International trade, express logistics and globalization: part and parcel of the solution to current economic problems

Tim Leunig, Chris Minns and Diana Weinhold



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LSE THE LONDON SCHOOL OF ECONOMICS AND POLITICAL SCIENCE

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EXECUTIVE SUMMARY

Growth in international trade has generated prosperity for individual nations and for the world as a whole. Recent falls in world trade have not caused the current economic crisis: but rises in world trade will play a large part in generating post-crisis economic growth.

International trade does not happen automatically. Both government and the private sector can improve or worsen the conditions for trade. Those countries that create the best conditions will attract companies that are part of the global economy. This is particularly important for developing countries for which access to world markets is an absolutely critical part of their drive for prosperity.

Although innate geographical location and hard-to-change wage and skill levels explain a great deal of world trade, our research shows that trade infrastructure, both physical and legal, matter a great deal in explaining which countries are most successful in international trade. We demonstrate this in the context of a standard multivariate regression "gravity" trade model, using World Bank data for 111 countries. This allows us to test whether, taking into account location, income and other standard economic trade variables, differences in logistic quality in different countries affect the extent to which these countries trade with other nations.

The answer is "yes", in two senses. First, for sea transport, cost matters. Those countries that provide low cost shipping logistics are more attractive to firms producing the generally low-cost, low-value products that are sent by ship. These products are important to the economies of many developing nations.

But these nations – and many others – increasingly want to go beyond low cost basic products and enter higher value-added product and component sectors. These goods are often needed quickly, and are moved by air express companies. Our results show that countries wanting to attract firms that use air express shipments need to look not so much at improving costs, but to ensuring reliability and timeliness. In particular, the evidence is that countries where traders can ask government for a low cost, transparent review of any decisions made on the ground have a higher share of world trade. Companies need to know that they will be treated fairly, and the ability to have decisions looked into gives them that assurance.

By understanding the determinants of world trade, countries can benchmark themselves against global best practice in those dimensions that matter most. This report sets out what countries can do to position themselves most effectively to take advantage of post-crisis growth and ensure that they, and not their rivals, are best-placed to succeed in the years to come.

Country-by-Country Analysis

Our analysis shows that two factors matter above all: the cost of shipping, and the availability of review procedures. Global best practice is achieved by China for low shipping costs, and by most OECD (Organisation for Economic Corporation and Development) countries for the availability of review procedures – typically all importers and exporters report that such review procedures are available for all trades in all successful developed nations.

We can then look to see how the extent to which other countries can increase trade by adopting global best practice. We concentrate here on the "BRIC" countries, of Brazil, Russia, India and China, but look also at Poland, as an example of a nation whose economic trajectory has been transformed by its membership to a free trade area, in this case the EU.

Brazil

Our statistical model suggests that Brazil could increase its trade volumes by around 30% were it to match Chinese sea-borne shipping costs. In reality this would be difficult; as China's shipping costs are in part a reflection of lower wage rates. Nevertheless, the difference in shipping costs exceeds the difference in labor costs, indicating that Brazil has good opportunities to increase trade by making port services more efficient. In addition, were Brazil to adopt OECD standard legal procedures for trade, then trade would again increase by around 30%.

Russia

Although Russia performs well on some individual components of logistic quality the overall scores can be further improved: shipping is much more costly than from China, for



example, and traders have little confidence in their ability to request an independent review of, for example, decisions made by customs officers. As a result, Russia does not rank high in this area. This does, however, mean that the potential for increasing trade volumes through reforms is very large; we estimate that Russia could increase trade by as much as 50% by lowering costs to Chinese levels, and increase it by over 30% from adopting developed country standard review procedures.

India

India ranks close to the middle of the global overall rankings in most measures of logistical performance. Low wages give it an advantage, but this is mitigated to some extent by relatively low levels of efficiency in some aspect of trade. Equally, the rule of law is well-established: traders report good quality service by the standards of developing countries, but with a lot of potential to improve to reach the standards common in developed countries. As a result our statistical model suggests modest, but still significant, gains to trade volumes from improving its logistical performance to match best practice: India could increase trade by over 10% by matching Chinese shipping costs and by almost 20% by adopting OECD standard review procedures.

China

On average, China has some of the world's lowest sea-borne shipping costs, and therefore the gains in trade volumes from further reductions in shipping costs will be relatively small. Despite this relatively good performance on costs, China could increase trade from improvements in its logistics quality. Specifically, our statistical model suggests that China could increase its trade volume by up to 20% by improving its review procedures. This will become ever more important as China moves away from low-cost production to high value added products that rely on the air express industry for just-in-time delivery.

Poland

Poland's logistical performance is highly varied; its costs of trade are obviously relatively high compared with a much lower wage economy such as China, while its treatment of trading companies elicit very different responses. The highly varied nature of Poland's logistic quality suggests that relatively small targeted reforms would be particularly effective; our statistical model suggests a better than 45% increase in trade could be had from lowering sea-borne shipping costs to levels comparable with China, and a better than 30% increase from improving its review procedures.

INTERNATIONAL TRADE, EXPRESS LOGISTICS AND GLOBALIZATION: PART AND PARCEL OF THE SOLUTION TO CURRENT ECONOMIC PROBLEMS

Section 1: Background – International trade increases the standard of living

Economists have known that international trade is one of the most important ways in which societies can increase their standard of living since the time of Adam Smith and David Ricardo, with their work on specialization and comparative advantage. Over the years their insights have been formalized and developed, with current economics Nobel Laureate Paul Krugman winning the Nobel Prize in economics in part for his work on international trade.

The connection between international trade and economic growth is supported by evidence from every period of human history. The Roman Empire was rich in part because it was able to trade over long distances. The spice trade between Europe and Asia was the first example of how trade between these two great continents could enrich both places. The 19th-century saw an unprecedented rise in trade, with a big reduction in piracy and huge improvements in the quality and speed of shipping. Nineteenth century "clipper ships" established that there really was a market for premium priced speedy logistics, and that such a market was large. This was also the period in which modern economic growth first became established. Between the wars, in contrast, the rise of protectionism and the collapse of world trade exacerbated and extended the Great Depression, bringing and extending economic misery to millions of people. Building on the institutions created at the 1944 Bretton Woods conference, the post war world saw trade increase dramatically, bringing with it new-found and unprecedented prosperity. Those countries that have increased their trade most dramatically have grown most strongly. Fewer children go to bed malnourished today than at any point in human history because of the rise in international trade. International trade increases the standard of living, both for those in developed and for those in developing countries: it always has done, it always will do.

The rise in international trade is therefore cause for celebration. But international trade can still be costly, and there are still many practical and administrative restrictions that serve to reduce trade, and so reduce the standard of living. And, of course, there are those who, for good reasons and bad, wish to curtail trade.

Section 2: Trade in the modern world – what moves?

The modern world trades like never before. In simple weight terms, more than seven times as many goods are traded now as fifty years ago. Even more impressively, after stripping out the effect of inflation, the value of goods traded internationally has increased by more than 16-fold in the last half-century.

That the value of international trade has been increasing more rapidly than the weight of goods traded tells us immediately that the types of goods that are being traded have changed. Although bulk cargoes such as grain and oil remain important in volume terms, today moving high value-added merchandise is critical to trade performance. In 1955 the average ton of goods being traded was worth $574 (in 2000$). By 2004 the average ton of traded goods had reached $1208 (again, in 2000$): in short, the value of a typical ton had more than doubled in real terms in this period.

The increasing value of goods shipped means that, now more than ever, time matters. No longer is trade simply concerned with low value bulk goods that can be stored on arrival until needed. Trade today is increasingly dominated by high value, time critical goods, both as part of global supply chains and for the final consumer. This in turn means that air transport of goods has become relatively much more important in recent years. Since 1975 air cargoes have increased at more than twice the rate of ocean cargoes.

Air cargo share of the market is particularly high for the exports of rich countries. These countries produce and export high value added goods, and import relatively low value added commodities. As a result, we find that they export by air and import by sea. Excluding trade with Canada and Mexico, which is generally trucked, over half of US exports, by value, travel by air, whereas under one third of US imports arrive by air.

Falls in the cost of air transport have been particularly impressive, with prices falling by around 3% a year in real terms since 1972. Air shipping prices have fallen by 90% since 1955 in real terms. As a result, the average distance that an air cargo moves increased by 30% in the last 30 years, as

improvements in efficiency open up new routes that would not previously have been viable. The result is more choice, and lower prices for consumers, and more opportunities to participate in the global economy for people in far flung places.

Section 3: Trade today – a hiatus that will not last

In spring 2009 we know, more starkly than ever, that the world economy is in trouble. The high rates of growth that were common place in many developing and all developed countries for the last ten years have not only slowed, they have stopped. In fact, the IMF predicts that the global economy will shrink by 0.5% this year. The developed world will shrink by 2%, while emerging and developing economies will grow by at most 3.25%. This is the worst performance since the Great Depression, and compares with world economic growth that has typically been above 5%. Notwithstanding sharp downward revisions in the estimates, the IMF note that the world is more likely to underperform than to outperform this year.

World trade has also fallen. The IMF report that the volume of world trade has fallen by 2.8%, while the value of world trade has fallen by a much larger 12%. Falls in the level and value of world trade are much less unusual than falls in world GDP. In 2001, for example, the volume of world trade fell by almost 5%, and the value of world trade fell by over 10%. Thus while a fall in world GDP is a once in a lifetime event, a fall in world trade is a once in a decade event: painful for participants, but nothing exceptional for the world.

Note too that the value of world trade is always more volatile than the volume of world trade. This is for two reasons. First, in a downturn bulk commodities are still needed, and are still traded. Kansas is good at producing wheat, the middle east is good at producing oil, and these staple goods continue to be traded, albeit in slightly smaller quantities. But high value goods, such as machine tools or electronics are much more discretionary, and both sales and export volumes of such goods are hit much harder in a recession. Furthermore, pricing pressure increases in a recession, so that even if volumes stay high, values fall as companies are forced to lower prices to compete for limited orders. When world trade rebounds, as it will in due course, the value of trade will rise faster than the volume, just as it did 2002-2004.

As we would expect, the fall in trade of high-value goods has affected air cargo dramatically. IATA report that air cargo levels have fallen by almost a quarter in the last year. If these falls were to prove permanent then firms in the sector would face severe difficulties.

There are four potential reasons for the fall in trade. First, it could be that the rationale for trade no longer holds. This is clearly not the case. The basis for trade is that particular countries can produce particular goods or services more effectively than others, and as a result citizens choose to trade. That remains as true today and will be as true next year, as it has been in recent years. Japan and Germany produces great cars, Germany and Britain produce unbeatable pharmaceuticals, Britain and the US are home to excellent insurance markets, China and Vietnam are brilliant centers for manufacturing, and so the list goes on. Nothing that has happened in the last twelve months underlines the reality that we are richer if we trade than if we do not.

Second, trade will fall if governments engage in trade-reducing protectionism. There have been recent moves in that direction, but they have been overwhelmingly trivial in extent. China, for example, has banned the import of Belgian chocolates. Rather than a rise in protectionism, there has been a determination to avoid repeating the mistakes of the 1930s. Even as recently as 1992, Ross Perot won 19% of the vote in the US Presidential election on an overtly protectionist platform. No such candidate emerged last year.

Nor indeed is protectionism even readily feasible in many sectors today. Domestic car firms in every country would love to have protection from imports, but all are multinationals that rely on international trade to supply the parts that make up their cars. There is (almost) no such thing as an American car, a Japanese car, a German car and so on. Improvements in information, communications and logistic technology means that companies in all sectors increasingly can and do source components from around the world. Once it was necessary, as a matter of simple practicality, to produce a good in its entirety in one place, but no more. It is now perfectly possible to source components from around the world, from world-class suppliers. Doing so allows the firm to ensure that the difficult part of the production process, including design, are carried out in countries that offer high skills (albeit at a price), whilst more straightforward and routine jobs, such as assembly, are

carried out in countries where wage rates are relatively low. This combination creates a product that is well-designed and well-manufactured, but which can also be sold at a price the consumer finds extremely attractive. And this makes protectionism very hard to implement for all but the simplest of goods.

Third, trade can fall because GDP is falling. That is clearly part of the current story. And just as trade growth outstrips GDP growth in good times, so trade falls outstrip GDP falls in bad times. This has always been the case, and it will always be the case.

Fourth, and critically, international trade depends heavily on credit, and specifically on international credit. Since credit problems are the proximate cause of the current recession, trade has been hit hard. And the extent to which trade has been hit has been increased by quasi-nationalistic bank bail-outs, in which governments explicitly or implicitly expect the bailed-out banks to lend domestically. International trade is stuck.

There is thus a dramatic contrast between the short term and long term prospects for trade. In the short run trade will remain at best stagnant. Credit is hard to come by, and that prevents trade rebounding rapidly. But in the medium term the rationale for trade is as strong as ever. And the extent to which the global economy is now interlinked makes it more likely than ever that when trade credit becomes freely available at reasonable prices then trade will rebound. Its rebounding will in turn help to restore global economic growth, particularly for export-reliant nations in the developed and developing world.

The return of rapidly expanding trade will not benefit all countries equally, nor does it imply that all elements of trade will increase equally. We will discuss the extent to which different countries can benefit below, but it is worth commenting on some of the likely trends within the logistics and freight sectors.

As we mentioned earlier, long distance international trade can be divided into two parts: non-time sensitive products, which are usually moved by sea, and express parcels which are invariably sent by air. We also noted that, over the long run, there has been a rise in the proportion of trade, particularly in value terms, accounted for by the air express industry. The fall in the cost of aviation – obvious to holiday makers around the world – has also brought air express prices within the reach of many firms and sectors who would once have been limited to sea-borne freight. The fall in the underlying cost of air express logistics has increased the scale of this sector in ways that would have been hard to anticipate a generation ago. The scale of demand has in turn allowed the creation of global air express companies. These companies in turn create demand, in two senses. First, they offer a seamless service to destinations around the world. Second, their size allows them to generate economies of scale, which in turn reduces prices so attracting more customers. The rise in the air express industry has not only been caused by a fall in costs, however, for in addition changes in the nature of production systems, with the rise of multinational manufacturing and service firms, and the expansion of "just-in-time" production techniques means that the air express industry has become important as never before.

If it is relatively straightforward to predict that the volume of trade will grow, and perfectly straightforward to predict that the air express industry will grow as a proportion of total shipments, it is less easy to predict exactly what will be traded. That said, the current direction of global economic change points to three major areas of potential expansion for the air express industry.

First, as developed nations become richer, we are seeing a greater emphasis placed on healthcare. Part of that emphasis is preventative – people are eating better, and (beginning to) take more exercise. But part is responsive: we are making big strides to conquer heart disease, cancer and other diseases that prevent us living life to its fullest. Health is a classic area in which time matters, not only for acute life threatening conditions, but for ongoing chronic conditions, when every day counts. The development of individualized medicine, based, for example, on stem cell research and biotechnology, opens up a world in which medicines are no longer produced in bulk in factories and stored in pharmacies around the world, but are made to order for the specific patient, and sent to the individual as and when they are needed. Not every city or every country will be a world leader in this area, and that in turn implies a big role for the air express industry to get life saving and life transforming medicines from laboratory to patient.

Second, the continued growth of the international service sector means that document transfer will continue to grow in importance. Although electronic transfer is widely used, it is surprising how often it is necessary to send physical pieces of paper from one place to another. This is for three reasons. First, although it is possible to download and print out material, companies often prefer to post a proper copy. That way the originating company gets more control over the look and feel of the document – it can be bound, printed on good quality paper: in short, it can make an impact. Second, some documents simply do not print well, because most people are constrained to printing on A4 or at best A3 paper. But many items need larger paper – we think of architects' plans, for example – or paper of a specialist size or shape. And third, signatures remain important in many aspects of business. An email simply does not have the same legal status as a proper hard copy, signed, sealed and witnessed. As any office worker can tell you, the paperless office is mythical. As international commerce grows, the need to move physical pieces of paper will grow as well.

Third, there are moves in these more austere economic times to maintain and upgrade, rather than to replace. This is particularly true in the machine tool sector, and in information and communication technology. But that in turn means that more attention will be given to upgrading existing equipment, and to repairing it. By definition, upgrading equipment means moving smaller items than when replacing equipment, which makes it more likely that the air express industry will play a central role. And, by definition, supplying parts to repair existing equipment calls for express service.

Section 4: The G20 summit – a recommitment that matters

The G20 meeting held in April 2009 was notable in three ways. First, it is notable that the meeting was of the G20 and not the G8. Second, the meeting was notable for not collapsing in acrimony and managing to agree on something. And third, it was notable that the agreement centered around aspects of trade and international economic relations.

That the meeting was one of the G20, rather than the G8, or the G8 plus China, is remarkable. The G20 has no history of successful summits that have altered the path of the global economy. But it was clear that this was an organization whose time had come. In part this represents the scale of the problem that policy makers perceive themselves to be faced with: when the fear is of another "Great Depression" policymakers like to be inclusive in terms of who they speak to, who they listen to, and who they can blame if things continue to go wrong.

Second, the meeting did not break up in acrimony. No-one walked out, and no-one walked out in all but name. Of course no-one got everything that they wanted, but that is always the case with international summits. It is, in reality, very easy to prevent walkouts: you simply agree to refer all contentious matters to working parties. But the G20 did not do that. The US and Japan, for example, accepted that the rest of the world did not share their enthusiasm for big fiscal stimulus packages, and that fiscal matters would remain largely national.

But for all the differences over fiscal policy, there was unanimity over the importance of keeping the international economy moving. Of course, those involved in trade would have liked to have seen more than warm words about the Doha Round, but that was always unrealistic. In a downturn the best that can ever be hoped for is to avoid big moves towards protectionism. Although there have been some token protectionist measures enacted in the last year, these have been small by historical standards.

Instead the G20 summit concentrated on deliverable financial outcomes with strong implications for international trade. The $500bn increase in IMF funding was a clear statement that world leaders believe that we live in a world economy, in which individual countries in trouble need to be able to turn to a lender of last resort, who is able to lend sums of the scale that are needed when countries are in trouble. And of course the IMF in turn has the power to make conditional loans, with the conditions invariably including trade conditions. As a result, increased funding for the IMF should be seen as a pro-trade move by the G20 nations.

The same is true for both the other two major financial commitments. The G20 agreed to allow the IMF to create a further $250bn of "special drawing rights", which countries can use to bolster their foreign exchange reserves. This in turn makes it much more likely that their currencies will remain stable, since fewer countries will find themselves in weak positions relative to speculative efficiency. This also makes it less likely that countries will have to resort to emergency capital controls to prevent capital flight. Reasonably stable,

convertible currencies are helpful to foreign direct investment and international trade, since they reduce risk and uncertainty for firms engaged in these activities.

Finally, the G20 announced $250bn for trade finance over the next two years. Although it is not clear how much of that money is additional, it is clear that this declaration makes it much more likely that trade finance will be protected from cutbacks as and when deficit financing becomes problematic. Countries simply do not commit this publically to items they expect to cut back on in the immediate future.

The G20 began with many potential agendas – to reform the banking system and banking oversight rules, to deliver a coordinated fiscal stimulus, to protect and enhance the global trading system. It delivered one of those three: the trade promotion agenda, and it did so because all leaders could agree that although protectionism is politically attractive in the short term, trade will help economically in the short term, and is a critical and inevitable part of long term economic development.

Section 5: The role of logistics in international trade

International trade does not happen by itself. International companies make conscious decisions as to where to produce their goods, where to sell them, and how to move them from one to the other. There are many aspects to that decision, but one important aspect is the quality and cost of logistics. It is of no use having very low production costs in a particular place if the finished product cannot be moved easily, cheaply, and reliably to the customer.

There are two principal aspects to good logistics. The first is cost: lower costs are self-evidently attractive to firms. The second is quality: logistic reliability is paramount for many companies.

There are clearly interactions between cost and quality, but these are not straightforward. At one level it is always possible to pay more for better quality. But it does not follow that higher costs in a country necessarily imply higher quality logistics. Some countries have higher wage rates, or greater restrictions and regulations that increase cost without increasing quality. Other countries have regulations and restrictions that make logistics unreliable, or poor quality infrastructure that means that delays are common. It is therefore necessary to consider these two aspects of logistics, cost and quality, separately. It is also necessary to remember that individual firms will have different preferences over cost and over reliability. Producers of relatively low-cost goods will be willing to take more risks on reliability in exchange for lower costs. In contrast producers of relatively high-value goods, especially high-technology or other products with limited shelf life, will be more willing to pay higher prices for greater reliability. The last 25 years have seen a particular increase in the quantity of high-technology goods that are exported, often over very long distances. For that reason we concentrate particularly on the effects of logistic quality on trade.

It is also worth noting that it is transport and logistics costs, not tariffs, that are the biggest barrier to trade, with transport and logistics costs typically outweighing tariff levels by a factor of 9:1. While reductions in tariffs would be extremely beneficial for particular products, reductions in transport costs are more important for trade as a whole. These reductions can be achieved both by governments reducing obstacles to trade, and by private sector logistics firms becoming ever more efficient.

Section 6: Measuring the cost and quality of logistics – how do countries compare?

In this section we will concentrate on the experience of companies who trade with four important nations: Brazil, Russia, India and China. All of these countries are large and important in themselves, together accounting for 40% of the world's population and 15% of the global economy, and in addition they also serve as exemplars of the situation of other emerging economies. Brazil is in many ways the most developed of these economies, but despite its greater wealth it is in many senses less developed in terms of its role in world trade. It is expected to run a trade deficit in 2009. Russia is notable for the extent of its mineral wealth, and its trade position is determined to a much greater extent by the commodity cycle. India is the least developed of the four nations, but in many ways the export sector, with a high emphasis on services, is remarkably modern. And China, of course, is now the workshop of the world. In order to place the experience of these four nations into context, we will also include two other countries in our analysis. The first country is Poland. Poland is also an emerging economy, but one that is

remarkably different because of its position within the European Union. This matters both in general and obviously for logistics: it is very easy to move goods from Poland to Western Europe. And finally we will consider the position of Germany, which we use as a representative developed nation. Emerging economies increasingly benchmark themselves not only against each other, but against developed nations such as Germany.

Initially, some commentators both in these countries and elsewhere held that emerging economies were 'decoupled' from the fortunes of developed economies. Given the globalised nature of the world economy, this always seemed unlikely, and it is now clearly untrue. Although it is perhaps no longer the case that if the United States sneezes the rest of the world catches a cold, it is certainly the case that if the developed economies sneeze together, then the rest of the world will fall ill.

This section uses data from the World Bank publication *Connecting to Compete: Trade Logistics in the Global Economy.* This sets out how well countries do on various logistics measures, with the aim of establishing how countries can harness global markets for growth. That publication constructed an overall 'logistics performance indicator'. Rather than use this 'off the peg' indicator, we use the individual component series to construct a more detailed, more nuanced 'bespoke' statistical picture with which to first document, and later explain, trade performance.

Cost

The two most important means of transporting goods for international trade are by air and by sea. Freight sent by air express will always be more expensive than sea-borne freight, but there is no constant ratio between these two costs over time. The responsiveness of air express supply to changes in demand is reasonably high, since additional aircraft can usually be leased at relatively short notice. In addition, a significant proportion of air express is carried on passenger flights, where additional capacity is usually available. The ability of supply to respond effectively to peaks and troughs in demand is one of the attractions of air-borne freight, and keeps prices relatively constant year on year. Of course, the cost of air express varies over time, with fuel prices playing an important role in determining the charges in this sector.

The cost of sea-borne freight varies more dramatically, as shipping capacity is essentially fixed in the short run: it is hard to lease additional ships, and little cargo is carried on primarily passenger vessels. When demand rises, cargo ships take time to build, so prices can rise substantially in the short run. And since ships, unlike planes, require significant levels of maintenance even when not being used, shipping companies generally prefer to have their ships sailing even when the returns are very low. This means that when demand falls, prices can fall dramatically. The speed and extent to which sea-borne freight prices fall can be seen in the recent 90% fall in the Baltic Dry Index, a commonly used index for the cost of sea-borne freight. Air cargo prices do not vary to this extent over such a short period of time.

The prices of sea-borne freight are also volatile because ships built to carry one type of cargo cannot easily carry other sorts of products. A liquified natural gas tanker cannot carry cars, a car carrier cannot carry grain, a grain carrier cannot carry oil, and so on. In addition, some ships are too large to be used on some routes or in some ports: Post-Panamax freight ships, for example, are too large to pass through the Panama Canal, while only a handful of ports in the world are large enough to accept fully laden ultra-large crude carriers.

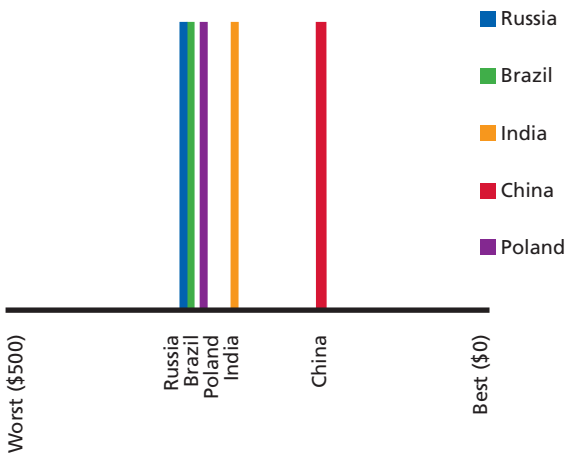
As we noted, there are two potential measures of freight transport costs: those for air-borne, and those for sea-borne freight. Air-borne express prices are quoted regularly by all the major international logistics firms. The standard cargo is generally relatively small, being measured by the kilogram rather than by the ton. Shipping cargos, in contrast, are usually much larger, and for manufactured goods are measured primarily by volume rather than by weight. The most reliable measure of the cost of sea-borne international trade is the cost of transporting a container of goods, where a container is either a twenty-foot or a forty foot equivalent unit.

Air-borne cargoes travel primarily to developed countries, to consumers who are disproportionately willing and able to pay the additional costs of air express. Sea-borne cargoes also travel primarily to developed countries, but the extent of the pattern is not as strong. For that reason we look here at the cost of air express from developing countries to the US, Europe and Japan, and at sea freight more generally.

It is clearly not feasible to show the cost of freight to and from each and every country in the world. We have therefore concentrated on the four most important emerging countries, Brazil, Russia, India and China, as well as a representative of the Eastern European EU accession states, Poland. In some cases we also include data for Germany, as an example of good practice. It is not that case that Germany is the "best" country for logistics, but it is a good example of a country with a reasonably high performing logistics sector. In each case data for the United States, or any other developed nation would be very similar to that presented for Germany.

The cost of air-borne freight is relatively constant for the countries in this sample, with the most expensive country less than twice as expensive as the least expensive country. At one level this is to be expected: international air express is a relatively standardized service, with broadly the same type of planes flying to the different locations, landing at airports with relatively similar facilities, and so on. Despite these apparent similarities, it is worth noting the strong performance of China, which has significantly lower costs than other competitor countries. This is a testimony both to efficiencies within China, and to economies of scale: if planes are full, then the cost of the plane can be divided up across more packages.

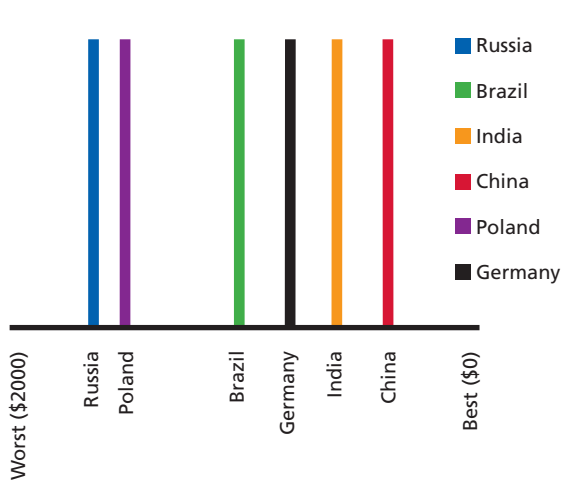
Air-borne freight costs: 10kg



Source: DHL

The cost of sea-borne transport varies much more dramatically around the world. It costs, for example, four times as much to import and export goods into the Russian Federation as it does into China. Conventional ports for cargo vessels are not nearly as homogenous as airports. They vary much more in terms of the sorts of vessels that they can accommodate, and their efficiency is also heterogeneous. It is also worth noting that high wage countries such as Germany do not have the highest logistics costs: they are able to offset much of the high cost of labor by technological and organizational efficiency. Once again, China stands out as having exceptionally low logistics costs.

Sea-borne shipping costs: 40' unit



Source: http://www.cinver.cl/archivos/LogisticsPerformanceIndex2007WorldBank.pdf - World Bank Logistics Performance Index 2007

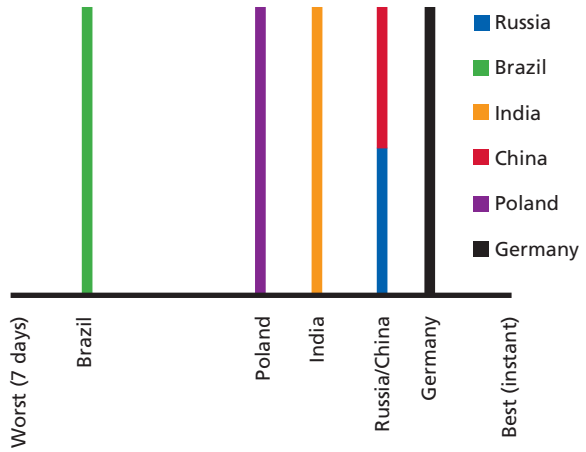
Quality

Measuring quality is more complex, because there are many aspects of quality and reliability. Many countries appear to have very efficient practices on paper, but the reality does not always live up to the country's aspirations. It is therefore critically important that this measure is based on customers' reports about how things actually work, not a country's claims as to how well they work. Because of the critical importance of quality, particularly for the sort of high-value imports and exports that are now so important to trade, we examine a number of different measures of quality. These consist of the number of days that importers and exporters report that it takes for shipments to clear customs, the likelihood that your goods will be held up for physical inspection, the lead times necessary to import or export goods, and the ability to request a review if your goods are delayed.

Time to clear customs

The time that importers and exporters expect a cargo to take to clear customs is a critically important measure of a country's attractiveness as a place in which to do business. Being able to move swiftly through customs procedures is important for any legitimate business.

Customs clearance times



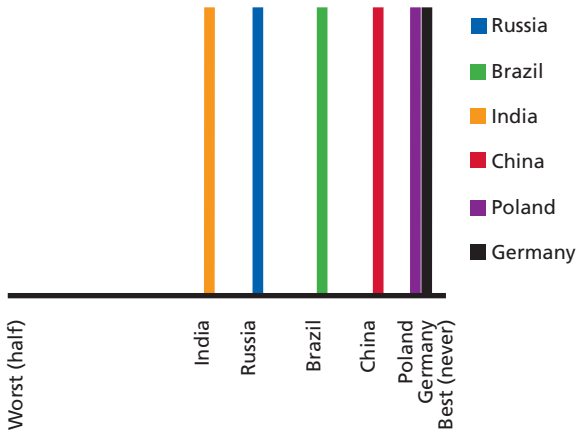
Source: http://www.cinver.cl/archivos/LogisticsPerformanceIndex2007WorldBank.pdf - World Bank Logistics Performance Index 2007

Customs processes generally work most efficiently in developed economies, and in that context it is no surprise to find that our representative developed economy, Germany, performs most strongly, with an average time to clear customs of less than one day. In this context Poland's performance is relatively weak. China and Russia stand out as having effective customs operations, with Brazil proving to be a real laggard.

Chance of physical inspection

It is not only the typical speed to pass through customs that matters to those involved in international trade, it is the chance of serious delay. This is particularly important for cargoes that are time-sensitive, a category that includes by definition all air-freight cargo. Here the big question is whether the cargo is physically inspected. Clearly all states have the right to ensure that that cargo that is entering the country is in keeping with the documentation, but effective customs procedures should be able to tell legitimate imports and exports from those that need to be inspected without having to physically inspect a particularly high proportion of goods entering and leaving the country.

Chance of physical inspection



Source: http://www.cinver.cl/archivos/LogisticsPerformanceIndex2007WorldBank.pdf - World Bank Logistics Performance Index 2007

Once again, developed countries always do well on measures such as these. Their long-standing relationships with trading partners generate good information on which cargoes are legitimate and do not need to be physically inspected. German authorities inspect only 2% of cargoes, and Polish authorities only 3%. These are countries that are confident that they have other ways of detecting the entry of illicit cargoes.

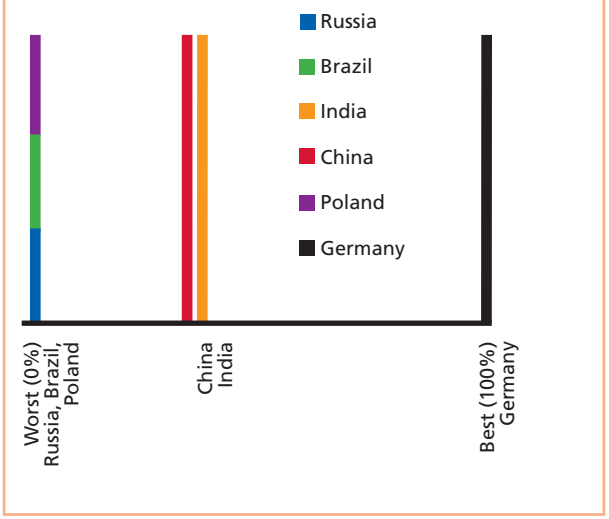
And once more, China leads the way among emerging economies, posting a significantly better performance than Brazil, Russia or India. Cargoes are almost four times more likely to be inspected by Indian than Chinese authorities, and in total India authorities inspect 25% of shipments. When one in four cargoes are stopped and physically inspected it is clear that those involved in importing and exporting have to include a time allowance to take account of this threat. This sort of uncertainty is a particular problem for those who intend to import or export time sensitive goods, including high-value added 'must have' electronics, and makes Russia and India less attractive places to produce such goods.

Availability of Review

Both delays at customs in general and the inspection of cargoes are legitimate actions that states need to take from time to time to prevent smuggling and to ensure that tariffs and quotas are correctly applied. Nevertheless, there will be times when

importers and exporters feel that the rules have not been enforced in a manner that is fair and impartial, or proportionate to the likelihood that the rules have been transgressed. At such times it is useful to be able to appeal to have the decision reviewed. Furthermore, the very existence of such review procedures makes it more likely that the initial decision will be correct, since the person making the decision knows that it can be contested. In theory, almost all countries have such procedures, but to be effective they have to be quick, cheap and impartial.

Availability of review procedures



Source: http://www.cinver.cl/archivos/LogisticsPerformanceIndex2007WorldBank.pdf - World Bank Logistics Performance Index 2007

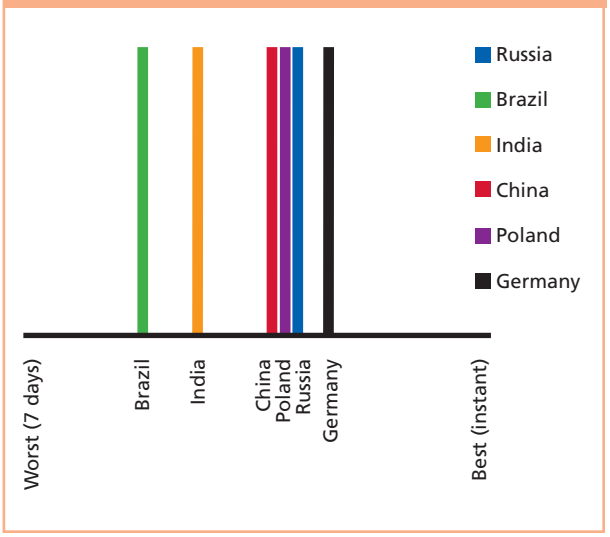
The survey showed that those involved in international trade believe that the review procedures are notable more by their absence than by their existence in many countries. Here again Germany stands out: traders believe that they can cheaply and efficiently contest any decision made by German customs agencies if it seems to be unfair. Germany is by no means alone among developed economies on this measure, but is instead typical of them. Developed trading nations have such review procedures, and they are – as we shall see later – tremendously trade-enhancing.

In contrast fewer than one half of respondents felt that such procedures were a reality in India or China, and they were held to be non-existent in Russia, Brazil and Poland.

Lead times

Goods have to get from the factory to the sea or airport, and, having cleared customs on arrival, from there to the consumer. As the old adage says, "time is money", and so efficient infrastructure makes a country appealing to importers, exporters and those who need to move goods from one part of a country to another. If the port is congested, so that cargoes have to wait to be loaded, or if the road and rail systems are slow or prone to delays, then those who want fast and reliable connections may well look elsewhere.

Import and export lead times



Source: http://www.cinver.cl/archivos/LogisticsPerformanceIndex2007WorldBank.pdf - World Bank Logistics Performance Index 2007

Unsurprisingly developed countries, which have far more infrastructure than developing and emerging economies, top the poll. Although goods cannot move around Germany instantly, Germany is rated more highly than the other countries for whom data are presented here. But the difference between Germany and the next best countries, Russia, Poland and China, is not great. Their infrastructure is held to be adequate for the journeys that international traders find necessary. Of course, in part that reflects not only the quality of infrastructure, but also the proximity of industrial locations relative to ports. In particular, locating factories near to ports and airports will reduce the time taken to move cargoes from factory to its point of departure. Location, as well as infrastructure, matter.

Section 7: What can countries do to be ready for the next upturn in world trade?

Given the huge advantages that globalization offers to consumers in terms of the greater choice and lower prices, we can be confident that world trade will resume its upward path at some point. Since trade is one of the major engines of world economic growth, we also know that those countries that use the current hiatus as an opportunity to pursue pro-trade policies will emerge from the current economic situation more rapidly than those who opt for trade-restricting measures. The growth in world trade has never, and never will, apply equally to all countries or to all regions of the world.

A combination of skill and luck is required for countries to make the most of the rise in world trade in the future. In order to understand what countries can do to best position themselves for the coming upturn in world trade level, we need to understand what determines which countries trade the most, and then to understand what countries can do to enter the select group of countries that are widely known to be great places from which to trade. Once that is established countries can see what they need to do to make sure that they are major beneficiaries of the return to normal economic conditions over the next few years.

The value of international trade flows between two countries is explained by four separate factors.

1. First, the distance between countries matters. Countries that are closer together are more likely to trade with each other than countries that are further apart. Regional trade is an extremely important part of the global economy.
2. Second, and self-evidently, the value of trade between two countries that are rich will be greater than the value of trade between two countries that are poor: rich people buy more goods, and therefore import more goods.
3. Third, the rule of law. Trade, like all aspects of economic development, is extremely limited in those countries in which the rule of law is not well established. This applies to the rule of law in general, and to the application of the rule of law to international trade.
4. Fourth, the cost and quality of logistics. The evidence is unambiguous: logistics are a crucial determinant of the amount of trade. In particular, poor logistics drastically reduce levels of trade between countries.

We put these four factors together in a sophisticated multivariate regression analysis model that predicts the level of trade from the scores for each of these factors achieved by each country. It is here that our use of the data on individual aspects of trade performance rather than using the composite World Bank logistics performance indicator is particularly effective, since it allows us to distinguish between the importance for trade levels of the previously mentioned different elements of the overall index. In each case the gain is largest when both the importing and exporting countries perform well: if one performs well and one performs badly trade falls dramatically.

The quality of the statistical results is sufficient to allow us to predict the effect of improving logistics on future trade patterns. In particular, we can assess the effect on trade that would occur were countries to improve their logistics standard to those of their competitors, or to those of global best practice.

The effect of good logistics on trade

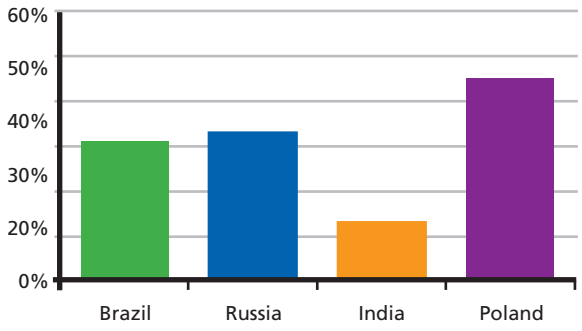
The regression results are clear: two of the logistics factors are extremely powerful in explaining the level of trade, while the remaining factors have either very small or statistically insignificant effects. This is extremely useful for policy makers, as it gives strong guidance on what they need to do to gain a larger share of world trade. The two factors that matter tremendously are shipping costs, and the availability of review procedures. Other issues that matter, but to a much smaller extent are the lead times necessary for goods to move from factory to port, or from customs to customer, and the chance of goods being physically inspected. In contrast, neither the time taken to clear customs, nor the cost of air express are found to affect countries' level of trade. At first sight these findings may seem counterintuitive, but in fact they fit together to offer a coherent picture of what determined the different aspects of world trade.

The role of costs

We find that shipping costs matter tremendously for trade, but air express costs do not matter at all. This may seem a surprising result, in that it might be imagined that both costs would be important. But sea freight and air express are fundamentally different items. Sea freight is used primarily for low value items, for which time is not of the essence. These are items that are sold, to greater or lesser extent, on price. Even relatively high value sea-borne items, such as cars, are sufficiently price-sensitive to make shipping by plane uneconomical. It is, after all, perfectly possible to fly cars

around the world. But even when one particular imported car is selling well, no-one pays the airfreight cost to receive their car more quickly. Instead they wait a few weeks for it to arrive on a relatively slow ship. Cars may be expensive, but consumers prefer to wait than to pay. Cars, like many other less-expensive goods, are price sensitive, and therefore the price of sea-freight is important in determining which countries are chosen as manufacturing centers.

Trade increases from matching Chinese shipping cost levels



We noted earlier that it is significantly cheaper to ship products from China than from the other nations in this study. Even China's closest rival, India, has shipping costs that are more than 50% higher than those of China, while Russian shipping costs are over four times as high as those of China. These cost differences matter for trade: higher shipping costs make a country less attractive as a base. The effects on trade are given in the graph above. This shows that were India able to reduce the cost of shipping to match Chinese levels, its trade would increase by one seventh. Were Brazil to match China's success on this measure, its trade would increase by a third. And were Poland and Russia to be able to match Chinese shipping costs, their trade rates are predicted to increase by just under, and just over, one half respectively. These are significant results, and demonstrate that the ability to offer cost effective shipping is one of the most crucial ways that emerging countries which often concentrate on relatively low value products can increase their share of world trade.

Air express is much more expensive than sea freight. The very fact that a manufacturer, importer, retailer or customer has decided that this product is worth transporting by air demonstrates that the consumer is prepared to pay more for speed. What matters in determining which countries are chosen in the world economy to produce items that will be sent by air express to their final destination is not the cost of air express from a particular country, but the reliability of air express shipments. The products that are worth sending by air express need reliable air express, even if that costs a bit more.

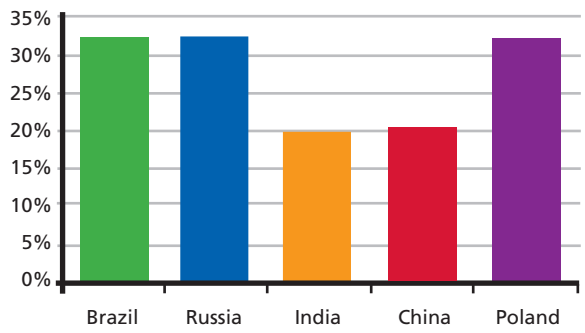
That does not mean, of course, that air express companies can simply raise their prices. This is a competitive business, sometimes intensely so. It is competition between companies such as DHL, FedEx and UPS that keep down prices. If one company raises prices in order to inflate profits, it will lose business to other firms in the sector. If all raise prices, new firms will enter the sector. Although the cost of air express from a particular country is not a significant determinant of whether that country gains a bigger share of world trade, the cost of air express for a particular company is very important in determining their share of the market.

The role of quality

The statistical evidence shows that the most important aspect of the quality of logistics procedures for developing trade is to allow those who import and export to request a low cost, independent review when they perceive that problems have occured. Countries who do so send out a very strong signal that they will treat exporting and logistics companies fairly and efficiently. In reality few firms request such reviews in countries such as Germany, which does offer such reviews. Rather the existence of such procedures in countries like Germany means that those who implement the law and procedures on the ground know that they cannot act as though they are a law unto themselves, but rather they have to administer the law fairly, impartially and efficiently. If not, the company will complain, and the person who is acting as a law unto themselves will get into trouble. The individual knows this, and therefore implements the law fairly. Importing, exporting and logistics companies know this as well, and therefore firms choose such countries as places from which to trade.

Making reviews available to all traders

Trade increases from adopting benchmark review procedures*



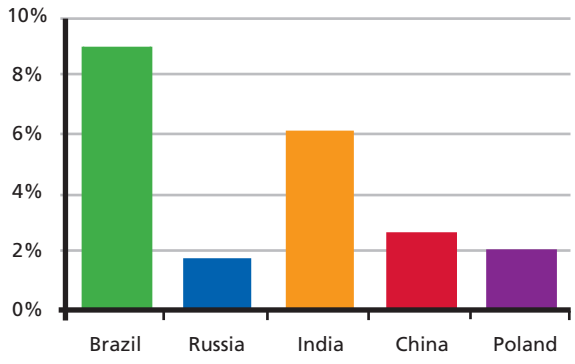
** Germany is used as a representative developed nation in the study as it is a good example of a country with a reasonably high performing logistics sector.*

The evidence is that such procedures are well-worth adopting for any country that wants to increase levels of trade. India and China are already seen by some importers and exporters as offering this, but even they would see trade levels increase by around 20% were they to make such reviews universally available. In the case of Brazil, Russia and Poland, respondants felt that low-cost independent reviews were never available, and as such the gains from moving to such reviews being universally available are even greater. The statistical evidence suggests that trade levels in these countries would increase by almost a third if traders felt that they could ask for a review when things go wrong. This is, as we said, not simply the effect of the reviews themselves, but rather the discipline that such reviews create for those whose job it is to implement and enforce current trade rules fairly and effectively.

This sort of review is likely to be particularly important for those people who use air express. Air express is, after all and as the name implies, time sensitive, and those who use air express need to have greater confidence that their shipments will be treated fairly.

Getting the infrastructure right

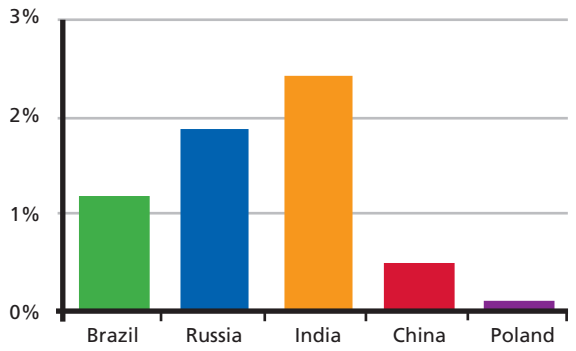
German lead times



Infrastructure is notoriously hard to measure. Measures such as the number of roads or the extent of the rail network do not capture at all well issues of congestion and reliability. That is why the measure of infrastructure used here is the time that traders report it takes to get from the factory to the port or from the port to the consumer. As we would expect, our representative developed economy, Germany, performs most effectively. But the gap in performance between Germany, Russia, Poland, and China is not sufficiently large to have a material effect on trade performance. The cost of improving infrastructure to developed country standards would be very large, and doing so in these countries would increase trade by only a small amount. In contrast, traders find that lead times in Brazil and India are large enough to warrant action by these governments. In each case attention should be paid to bottlenecks in infrastructure, as these cause disproportionately large ill-effects compared with the cost of removing them.

Customs inspections

Trade increases from cutting physical inspection rates to benchmark levels*



** Germany is used as a representative developed nation in the study as it is a good example of a country with a reasonably high performing logistics sector.*

We noted earlier that some countries were very much more prone to physically inspecting cargoes. Traders report that 1 in 4 Indian cargoes are physically inspected, a much higher rate than in other countries. Yet the effect of these inspections is very limited: reducing the level of inspection by 90%, to match developed country standards, would raise India's trade levels by less than 3%. The small effect on trade tells us that these inspections, although unwelcome, do not inconvenience trade sufficiently to act as an important obstacle to those who wish to do business in that country. So long as the inspections are fair, the inspection regime itself is not an important issue.

Coping with governments

Government restrictions on trade have a long history, but private companies can take actions to reduce the effect that these restrictions have on trade. The standard approach is to know and understand the rules, and to abide by them. Large multi-national companies will understand the customs rules and regulations of the countries with whom they have significant relationships. They will become adept at complying with local laws, and as such their cargoes are less likely to be delayed because a particular piece of paperwork is not in order.

But for smaller companies, or for companies who trade with a very wide range of countries, the cost of understanding every aspect of import-export legislation can be prohibitive. This is why many companies outsource compliance to international logistics firms. Companies such as DHL can act as the importer or exporter of record, meaning that it is their job to comply with local regulations. They will prepare the documentation, and so ensure that the company avoids regulatory and customs penalties that might otherwise arise from incomplete or incorrect documentation.

But governments can also use international logistics firms to find out those areas in which a country has high compliance costs. Logistics firms' compliance departments, after all, have good data on the comparative costs of trade in many countries. Governments are then able to ask whether the particular regulation that is onerous for those involved in trade is in fact needed. Thus, for example, the Australian government worked with DHL to harmonize the import threshold value across transport modes, making it easier for those exporting to Australia to know whether a particular shipment was liable for duty.

Section 8: The role of logistics firms

The role of logistics firms is apparently simple: to act as intermediaries, taking products from one place to another. But whilst that may be simple in theory, the practice of ensuring that goods arrive safely, promptly, reliably and cheaper is not simple – especially when borders have to be crossed. The fact that it requires significant specialised skills is why international logistics firms exist: put simply, it is sufficiently difficult that firms cannot do these things themselves.

No-one has suggested that logistics firms were part of the reason for the recent downturn. But they will be part of the reason for the upturn, for two reasons. First, logistics firms are ready for the upturn when it comes. The fall in world trade has not reduced the infrastructure of trade, for either bulk or high value express cargoes. The offices, the ships, the planes, are all still there. The knowledge and expertise, about routes, times, customs, remain as strong as ever. When trade resumes, its resumption will not be slowed by an absence of logistics expertise, experience or capability.

But more than that, the logistics industry is a classic example of a high fixed cost, low variable cost industry. The cost of taking one extra package on a van, plane or ship that is already travelling is negligible. The infrastructure and equipment cannot be used for anything else: they must be used, or mothballed. And so the logistics industry is highly cyclical. In

good times, there are good profits to be made. But in bad times competitive firms cut prices dramatically because when business is tough, (almost) any additional business is attractive. This means that the logistics industry's cyclicality reduces the overall cyclicality of the global economy. When times are booming, the planes and the ships are full, and prices rise. This chokes off (a little of) the demand, and (slightly) reduces the extent of the overheating. And when times are bad, the planes and ships are empty, and prices fall – sometimes spectacularly. This in turn helps to keep trade going, it means that the global recession will be a little less deep than it otherwise would be, and that recovery will occur just a little bit earlier than it would if logistics prices were not under pressure. The reality is that the next couple of years will be tough for all firms involved in international trade, including international logistics firms. But the downward pricing pressure that is bad news – in the short term – for these firms is good news for their customers, and so for the global economy.

This is particularly true for trade to and from emerging countries, particularly in East Asia. Given the ever increasing role that Asia plays in global trade, and given that the growth of Asian purchasing power means that within-Asia, trade will increase dramatically in the years ahead, this arena is the area of most focused positioning by the global logistics firms, none of whom want to pull back from the area that they identify – rightly – as of great importance in the years ahead. This in turn makes the region a more attractive place to do business, since firms are guaranteed to be able to find good logistics and keen prices. That in turn will help these areas – which in general are already doing less badly than the rest of the world economy – to cope with the current situation, and to be well-placed for the next upturn.

Section 9: Conclusion – understanding the past, predicting the future

Trade is critical to economic growth and to global development. The current falls in trade are not the cause of the global economic slowdown, but they do exacerbate it. One of the most attractive benefits of restoring credit markets will be the resumption of the growth in world trade. There is, thankfully, no significant move towards protectionism, indeed, quite the reverse, as the pro-trade results of the recent G20 summit demonstrate.

But the future growth of world trade will not be evenly spread, any more than world trade has ever been evenly spread in any period in world history. Individual countries are in very different positions with respect to their ability to benefit from world trade. Part of that is luck – having a coast, and rich neighbors help. But part of it is skill. Countries that are open to world trade, that create the infrastructure, and above all the right attitude, will be best placed to weather the current hiatus more successfully, and to prosper in the years ahead.

As we have shown, that means providing two things. Low logistics costs, for low cost (sea-borne) goods. And the guarantee of treating high value (air express) shipments with respect – allowing logistics companies to get on with their jobs, under clearly defined laws that are properly and fairly implemented on the ground.

Both of these require serious work from governments wishing to be at the forefront of the next wave of globalization: they are not items that can be achieved overnight. In approaching the issue countries need to benchmark themselves against global best practice. For shipping costs that means China. Countries such as Brazil, Russia and India need to look to China and see what it is that China does differently, and, in the main, less expensively. China's rise to becoming an economic and trading superpower has been based, in large part, on high levels of efficiency that other countries can learn much from.

For air express, in contrast, where quality is much more important than price, it is not China but instead countries such as Germany that serve as the benchmark. All of the BRIC nations can learn from developed nations about the role of the rule of law, and efficient due process in expediting express trade. By doing so they can create the conditions that will make their nation an attractive place for high value added international business. Of course, such improvements will take time, since they have to be implemented not only officially, but in practice; and not only in practice but in practice sufficiently, consistently and for a sufficient period of time to be credible. Only then can any of the BRIC nations expect to attract firms who rely on reliable air express logistics to base critical parts of their businesses in these countries.

The policy measures that need to be undertaken are not rocket science, and can be done by all countries, rich and poor. But they are not easy, and will take political and administrative commitment to achieve. The returns are great: those that do so are most likely to attract the firms that will generate the jobs and the prosperity that all countries, rich and poor alike, seek.

DHL
Fritz-Erler Strasse
553113 Bonn
Germany
www.dhl.com

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Simon Flemington,
CEO LSE Enterprise,
8th Floor, Tower One,
Houghton Street,
London, WC2A 2AE,
United Kingdom
email: enterprise@lse.ac.uk
tel: 020 7955 7128
fax: 020 7955 7980



