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TRADE CONTRACTION PATTERN AFTER CRISIS: EXPLANATION FOR HIGH-SPEED TRADE SHRINKAGE WITHIN REGIONS

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TRADE CONTRACTION PATTERN AFTER CRISIS: EXPLANATION FOR HIGH-SPEED TRADE SHRINKAGE WITHIN REGIONS

Abstract

Data on world trade showed that transnational trade contracts to different extents among countries after the financial crisis in 2008. Moreover, a noticeable phenomenon indicates that trade within regions is seemed to contract faster than that between regions. This paper illustrates an explanation for this phenomenon through analyzing the data for North America, Asia and Europe. The low air shipping cost and substitution of industries within regions are attributed to this phenomenon.

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1. Introduction

The global economic crisis that came to a calamitous head in 2008 had its origins in financial problems of the late 1970s and early 1980s in the United States that resulted from rapidly increasing petroleum prices, high inflation, and severe problems in the savings and loan industry.

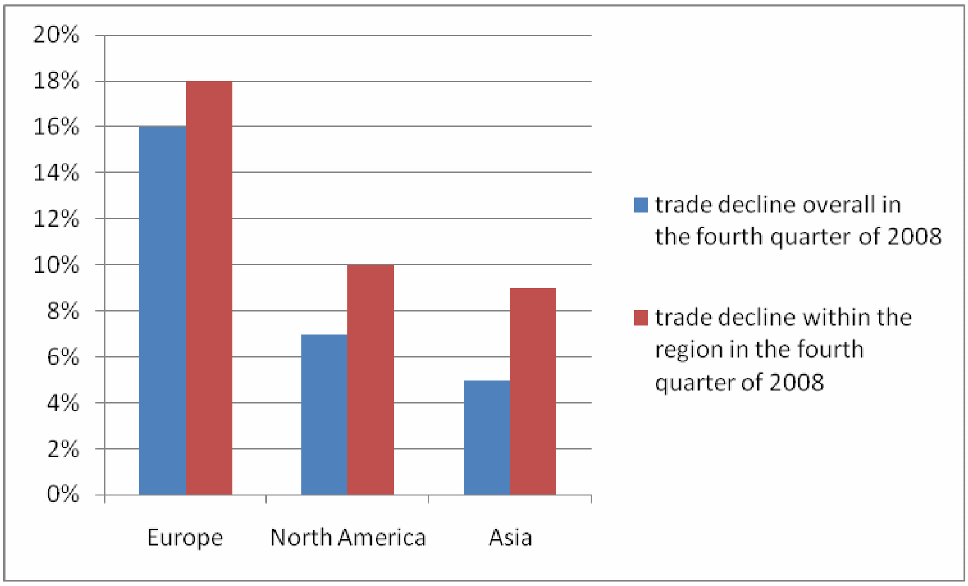
International merchandise trade continued to increase rapidly during the first half of 2008. It was not until September 2008 that the impact of the financial crisis became evident. As a result, the 2008 figure for total merchandise trade still shows a positive annual rate of growth of 15 per cent, only slightly lower than the 16 per cent in 2007 but still above the average of 12 per cent observed since 2000. In February 2009, for example, exports had declined by an estimated 27 percent globally from a year earlier (Nanto, 2009, p.5). The decline in developing countries was estimated to be more than one-third. The shrinking of international trade as both exports and imports drop is adding momentum to the contraction in the global economy and is contributing even more unemployment and poverty.

The crisis has had a different impact across regions, with the full impact felt across all regions only in the fourth quarter of 2008. Trade levels deteriorated most in Europe, falling by nearly 16 per cent in the fourth quarter compared with the same period of 2007. Asia's exports declined by 5 per cent and North America's by 7 per cent (year-on-year). Trade within regions seemed to contract faster than trade between regions: trade within Europe – perhaps the most closely integrated economic area – declined 18 per cent. In contrast, trade within Asia decreased at half this rate, while trade within North America fell 10 per cent.

The reasons that international trade is correlated to financial crisis are as following. First, the working capital is ceteris paribus needed for a substantially longer period in international transactions because of the time involved in transportation over much longer distances. Second, international payment is much more complicated because of different exchange rates and different jurisdictions. Third, in contrast to domestic trade, payment in cash is not a viable alternative so that banks always need to be involved.

The characteristic of this crisis is that global markets are influenced through the concurrence of problems in all countries. This makes it impossible to follow an export led recovery strategy. The reduction in effective demand that is a consequence of a financial crisis directly translates into a reduced import volume. The contraction in trade has several interrelated causes comprising both price and income effects as global financial flows readjust, real exchange rates realign, terms of trade change and domestic savings rise with a concomitant drop in domestic demand. There is a two-way interaction between trade and the macro-economy at a national and global level. The current crisis is threatening countries that rely on export-led growth, a strategy that has led billions out of poverty.

Chart 1: Trade decline percentage within and between different regions in the fourth quarter of 2008



Data Resources: *International Trade Statistics 2009*

Trade within Asia declined 9 per cent in the fourth quarter of 2008. In the first quarter of 2009 this decline increased to about 29 per cent. Trade in automotive products was the sector most affected, declining by 48 per cent during the first quarter of 2009 (year-on-year), followed by iron and steel (37 per cent), office and telecom equipment (29 per cent) and integrated circuits (31 per cent).

Such data intrigued our interests on why the trade within regions contracts faster than between the regions in this financial crisis. What is the influence brought by such rule? Which action do different regions take to level and smooth the trade shrinkage? Is it possible that the trade rebound also quicker within regions than between regions? This paper tries to answer these questions. The present paper consists of five sections. Following this introduction, section 2 offers a brief literature review of the studies on the trade contraction, while section 3 outlines the trade contraction pattern of China, Germany and United States. Empirical findings are reported and discussed in Section 4. Section 5 offers concluding remarks.

2. Review of the Literature

In the past, moves towards economic integration have taken place in all world regions. In Europe, the internal market has become reality in important areas as a result of the EU. On the other side of the Atlantic, the USA, Canada and Mexico have intensified their economic cooperation in NAFTA. In Asia, too, moves towards integration in the 1970s and 80s led to the establishment of a host of organizations and alliances, although these did not produce the hoped-for results.

Trade in the inter bellum was much more in conformity with the neoclassical model of comparative advantage whereas intra industry trade is an increasingly important characteristic of modern trade even in a North-South and South-South context. Much trade is intra company trade that takes place within multinational corporations that manage international value chains taking advantage of location advantages around the globe.

Andrew K. Rose estimated that two countries sharing a common currency will trade over three times as much as an otherwise comparable pair of countries, holding other things equal.(Andrew K. Rose, 1999) He also found strong evidence that two countries with more international trade tend to have more synchronized business cycles. Using another large panel data set, including the dates of over 200 "Paris Club" debt renegotiations to measure default, he controlled for a host of other factors and found out that trade does indeed shrink after default. If default tends to lower trade, then it stands to reason that creditors should lend more to countries with which they have closer trade links. Thomas (2009, p. 2), “the economic literature on the linkages between trade volumes and financing is very thin”.

Avinash Dixit regarded that there is an upper limit on the size of the trading world in which global self-governance is possible. In worlds larger than this limit, there is an “extent of honesty,” that is, a critical distance such that each trader acts honestly only when dealing with another trader within this distance. (Avinash Dixit,2003) Lewer and van den Berg analyze 246 cross-section regressions and 596 time series regressions that were reported in 83 econometric studies that were published in scientific journals over the years 1960–2002. On the basis of the point estimates the studies yield a consensus view that a 1 percentage point reduction in multilateral trade linkage on average decreases annual long-run growth by 0.2 percentage points. Even without concrete and observable trade conflicts, the implied uncertainty about trading possibilities will influence the extent of specialization and possibly the pattern of specialization as well (van Bergeijk, 2009).

China and to a lesser extent India have thus far survived the financial crisis in better shape than have many developed countries (e.g., see Fidrmuc and Korhonen, 2009; Sun and Zhang, 2009), but the economic contractions in those regions have indeed had a negative effect on these two large emerging economies. Banks and banking services are more (and often much more) important for international activities than for domestic activities (cf. Fingerand and Schuknecht, 1999 and Auboin and Meier-Ewert, 2003). The fall in trade is important for two reasons. First, trade is a bellwether of the wider economy and hence of the crisis. Second, trade fluctuations first follow and then amplify fluctuations in output and demand. This trade policy-driven amplification of the fall in output is what Kindleberger identified as a key feature of the Great Depression and is the fear shared by many economists.

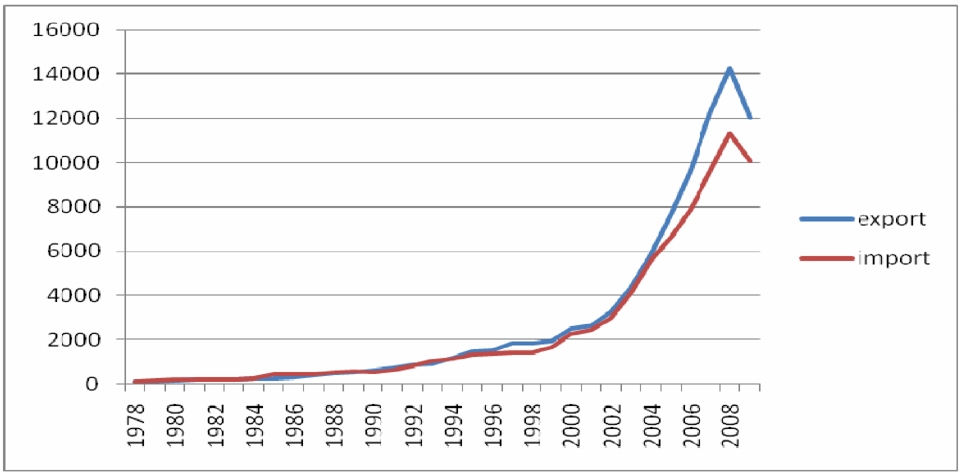
3. The trade contraction Pattern of China, Germany and USA in 2009

China

For nearly three decades since the opening and reform in the late 1970s, China registered steady growth in trade, expanding from negligible levels typical of an isolated country to those bespeaking a leading member of the international trade community (Naughton, 1996; Lardy, 2002). After joining the WTO in December 2001, the country witnessed a skyrocketing of growth in trade (Naughton, 2007). In the six years from 2002 to 2008, the total value of China’s imports and exports increased from $US 620.8 billion to $2561.6 billion, an annual growth rate of 26.6 percent. In 2008, China (mainland) already accounted for nearly 9 percent of the world’s total exports of commodities (SSB, 2009). However, the country’s golden age of global trade was interrupted in mid-2008 when the financial upheaval initiated by the U.S. subprime mortgage crisis began to spread across the world.

In the 1990s, China's trade was heavily dependent on a few countries/regions, such as the United States, Japan, Hong Kong, and the EU. The Asian Financial Crisis in 1997–1998, which made China's export trade stagnant, forced China to diversify its trade partners, so that by 2002, just after China joined the WTO, the U.S., EU, and Japan (hereafter, the Triad) had become China's three largest export destinations. Together they accounted for 54 percent of China's total exports at that time. By 2008, and the emergence of the recent financial crisis, the share of the Triad in China's exports had fallen further to 46 percent.

Chart 2: Trade tendency of China from 1978 to 2009 (in ten million Euros)



In 2009 China surpassed Germany and became the first one in world trade. However, comparing to the previous years, the exports and imports of China shrink within Asian areas, also between EU and US.

Figure 1: Share of China's Foreign Trade in 2009 with major countries

Country/Region	Imports and Exports		Exports		Imports	
	Amount, US$ billion	Growth rate(percent)	Amount, US$ billion	Growth rate(percent)	Amount, US$ billion	Growth rate(percent)
Total	2207.27	-13.90%	1201.67	-16.00%	1005.6	-11.20%
Asian counties	1172.05	-14.20%	568.6	-14.30%	603.45	-14.10%
Hong Kong, China	174.95	-14.10%	166.24	-12.80%	8.71	-32.60%
Japan	228.85	-14.20%	97.91	-15.70%	130.94	-13.10%
Republic of Korea	156.23	-16.00%	53.68	-27.40%	102.55	-8.50%
ASEAN	213.01	-7.90%	106.3	-7.00%	106.71	-8.80%
India	43.38	-16.30%	29.67	-6.10%	13.71	-32.30%
Australia	60.08	0.70%	20.64	-7.20%	39.44	5.40%
European Union	364.09	-14.50%	236.29	-19.40%	127.8	-3.60%
United States	298.26	-10.60%	220.82	-12.50%	77.44	-4.80%

Data resource: China Customs and Ministry of Commerce of PRC

From figure 1 it is clearly that the trade contracts between China and Asian countries, Hong Kong, Japan, Republic of Korea are all above the average shrinking level of 13.9% in 2009, while the trade between the main trading partner of China--- United States ---contracts much slower (10.6%). Trade between China and EU contracts (14.5%) little more than average level, while trade with Australia---

the main partner in Oceania---was positive(0.7%).

The phenomena that trade contracts faster within regions are much obvious in import volume of China. The average import shrinkage rate in 2009 was 11.2%, while the rate within Asia was 14.1%, and the contract rates with Hong Kong (32.6%) and India (32.3%) even reached above 30%. In sharp contrast to Asia, the import shrinkage rates with EU and United States are separately 3.6% and 4.8%. The export shrinkage rate has no obvious difference among those regions.

Figure 2: Top ten trade partners of China

	Year of 2008	Year of 2009
1	EU	EU
2	USA	USA
3	Japan	Japan
4	ASEAN	ASEAN
5	Hong Kong	Hong Kong
6	South Korea	South Korea
7	Taiwan	Taiwan
8	Australia	Australia
9	Russia	India
10	India	Brazil

Data resource: China's Customs Statistics report

From figure 2, we find that the top eight trade partners of China keep stable level in the list. However, India came up to the 9th in 2009 comparing to the 10th in 2008, Russia jumped out of the top ten of China's main partners, and Brazil came into the top ten.

Germany

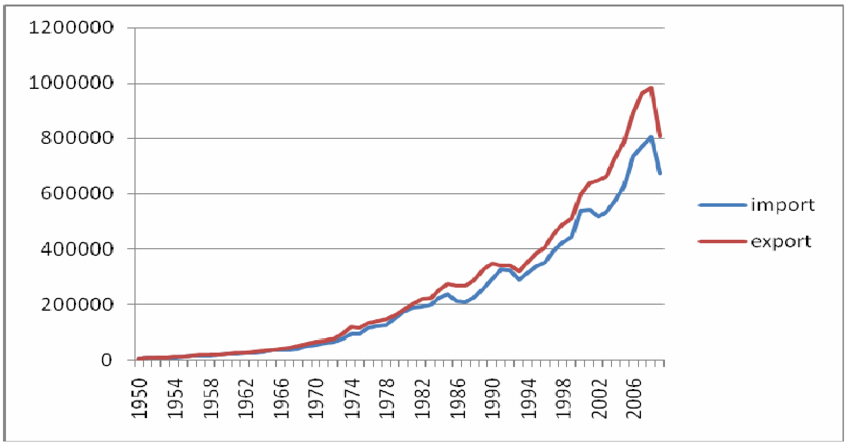
The total development of the German foreign trade has been increasing since the German reunification. Germany exported goods for converted 348 billion Euros into the world in 1990. This value trebled until 2008. German export amounted almost 984 billion Euros in 2008. This corresponds to an average annual growth of 5.9%. Similarly the import of goods developed: 1990 was the total value 293 billion Euros. The average annual growth rate of the imports, 5.8%, was only a bit smaller than that of the exports.

The figure of foreign trade balance has been more than trebled between 1990 and 2008 with an average annual growth of 6.8%. The balance from 2000 to 2005 is particularly expanded (+ 22% per year). At the beginning of the 1990s it was declining. The German economy concentrated rather on the domestic trade than the foreign trade after the reunification. In 1991 the foreign trade balance declined around 80% compared with the previous year. Export was reduced in the year after the reunification around 2%, while the import increased by 12%. In 1992 and 1993 export and import went back, however, the balance was positive.

If one accounts the quantities of traded commodities instead of their values, then it is noticeable that the quantity development was much less expansive: The exported quantities nearly doubled from 1991 to 2008(+84%). Imported goods in the same period were ca.40% more. That points out an average annual growth of 3.6% for the exported quantities and 2.0% for the imported quantities.

The expansion of the foreign trade is increasingly due to globalization effects. A substantial consequence of the increasing globalization is the internationalization of production processes. An example is the increasing meaning of transnational refining treatment. If a commodity is to be refined abroad (i.e. improved or processed), the official statistics registered it as an export of non-refined commodity at first. After refinement the same commodity is as import registered, while the value of the commodity before the refinement plus the refinement value are equal to the total commodity value (principle of the gross collection). The foreign trade statistics is blown up by such procedures in some way and the comparability of the results is impaired.

Chart 3 Trade tendency of Germany from 1950 to 2009 (in million Euros)



Data resource: Statistisches Bundesamt, Wiesbaden 2010

Many German companies are shifting parts of their production abroad and in addition founding their own subsidiaries in foreign countries. This leads to the fact that increasing goods are transnational transferred within the same enterprises (so called “intra firm trade”). This entails inevitably an expansion of the foreign trade and changes the significance of the statistics. Through the outsourcing process, goods produced abroad are combined with increasing payment in advance. If the last substantial phase of production took place in Germany, the foreign trade statistics will treat the goods as German exports. That is valid if the portion of foreign value creation outweighs.

Figure 3: Share of Germany Foreign Trade with major countries & continents in 2009

Country/Region	Imports and Exports		Exports		Imports	
	Amount EUR mn	Growth rate(percent)	Amount EUR mn	Growth rate(percent)	Amount EUR mn	Growth rate(percent)
Total	1, 482, 118	−17. 20%	808, 155	−17. 88%	673, 963	−16. 37%
Asia	231, 749	**−7. 86%**	111, 653	**−7. 03%**	120, 096	**−14. 57%**
Japan	28, 903	−19. 47%	10, 787	−15. 76%	18, 116	−21. 53%
Republic of Korea	15, 450	−13. 43%	7, 863	−10. 90%	7, 586	−15. 90%
China	91, 907	−1. 68%	36, 460	6. 93%	55, 448	−6. 62%
America	138, 812	**−21. 02%**	77, 903	**−23. 52%**	60, 909	**−17. 56%**
Canada	8, 534	−15. 03%	5, 216	−16. 72%	3, 318	−12. 23%

Mexico	8,188	-26.34%	4,982	-27.33%	3,206	-24.77%
USA	93,749	-20.23%	53,835	-24.67%	39,915	-13.34%
Europe	1,068,406	**-17.82%**	593,005	**-19.11%**	475,401	**-16.16%**
EU	730,761	-16.48%	419,421	-17.06%	311,340	-15.68%
UK	86,330	-22.26%	53,156	-20.41%	33,174	-25.05%
Oceania, Australia and other areas	11,712	**-10.55%**	8,369	**-11.37%**	3,343	**-8.44%**
Africa	31,437	**-22.02%**	17,225	**-12.35%**	14,212	**-31.22%**

Data resource: 1.Statistisches Bundesamt Deutschland

2.http://www.destatis.de/jetspeed/portal/cms/Sites/destatis/Internet/EN/Content/Statistics/Aussenhandel/Handelspartner/Tabellen/Content100/RangfolgeHandelspartner,property=file.pdf

3. http://www.statistik-portal.de/Statistik-Portal/en/en_zs18_bund.asp

For Germany, the trade in 2009 contracted at the rate of 17.2% globally. The rate with Asian countries was 7.86%, far below the global level. While within the Europe, trade contracted at the rate of 17.82%, even higher than global level. The highest contract rate was 26.43% with Mexico, while the lowest rate was 7.86% with Asia. Combined the data of export and import, we conclude that the trade between Germany and Asia contracts slowest comparing with other regions. Germany trade contracts very fast within Europe, but also c contracted at high speed with America and Africa.

Figure 4: Top ten trade partners of Germany

	Year of 2008	Year of 2009
France	1	1
Netherlands	2	2
USA	3	3
UK	4	6
Italy	5	5
China	6	4
Belgium	7	8
Austria	8	7
Switzerland	9	9
Russian Federation	10	13

Data resource: Statistisches Bundesamt, Wiesbaden 2010

From figure 4 we find that among the top ten trade partners of Germany in 2008, only UK, China and Russia have an obvious different rank level in 2009. UK and Russia fell down during the past year, separately from 6th to 4th and 10th to 13th, while the two countries are all in Europe. In contrast to other partners, China became the 4th major partner in 2009 from 6th one in 2008 for Germany, which is located further than other countries.

United States

Figure 5: Share of USA Foreign Trade in 2009 with major countries

Country/Region	Imports and Exports	Domestic Exports	Imports

	Amount, US$ billion	Growth rate(percent)	Amount, US$ billion	Growth rate(percent)	Amount, US$ billion	Growth rate(percent)
Total	3488.065	-19.80%	1554.718	-14.88%	1933.347	-23.36%
ASEAN	145.9	**-18.18%**	53.842	-21.00%	92.058	-16.43%
Europe	589.309	**-22.85%**	258.646	-21.21%	330.663	-24.08%
EU	500.228	**-21.76%**	219.88	-19.44%	280.348	-23.49%
Germany	110.019	-24.63%	40.229	-19.78%	69.79	-27.17%
UK	89.009	-17.19%	41.99	-14.41%	47.019	-19.51%
Western Hemisphere	953.163	**-24.46%**	443.58	-19.40%	509.583	-28.37%
Mexico	282.027	-18.92%	105.718	-19.61%	176.309	-18.50%
Canada	396.279	**-28.89%**	171.695	-22.81%	224.584	-32.93%
Africa	62.059	**-40.74%**	15.144	-18.68%	46.915	-45.51%
Total Asia and Pacific	882.357	**-17.10%**	285.788	-14.92%	596.569	-18.11%
China	360.669	-10.87%	65.124	-3.05%	295.545	-12.43%
Japan	143.076	-28.66%	47.074	-23.38%	96.002	-30.99%
Republic of Korea	65.844	-17.45%	27.074	-18.14%	38.77	-16.96%
Australia	26.242	-16.65%	18.244	-12.91%	7.998	-24.08%

Data Resource: 1.http://www.census.gov/foreign-trade/balance/c5700.html#2009

2.United States International Trade Commission 3.http://dataweb.usitc.gov/scripts/cy_m3_run.asp

http://dataweb.usitc.gov/scripts/Regions.asp

From figure 5, it is clear that USA （-19.8%）trade shrink much sharper than China (-13.9%) and Germany（-17.2%）. USA trade contracts fast within Western Hemisphere at the rate of 24.46%, while the rates with ASEAN (-18.18%), EU (-21.76%), Europe (-22.85%), Total Asia and Pacific (-17.1%) are lower than the rate with Western Hemisphere.[1] The trade with Africa contracted much faster than any other regions at the rate of 40.74%, which seems inconformity with the topic.

Figure 6: Top ten trade partners of USA

	Year of 2008	Year of 2009
Canada	1	1
China	2	2
Mexico	3	3
Japan	4	4
Germany	5	5
UK	6	6
Korea, south	7	7
France	8	8

[1] Use Western Hemisphere index because of the data availability in USITC.

Taiwan	beyond top ten	9
Brazil	9	10

Data resource: http://www.census.gov/foreign-trade/top/index.html

From figure 6, we find that the main trade partners of USA have no obvious difference in 2009 comparing to 2008, except Taiwan jumped out of the top ten.

4. Empirical Analysis

Roughly a quarter of world trade takes place between countries sharing a common border, and half of world trade occurs between partners less than 3,000 kilometers apart (Berthelon and Freund, 2004). David Hummels (2007) once pointed out: One of the most robust facts about trade is that countries trade primarily with neighbors. Even after controlling for other plausible correlates such as country size, income, and tariff barriers, the distance between partners explains much of bilateral trade volumes. However, the recent changes in transportation would seem to suggest that the grip of distance should be weakening. Air transportation tends to be preferred to ocean transport on especially long-distance shipments (Harrigan, 2005).As the level of air transportation costs drop relative to the level of ocean transport; long distance trade becomes more attractive. Such tendency creates a condition for large trade volume between regions. The technological change in air shipping and the declining cost of rapid transportation has been a critical input to encourage the trade between regions. Clearly, the telecommunication and Internet revolution has already affected international integration, leading to growing trade in information and technology, in services outsourcing, and in migration of highly skilled professionals.

5. Concluding Remarks

With the low air shipping cost the trade communications between the continents are much easier and frequenter. When a global crisis poured in, some trade within a region is interrupted because one country can use the local alternative product instead of importing from the neighbor countries. However, some products or energy or materials from other region are non-substitutive, such as the cheap textiles from China, the oil energy from Middle East. The low air shipping cost provides a possibility for trade flows among regions quickly. The wide spread of multinational corporation also makes product chain among continents, which enhance the trade connections long distance. When economic prosperity comes one day, we think the trade within regions also rebound faster than that between regions, for to some extent, the trade between regions are much more stable and non-interrupted.

References

David Hummels, "Transportation Costs and International Trade in the Second Era of Globalization", The Journal of Economic Perspectives, Vol.21, No.3(Summer, 2007), pp.131-154
Peter A.G. van Bergeijk，"Some Economic Historic Perspectives On The 2009; World Trade Collapse"，International Institute of Social Studies, Working paper, August 2009;
Sarah Stolting, "International Trade and Growth: The Impact of Selection and Imitation", European University Institute, Working Paper, May 2009;
D. H. Robertson , "The Future of International Trade", The Economic Journal, Vol. 48, No. 189 (Mar., 1938), pp. 1-14;
Warwick J. McKibbin, Andrew Stoeckel, "The Potential Impact of the Global Financial Crisis on World Trade", working paper prepared for the World Bank, August 31, 2009;
Jim Rollo and Peter Holmes, "Trade and the Global Economic Crisis Immediate Challenges and Long-term Threats", International Economics Program, March 2009, IEP/JEF BP 2009/01;
Andrew K. Rose, "One Money, One Market: Estimating the Effect of Common Currencies on Trade," NBER Working Paper No.7432, December 1999, in Economic Policy, 2000;
Charles N. Noussair, Charles R. Plott, and Raymond G. Riezman, "An Experimental Investigation of the Pattern of International Trade", The American Economic Review, Vol. 85, No. 3 (Jun., 1995), pp. 462-491;
WTO (2009), International Trade Statistics 2009;
Avinash Dixit, "Trade Expansion and Contract Enforcement", Journal of Political Economy, 2003, vol. 111, no. 6;
Weidong Liu, Clifton W. Pannell, and Hong guang Liu "The Global Economic Crisis and China's Foreign Trade", Eurasian Geography and Economics, 2009, 50, No. 5, pp. 497–512. DOI: 10.2747/1539-7216.50.5.497;
Website of Ministry of Commerce of the People's Republic of China.
Statistisches Bundesamt Deutschland:
http://www.destatis.de/jetspeed/portal/cms/