, have progressed enhancing each other. If manufacturers demand more reliable, regular, and safe shipping services, shipping companies and affiliated corporations and others are driven to respond to the demands by introduction and reinforcement of containerized liner shipping services. If containerized liner shipping services are further developed, manufacturers are encouraged to extend their supply chains internationally.

This mutually enhancing process between global supply chain extension and development of logistics including containerized liner shipping services first progressed in Southeast Asia but soon extended westward to South Asia in IOR. In Africa perhaps except South Africa, the same process apparently has not taken place substantially, however. This could be related to possible explanation for Africa's lagging in dynamic changes in IOR trades mentioned above.

Keeping these facts in our mind, let us have a glance at differences in logistics and shipping services in IOR countries below.

Table 3 displays the World Bank's Logistics Performance Index (LPI), an index which provides the assessment of trade logistics efficiency of a country on the premise that efficient logistics drives economic performance and competitiveness. The LPI is based on a global survey of service users such as freight forwarders and carriers, expressing logistics "friendliness" of the countries in which they operate and those with which they trade. The Index demonstrates a comprehensive performance of commodity flows, combining survey of customs procedures, logistics costs, trade and transport related infrastructure, ability to track and trace shipments, and timelessness in reaching destination.

LPI in Table 3 shows that non-African countries are better than Africa. Southeast Asian countries except Indonesia can be said to rank highly among 155 countries surveyed. Singapore ranks as high as the second in the world. Malaysia and Thailand were in ranks close to industrialized countries. Ranks of countries in terms of LPI roughly correspond to trade amounts of each country as we have observed in Section 3.

Unfortunately, LPI has not been collected very frequently and thus is not appropriate to know development of logistics services. Table 1 also shows data more directly related to shipping services conducive to extension of global supply chains in countries, namely, the Liner Shipping Connectivity Index (LSCI). The LSCI is an indicator of liner shipping connectivity, based on indicators of service supply per country, to capture a country's level of integration into the existing liner shipping network. LSCI can be considered a proxy of the accessibility to containerized liner shipping services. We cannot refer to LSCI covering the whole 20 years from 1989 to 2009, since LSCI had not been introduced until 2004.

Table 3 Liner Shipping Connectivity Index¹

Indian Ocean	LPI (rank)	LSCI UNCTAD						
	2009	2004	2005	2006	2007	2008	2009	2009/2004
AUSTRALIA	3.84(18)	26.58	28.02	26.96	26.77	38.21	28.80	1.08
BANGLADESH	2.74(79)	5.20	5.07	5.29	6.60	6.40	7.91	1.52
INDIA	3.12(47)	34.14	36.88	42.90	40.47	42.18	40.97	1.20
INDONESIA	2.76(75)	25.88	28.84	25.84	26.27	24.85	25.68	0.99
IRAN	2.57(103)	13.69	14.23	17.37	23.59	22.91	28.90	2.11
KENYA	2.59(99)	8.59	8.98	9.30	10.85	10.95	12.83	1.49
MADAGASCAR	2.66(86)	6.90	6.83	8.31	7.97	7.82	8.64	1.25
MALAYSIA	3.44(29)	62.83	64.97	69.20	81.56	77.60	81.21	1.29
MALDIVES	2.40(110)	4.15	4.08	3.90	4.75	5.45	5.43	1.31
MAURITIUS	2.72(82)	13.13	12.26	11.53	17.17	17.43	14.76	1.12
MOZAMBIQUE	2.29(136)	6.64	6.71	6.66	7.14	8.81	9.39	1.41
MYANMAR	2.33(133)	3.12	2.47	2.54	3.12	3.63	3.79	1.21
OMAN	2.84(60)	23.33	23.64	20.28	28.96	30.42	45.32	1.94
PAKISTAN	2.53(110)	20.18	21.49	21.82	24.77	24.61	26.58	1.32
SEYCHELLES	—	4.88	4.93	5.27	5.29	4.49	4.90	1.00
SINGAPORE	4.09(2)	81.87	83.87	86.11	87.53	94.47	99.47	1.22
SOMALIA	1.34(155)	3.09	1.28	2.43	3.05	3.24	2.82	0.91
SOUTH AFRICA	3.46(28)	23.13	25.83	26.21	27.52	28.49	32.07	1.39
SRI LANKA	2.29(137)	34.68	33.36	37.31	42.43	46.08	34.74	1.00
THAILAND	3.29(35)	31.01	31.92	33.89	35.31	36.48	36.78	1.19
TANZANIA	2.60(95)	8.10	8.59	8.71	10.58	10.46	9.54	1.18
UNITED ARAB EMIRATES	3.63(24)	38.06	39.22	46.70	48.21	48.80	60.45	1.59
YEMEN	2.58(101)	19.21	10.18	9.39	14.28	14.44	14.61	0.76

*1: Countries highlighted by grey colour are in Africa.

Source: UNCTAD Review of Maritime Transport 2010.

Table 3 shows the LSCI of the 23 IOR countries from 2004 to 2009. It is needless to say that the higher the index is, the easier it is to access a high-capacity and high-frequency liner shipping services, and thus to effectively participate in international transportation networks. Above all, it would enable countries to have conditions conducive to inducing extension of global supply chains to themselves. Table 3 shows increases of LSCI in most of IOR countries, indicating that maritime shipping connectivity and trade facilitation have improved in the IOR.

Yet there is a very large disparity among IOR countries. Southeast Asian nations score high, headed by Singapore which globally ranks third and Malaysia, another

¹ The LSCI was introduced for the first time in 2005 using the data for the year of 2004. The present LSCI version is produced from the elements: (a) number of ships; (b) the container-carrying capacity of those ships; (c) the maximum vessel size; (d) the number of services; and (e) the number of companies that deploy containerships on services from and to a country's ports. The data can be derived from Containerisation International Online. The index of Nation A is calculated according to the following procedure: for each of the five elements, Nation A's value is divided by the maximum value of that element in 2004; then for Nation A, the average of the five elements is calculated; and finally this average is divided by the maximum average among countries for 2004 and multiplied by 100 (UNCTAD Transport Newsletter No.43 2009).

country in top LSCI rank. Southeast Asian countries had been already equipped with relatively high Liner Shipping Connectivity in 2004 but it continued to improve afterwards until 2009 except in the case of Indonesia. The same features can be indicated regarding India. West Asian countries including Iran and UAE also made remarkable progress in LSCIs, achieving relatively high LSCIs during the five years. On the contrary, changes and levels of LSCI for Africa except South Africa are disappointing.

One easily could presume IOR trade figures seen in Section 3 on the one hand and LPI and LSCI on the other hand were correlated with each other. Vibrant and flourishing trades of Southeast Asia with both inside and outside IOR probably could not have been possible without well-functioning liner shipping services. On the contrary, Africa's disappointing performance in trades is more or less related to underdevelopment of logistics and shipping services.

5. AFRICA: LAGGING BEHIND THE IOR DYNAMISM

5.1 Africa's Socio-Economic Stagnation and Poverty

Countries in Africa, including those of the IOR, had been economically stagnated since the 1970s until the beginning of the 21st century. The population growth had surpassed the economic growth rate, and thus per capita Gross National Income had declined. It is considered due largely to this region's sluggish international trades and inadequate transportation services. In fact, the share of Africa's trade in the global market shrank dramatically. Amounts of Africa's external trade were US\$8.9 billion, US\$82.7 billion, and US\$176.2 billion in 1963, 1983, and 2003 respectively, that is an increase of 19.8 times in forty years, whereas the world's international trade increased by 46.8 times during the same period. More strikingly, Asia's international trade achieved an unprecedented magnification of 98.3 times during the same period. While both Asia and Africa had been together marginalized in the global economy until the 1960s for a long time, Asia is no longer a fellow of Africa. In other words Africa has not experienced development and industrialization such as what took place in Asia as mentioned in Section 4. At the same time, it presumably means that Africa has not been able to engage in global supply chains deeply which have been developing in Southeast Asia and being extended westward to South Asia.

Investments in socio-economic infrastructure and human resources are still strikingly in shortage, though South Africa might be an exception in terms of having developed economic infrastructure. Although there have been substantial efforts by the international community and African governments to improve educational and health conditions for African people mobilizing massive foreign aid, rapid population growth have been substantially compromising the efforts. Overall, Africa today stays still poor in both human and economic development.

Around 2003, however, Africa seemingly resumed to grow. If one images Africa

only with dormant stagnation, it would be no longer correct. Yet, resumption of growth was due largely to the said global commodity boom and Africa is apparently becoming more dependent on natural resources. Also, for Africa as well as non-African IOR countries, the rate of increase of trade has been higher for inside the region than outside the region as already seen in Section 3. The reason why Africa's intra-IOR export had been rapidly expanding is mainly that more industrialized countries inside the IOR had been expanding their demands for natural resources faster than importers outside the region. Yet Africa's exports were still not enough to pay for also rapidly growing imports and there remained large gaps between intra-IOR imports and exports.

If higher growth and large amounts of intra-IOR trades was mainly originated from dynamic extension of global supply chains and if Africa had not gained it so much, this tide of dynamism should be extended to African coasts beyond the Indian Ocean.

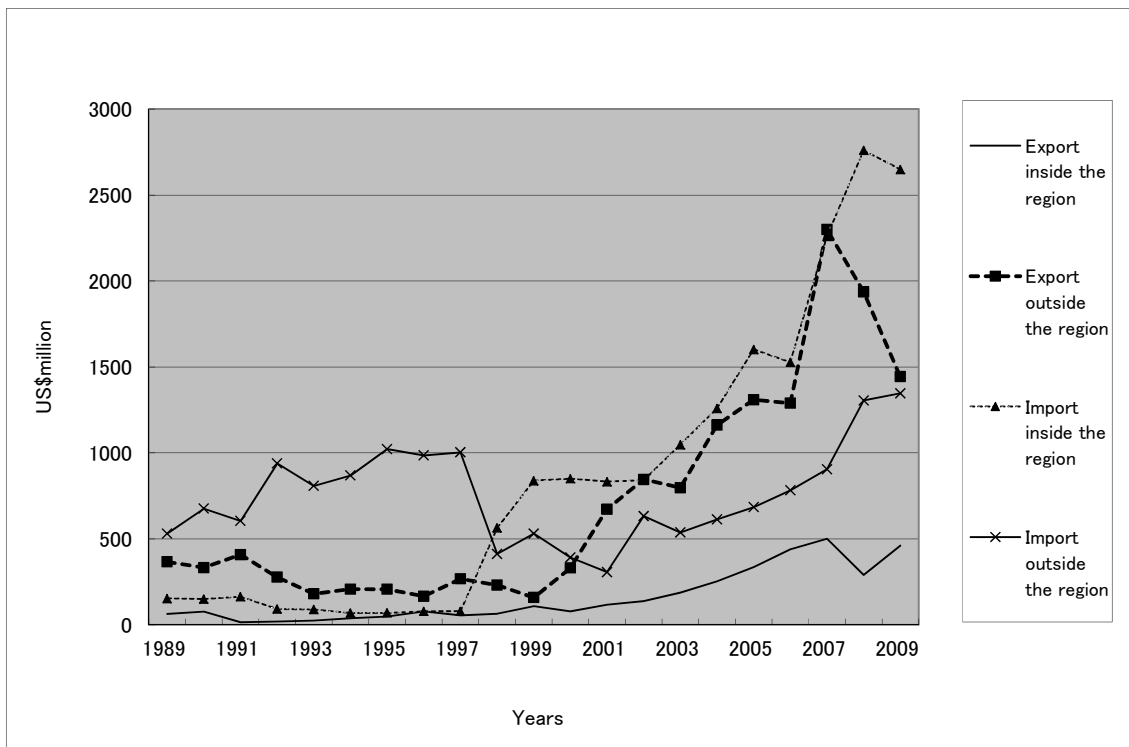
5.2 Global Supply Chains and Africa

African countries' engagement in global supply chains is often very limited. In a number of supply chains of different commodities, they have participated in the forms of supplying raw materials at the initial stage and assembly of machineries and appliances by importing semi-finished goods (or just import of finished goods) for domestic sales at the final stage (Takahashi forthcoming). These forms of engagement in general do not add high economic value. Moreover, they have been often aggravating balance of payment situation in African countries. Africa, therefore, tends to be an importer rather than exporter.

Yet there have been new forms of engagement which deviates from the pattern mentioned above. Some of them do not involve exports of natural resources or domestic sales. The case of a recent development in Mozambique which involves expansion of intra-IOR trade is interesting enough to glance at. Mozambique has a very long coast facing the Indian Ocean, three fine ports, and thus a bright prospect to develop intra-IOR trades for the future. The country succeeded in inviting a massive foreign direct investment in the manufacturing sub-sector: that is a plant for aluminium production in a nearby area of Maputo, the capital and a major port. What is notable is the fact that alumina, intermediary materials for aluminium production is being imported from Australia. Electricity required for converting alumina into aluminium is being purchased from South Africa. This aluminium project in Mozambique is an example of development of an intra-IOR international supply chain. The aluminium plant actually transformed the Mozambican economy. It dramatically increased the country's export and the export accounts for over half to two thirds of export revenue.

It is hoped that this success will be a starting point for Mozambique's deeper and wider engagement in global supply chains. There, however, will be a long way to go. Figure 4 displays the country's trades both inside and outside the IOR. After the aluminium project was initiated in the beginning of the 21st century, the amount of export to outside IOR dramatically increased. Yet this amount was very unstable since

it largely depended on international aluminium markets. Moreover, the export increase was associated with that of imports from both inside and outside the IOR, broadening trade deficits. The expansion of amounts notwithstanding, Mozambique's trades were still very small (less than one 60th of Malaysia) and fluctuating (thus not very much diversified), which would be clear if we compare them with Malaysia's trades in Figure 3.



Source: same as Figure 1.

Figure 4 Mozambique's trade from 1989 to 2009

Overall, African countries have not been able to engage deeply in global supply chains. It is one of major causes that Africa could not steadily expand its trades and even if it is able to increase, it could not help deepening its dependency on natural resources. To save Africa out of chronic poverty and resource dependency, it is desired to formulate a strategy to increase its trades on the basis of production and exports of reproducible commodities. In this strategy, policies for inducement of extension of global supply chains should be an integral element. A serious dilemma here is that poverty itself could be the largest impediment for extension of global supply chains. One can easily understand if there are problems related to poverty such as shortfalls in basic infrastructure and quality labor force, and socio-political and economic instability, inducement of foreign direct investments and thus extension of global supply chains will be very difficult. What is important is that Africa should concentrate its scarce resources strategically on well-targeted activities conducive to future development. Preparation for prerequisites to induce global supply chains extension should be

included in such development-oriented activities.

The minimum accessibility to smooth logistics and liner shipping services must be one of prerequisites mentioned above, while that accessibility is not just a prerequisite but a factor complementarily reinforcing with global supply chain extension as discussed in 4.2.

At present, in terms of LPI, African countries in general are rated very “logistics-unfriendly.” In the bottom 50 countries out of 155 ranked by the LPI 2010, 26 are from Africa. As Table 3 shows, in the IOR countries, Somalia is ranked as the least friendly country in terms of logistics in the world. Other nations cannot be diagnosed as very logistically friendly with Mozambique ranking 136th, Mauritius 82nd, Madagascar 88th, Tanzania 95th, and Kenya 99th.

The LSCIs in Table 3 show liner shipping services in Africa have generally grown but are still underdeveloped except South Africa, if compared with Asia. It eloquently evidences that Africa’s participation in global supply chains is very limited. Somalia is a tragic exception which made retrogression at an extremely low level.

6. CONCLUSION: WAY FORWARD

On the basis of the discussion above, we may, at least hypothetically, propose the following framework to explain dynamism which has promoted IOR trades, especially intra-IOR trades, and Africa’s failure to participate in dynamism: IOR trades have been increasing partly because of extension and intensification of global supply chains which have developed in Southeast Asia and are now spreading westward; global supply chains in IOR have been extended and intensified in association with development of logistics and containerized liner shipping services in the region; though increasing rapidly, Africa’s trades still remain very small because Africa is yet to consolidate prerequisites to induce extension of global supply chains, including the minimum accessibility to smooth logistics and liner shipping services.

In the future, we must verify and reconstruct the hypothetical framework proposed above through a rigorous empirical research including quantitative analyses and extensive field works including interviews with stakeholders such as manufacturers, shipping corporations, and harbor authorities in areas in the IOR.

In order to consolidate the minimum accessibility to smooth logistics and liner shipping services we have to formulate maritime development strategies well customized to each African country’s situation. African countries share a number of commonalities but concrete situation varies from one to another. Among components assessed in the LPI, the IOR countries in Africa are particularly constrained by custom performance and infrastructure. Custom clearance is the worst logistics bottlenecks for South Africa, Madagascar, Mozambique, and Somalia, while infrastructure is the most serious logistics challenges for Mauritius, Tanzania, and Kenya. We need to study concrete situation of each African country more in detail, which would require an

extensive research initiative. Generally speaking, Africa's investments in maritime infrastructure have been apparently very limited in quantity. Modernization of major sea-ports in Eastern and Southern African coasts is seriously delayed. Capacities of few of these ports are large enough to offer efficient services including transshipment. Above all, containerization of port facility, which is a key to a quick and reliable regular shipping service and would enable Africa to adapt to just-in-time services and thus global supply chains, are lagging. In 2009, total container volume handled in African countries in the IOR was 5,211 TEU, which was only about one fifth of Singapore's volume (25,866TEU) (Containerisation International 2011).

Land transportation is notoriously underdeveloped in many African countries as both roads and railways are in conditions worst in the world. Yet more problematic from the viewpoint of a better through logistics services is shortfalls in harbor infrastructure/system to connect maritime and land transportations.

While amount of infrastructure investments have been seriously in short in Africa, once constructed infrastructure often has not been fully utilised, not well maintained, and soon become useless. Therefore, for the future, investment projects for maritime and harbor infrastructure are to be cautiously selected with rigorous criteria. To formulate the criteria, degrees of needs for extension of global supply chains expected in immediate future should be carefully measured and taken into consideration. Coupled with sensible infrastructure construction, human resource development and institutional building for shipping and harbor services are essential. Concerning the aspect of institutional building, problems regarding custom clearance which many stakeholders complain about in African countries are never ignorable.

Furthermore, it must be needed to foster awareness of importance of joining global supply chains among people and policy-makers in Africa. Without popular supports and political will, maritime development policies which should involve enormous amounts of costs even with a cautious selective approach could not be effectively implemented or sustained.

Another prerequisite for global supply chain extension and development of logistics and shipping services in the IOR is maritime transport safety and security. Although it cannot be discussed in this paper very much in detail, piracy is a serious threat to them in the IOR. Especially in the north-western part of the Indian Ocean, piracy is so rampant that it has become a tremendous hazard for operation of shipping services and thus extension of global supply chains. Individual shipping corporations have adopted their own measures to protect themselves but it is needless to say that they could be far from being sufficient. It would be all the more difficult for local and smaller vessels to protect themselves from pirates' attacks. Therefore, short-distance shipping could suffer more than long-distance one. It probably means that intra-regional trade carried by small vessels rather than extra-regional trade by larger vessels could be more seriously damaged.

Anti-piracy security measures by the international community is definitely needed

and now conducted in the reality. Considering the fact that north-western part of the Indian Ocean is strategically important and therefore piracy is a global public bad, this is a matter of course. Yet, the international community's intervention should not be limited to policing by naval forces but combatting the underlying culprit, that is, the collapse of the state of Somalia. While piracy is also taking place in Southeast Asia (especially in the Malacca strait), piracy in the north-western Indian Ocean has become far more rampant, pernicious, and organized (Valencia and Khalid 2009). It is largely because the pirates' mother country is in anarchical situation. Piracy is an offshore phenomenon of an onshore problem. The state-rebuilding endeavors including establishment of the rule of law through measures aimed at enhancing law enforcement in Somalia is an ultimate solution for piracy. The international community should reengineer strategy to enable the country to ride on the track of the state reconstruction (Silva 2010).

Lastly, for Japan, the Indian Ocean Rim has stayed as a relatively remote place for a long time. Yet contribution to development of trades and shipping in the IOR is very important and meaningful. Cooperation for development of human resources and infrastructure through its activities of Official Development Assistance (ODA) is areas in which Japan has strengths. These activities are effective for logistics and shipping service development in the IOR African countries. Also, piracy in the IOR is never ignorable as the geographical area where it is rampant is strategically vital for Japan's economic interests. Japanese Self-Defence Force vessels, therefore, have started to patrol the Indian Ocean since 2009, in support of the United Nations Security Council resolution. Japanese engagement in the IOR security initiatives should be designed on the basis of not only ensuring its immediate economic interests but also contribution to preventing piracy as a global public bad. Restoration of a piracy-free Indian Ocean could lead to poverty reduction in the region and thus broadening scopes for Japanese corporations to unfold their business activities including extension of global supply chains for the future in Africa. Last but not the least, African continent will become most populous in the mid-21st century. We should keep in our mind that stability and development of Africa will be a key to prosperity of not only the IOR countries but also the whole world including Japan.

ACKNOWLEDGEMENT

The author very much appreciates assistances and opportunities granted by Graduate School of Maritime Sciences, Kobe University. In addition to them, without patient and generous supports of Professor FUJIMOTO Shoji of the school, this brief paper could not have been completed. Also, the author would like to express a deep gratitude to Dr. OKUGAWA Yukiko and Mr. KOHARA Tetsuji for their great assistance in completing this paper. However, the author should be solely responsible for any possible mistakes which could be found in the paper.

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