ENCUENTROS ISSN 1692-5858. No. 2. Diciembre de 2013 • P. 145-154

Uncertainty, Profits, and International trade

Frew Hailou, PhD
Assistant Professor of Economics
Department of Behavioral and Social Sciences
West Virginia State University
fhailou@wvstateu.edu

ABSTRACT

This study looks at the impact of uncertainty and shrinking profits on international trade. Using a unique theoretical model, we find that remoteness is associated with substantial amount of trade costs. In fact, our study shows that for each additional dollar of trade costs incurred due to remoteness and jurisdictional inaccessibility reduce profit by as much as $ 0.91. Such situations precipitate considerable negative influence on profit levels, the consequence of which is a reduction in trade related activities. Using gravity model and data from 84 countries, we test the impact of location on trade volumes. Our result strengthens the validity of our theoretical assumptions and corroborate with findings in similar studies.

Key words: *international trade, locations, profit levels*

Incertidumbre, beneficios y comercio internacional

RESUMEN

Este estudio observa el impacto de la incertidumbre y de los beneficios reducidos en el comercio internacional. Usando un modelo teórico único, encontramos que la lejanía se asocia con cantidades importantes de costos en el comercio. De hecho, nuestro estudio muestra que por cada dólar adicional de costos comerciales incurridos debidos a la lejanía y a la falta de acceso jurisdiccional se reducen los beneficios hasta en $ 0.91. Tales situaciones precipitan la influencia negativa considerable en los niveles de beneficios económicos, lo cual trae como consecuencia una reducción de las actividades comerciales relacionadas. Usando un modelo de gravedad y datos de 84 países, probamos el impacto de la localización geográfica en los volúmenes de comercio. Nuestro resultado fortalece la validez de nuestros supuestos teóricos y corrobora hallazgos de estudios similares.

Palabras clave: *Comercio internacional, localización, niveles de beneficios económicos*

Fecha de recibido: 16 de julio de 2013. Fecha de aceptación: 20 de octubre de 2013.

1 Introduction

Access to markets is one of the key determinants of success in international trade. Studies have shown that countries closely located to big markets tend to outperform those far afield by substantial margins. This is to a large extent due to excessive transactions costs associated with exchange of goods across nations and international boundaries. Using gravity models, a number of studies have shown that geographic conditions not only exert a considerable negative impact on trade levels but also stifle growth and development in the affected countries. In this study, we use the unique theoretical approach developed by Carcámo-Diaz (2004) and modify to estimate the impact of remote locations on trade costs. We, then, proceed to find whether our theoretical assumptions are supported by empirical findings that rely on gravity models.

7.4 Theoretical Framework

The core of our theoretical argument is based on the premise that in many developing countries, economic decisions today are greatly influenced by unknown turn of events tomorrow. Thus, the decision to invest in the production of traded of goods hinges to a certain extent on the level of uncertainty of the unknown tomorrow. Transportation costs represent the Achilles hills of exporters' competing in an international goods market. In this study we expand the framework by roach by including coastal states, where by virtue of their locations can take an active role in influencing economic outcomes through actively managing uncertainty levels.

For an exporter in a landlocked country, the process of delivering goods to its final destination involves traveling across foreign territories before reaching the loading docks of a port. Carcámo-Diaz considers what happens outside the legal jurisdictions asan exogenous event in which the latter has no control over. For instance, a sudden exogenous shock that raises transportation costs for landlocked countries leads not only to decreases in the price of exports but also to increases in the price of imports. The very same shock also raises the price of imports thereby precipitating terms of trade deterioration. One reason is that most exporters for developing countries are price takers and if there is any increase outside the value of the good, it must be borne by them. The same applies for importers as they have not much of an influence on the price of imported goods. Thus, any exogenous shock that raise import price is shouldered by the importers, a point well treated by Mackellar et al (2004).

The reduction in the export prices net of transportation cost has an adverse effect on profit levels because the increase resulting from exogenous shocks must be borne by exporters. The reduction of profit levels renders investment in the export sector an unattractive activity and those involved would shift their resources and energy where the pay-off is much better. The increase in the opportunity cost of export results in decreases in trade volumes. On the import side, a somewhat similar situation emerges as an increase in import prices will drive consumers towards local goods. This shift in consumer demand for local goods leads to a decrease in the demand for imported goods. In the end, the reduction in both the import and export markets leads to an overall reduction of trade volumes.

Uncertainty often affects the strategic long term relationship between exporters in landlocked countries and their overseas partners because the latter do not have a complete control of the situation necessary to fulfill their end of the bargain. A closure of major highway in transit may make exporters unable to meet the delivery of the promised amount of goods thus making them susceptible. An uncertainty brought about by a reasonably sustained spike in the trade costs may raise total production costs of exported items. Producers react by lowering output, which consequently reduces exports. This, again, reflects the inability of exporters to own up to their agreement with their external trading partners. This unreliability discourages international importers to enter into a long term binding contractual agreement with local exporters. Such argument could be extended into investment sector in general, when the prevalence of uncertainty over so many unanswered

questions related to stability in price and exchange rate, the exogenous nature of social and political tensions can discourage the inflow of foreign investment. One reason for this s capital holders expect a reasonable return on their investment in order to cover for the increased risks as a well-informed capital holder would not indulge in activity with excessive uncertainty unless someone is willing to ensure unexpected loss. The demand for a guaranty on expected returns on investment, or the demand for sweet deals by foreign investment and the inability of local governments to respond to those deals have reduced the level of investment in general and trade related investment in particular.

7.2 Literature Review

Carcámo-Diaz (2004) develops a theoretical model in which trade and investment in remote countries are negatively affected by the uncertainty associated with social and geographic conditions. In his model, the decision to engage in economic activity today is shaped by the uncertainty tomorrow. It follows that trade and investment decisions today is defined by the uncertainty of the unknown transaction cost tomorrow. Second, the decision to trade today is influenced by the unknown rate of exchange tomorrow. One reason for this is traders need to take account of currency movements not only in partner countries but in transit countries as well. Third, trade and investment in current time is dependent on today expectation of tomorrow's uncertainty outcome.

In the event of armed confrontations that raise tensions and make trade route fairly unreliable, the uncertainty resulting from it, can impact economic activities in general and trade in particular. Exporters cannot deliver their goods on time. Importers halt production because they cannot get intermediate goods needed for production. Governments often intervene to open roads closed by fighting so that normal trading activities may resume. But this is not always the case. What if fighting and instability is taking place outside the jurisdictions, say across the border in the transit country where the landlocked country can not legally intervene. Carcámo-Diaz (2004) sees that such occurrences raise the feeling of uncertainty which in turn affect economic activities.

The argument that shipping costs affect trade levels is widely dealt with in the literature. Radelet and Sachs (1998) point out that, in the case of labor intensive manufacture for export sector where the value of imported intermediate goods represents a significant portion of the value added a hike in shipping cost drive profit margins down to undesirable level. Limao and Venables (2001) find the median transportation cost in landlocked countries is 45 percent higher than in their coastal counterparts. Hummels' (2001) study of import data using surveys and other first hand data from Latin America, New Zealand and the United States show that landlocked Paraguay is saddled with higher shipment cost. A study of Central Asian landlocked counties by Raballand (2003) indicates that heavy reliance on overland transport has resulted in exorbitant shipping costs that reduce trade levels and stunt growth in the region.

Using agricultural trade data dating from 1975 to 1995, Cho et al. (2003) scrutinize the widely held assertions that risks associated with exchange rate volatility can have a reductive effect on trade levels. They point out that it is important to make a clear distinction between short, medium, and long term fluctuations in exchange rate, as they differ in their degree of influence. Cho et al. (2003) indicate that effects from short term fluctuations can be effectively hedged with appropriate instruments of risk management and at a low cost. However, the effectiveness of risk-hedging approach becomes ineffective as the time span of uncertainty is more than a year. In this case, hedging can be done only at a substantial cost. The authors employ a gravity model to demonstrate the significant negative effect of uncertainty on trade levels. The effects are even stronger in the agricultural than any other sector.

Barkoulas et al. (2002) investigate changes in the volume and variability of traded goods when the exchange rate is subjected to uncertainty. The authors use a signal extraction framework, a technique that allows them to figure not only the

direction but also the magnitude of trade while at the same time highlighting the fact that optimal activities of trade levels depend on the source and the nature of the uncertainty itself. In this context, uncertainty may be associated to policy related noisy signals, fundamental factors impacting the exchange rate, or shocks at the microstructure level. According to the authors, uncertainty emanating from the latter two reduces the variability of trade flows, while the former work in the opposite direction.

Using a panel data from eighty-seven countries over a ten year period, Awokuse et al (2005) study the impact of political instability on US exports. They define political stability by the degree of democratic practices while political instability encompasses acts of political violence, social insurrections, citizen assassinations, coup d'états and others activities that entail societal unrests. Their result suggests that political instability has a statistically significant effect on US exports to these countries.

Shahnawaz (2005) looks at the relationship between profitability and trade in the developing countries. Using a panel data from Egypt, he analyses the linkage between the two and finds that the level of investment and the inclination for policy openness in a given industry can have a strong impact on price-cost margins. The author finds the same positive and statistically significant linkages between export and profit margins.Alexander and Mandler (2006) claim that reducing the level of uncertainty in exchange rate movement is not enough to explain the economic performance of member countries in the European Union. They argue that countries with a history of instability such as Ireland and Portugal benefit from the reduction in inflation and interest rate while those with stability do not. For a country, achieving political instability indirectly corresponds to the probability of a country becoming a full member of the European Union, thus by implication contributes to its stability in inflation and interest rates. For others who are stable but have not yet joined the European Union, the absence of politically related uncertainty reduces the time frame of the adjustment period required for entry into the union. Grier and Smallwood (2006) evaluate how the uncertainty of real exchange rate and foreign exchange affect international trade. The result shows export growth in six of the nine developing countries in the sample is negatively impacted by exchange rate uncertainty. This impact however was not felt in the developing county sample. On the other hand, foreign income uncertainty has a significant and negative influence on trade in both developed and developing countries. Lensink et al. (2000) uses a survey data from 1097 small unlisted Dutch firms to investigate the impact of uncertainty on company growth. The focus of their studies evolves around firm investment level, employment demand, and expected maturity of the enterprising entity in relation to uncertainty they face with respect to future sales and return on investment. Their result shows that uncertainty about future sales are negatively correlated with investment decisions.

3. Data

The Investment Climate Data, compiled by Eifert, Gelb and Ramchandran (2005) for the World Bank offers such resources for a handful of African and Asian countries. Profit data for European countries is from National Statistical Office of the Bank of England.We use bilateral export data for the period 1990-1998 published in Penn World table and for the period of 1999-2005 we use data from the CIA world fact book. Both sources offer export data as of free on board basis (FOB).

The cost of transportation in landlocked as well as in transit countries are calculated using the cif/fob ratio as a proxy. One reason for using this proxy is due to the fact that it very difficult to make accurate estimations with available data. CIF/FOB data is from the Direction of Trade Statistics of the International Monetary Fund which publishes export on FOB and import on CIF basis.

Data of wages as a share of production costs is from the World Bank. Claus and Li (2003) provide wage data for New Zealand, Australia and some European countries. The openness data is from Sachs –Warner (1995) openness index while the institutional quality data is

compiled by Knack and Kieffer (1995) the methodology of which is presented in chapter five of this study.

7.5 Model And Methodology

Our work closely follows a simple theoretical developed by Carcámo-Diaz (2004) which we expand by giving it an empirical dimension. The model starts with a simple profit function where the value of export is stripped of its cost components, namely transportation cost at the local and transit level, and related production costs. The idea is to eventually isolate the transit cost component and demonstrate its inherent propensity for volatility, hence uncertainty in price both for import and export and export, but also for investment and output. Before we proceed to test the empirical validity of the theoretical model, we present below its basic assumptions.

7.51 A Background To The Model

The model put forward by Carcámo-Diaz (2004) has the following features. First, exporters are located in a landlocked country whereby export goods have to be transported through at least one transit country. Secondly, production of these goods does not require the usage of imported inputs. Markets are not located in non-neighboring country, highlighting the need to transporting goods across a long distance that includes crossings at least one neighboring country. The model further assumes delivery of goods does not involve air travel (i.e. all transportation is conducted either by land or by sea). Furthermore, both sellers in the landlocked countries and buyers overseas are risk averse who operate on the basis of how events turn out in the current as well as in the next period. As such, a given individual in a landlocked country invests an amount I period 1 in order to obtain profit according to the equation

$$P = \delta(e_L x - e_T t - c) \qquad (1)$$

where

- P is the present value of the exporter's profits in the following period
  - e_L is the currency exchange rate between the exporting and importing countries
  - x is the dollar value of export in dollars
  - e_T is the currency exchange rate between exporting and transit countries
  - t is the cost of transportation through the transit country
  - c represents domestic processing and transportation costs
    - δ is the discount factor

Here it is important to note the model has three other simplifying assumptions. The first is that exporters do not discount the future, that is $\delta = 1$ and secondly, the exchange rate is fixed in the short term . Third, the value of export is given after deducting sea-based transport costs.

Now Carcámo-Diaz (2004) starts by isolating the transit related cost $e_T t$ by lumping together the export earnings and local production cost including transportation cost

$$P = A - S$$

where $A = e_L x - c$ export-production cost

$S = e_T t$ transit transport costs

Assuming the profile of a risk averse exporter in a landlocked country, a concave utility function is used to calculate the expected stochastic return on their investments as

$$U(P) = - e^{-\lambda P} \qquad (2)$$

Next come the derivation an Arrow-Pratt absolute risk aversion coefficient R of exporters' profit benefits by applying first and second order derivatives of equation 2.

$$R = \frac{U^{''}(P)}{U^{'}(P)} = \lambda \quad R = \frac{U^{''}(P)}{U^{'}(P)} = \lambda \qquad (3)$$

Assuming that trade costs S are normally distributed with mean μ and variance σ^2, we can write the profit distribution as

$$P(S) \sim N(\mu_p, \sigma^2_p)$$

Finally the additional uncertainty faced by exporters in landlocked country must be exceeded by the returns on the investments so that

$$A - P > \mu + \frac{\lambda\sigma^2}{2}$$

where

- μ is the mean value of transportation cost in transit

- $\frac{\lambda\sigma^2}{2}$ is the volatility associated with the transportation and the key issue related to uncertainty in landlocked countries.

On our part we make few adjustments to the original model. We modify the initial profit equation $P = \delta (e_L x - e_T t - c)$ by further defining what Carcámo-Diaz (2004) refer to as the production and transportation cost in the landlocked country, the variable c. In our model, we define

$$C_\ell = T_\ell + W_\ell + N_\ell \qquad (4)$$

where

- C_ℓ is the production cost including transportation
- T_ℓ is the share transportation costs in production cost
- W_ℓ is the share in wages in production
- N_ℓ is the share of non-wage inputs in production

In our model, we need not convert export income as well as the value of transportation cost in transit because the fob value of export is readily available (see Penn World Table) and secondly in our earlier chapters we were able to calculate the share of transportation cost in export usingcif/fob as proxy . Thus combining equation (1) and (4) we can write our profit equation as

$$P_i = X_T - T_t - (T_\ell + W_l + N_l) \qquad (5)$$

To account for uncertainty, we added a stability index developed by Arnett (1998) which assigns values in increasing order depending on the stability of each country. We also included variables to account for openness, institutional quality, and geographical conditions. We finally specify our model as follows:

$$P_i = X_T - T_t - (T_\ell + W_l + N_l) + O_i + I_i + \varepsilon_i$$

where

- $O_i$represents country openness
- I_i represents institutional quality
- $\varepsilon_i$is the error term.

7.6 Results

Our results show that increased transportation costs have a negative effect on profit levels for exporters in both developed and developing countries. In column one, we see that a 1 dollar increase in transportation cost decreases profits by one half of that increase. This impact on profit levels is quite significant however it pales by comparison to costs incurred by traders who have no option but to operate outside their national borders (i.e in transit). For each additional dollar spent while on transit, an exporter's profit is reduced by more than that amount. This highlights the dilemma faced by many landlocked countries that have to cross at least an additional border to deliver their exports to the loading docks of a foreign country.

This situation gets even starker when uncertainty is introduced into the equation. In column two, the presence of uncertainty raises the level of cost burden both at the local and transit levels. Local transport cost went up by 3 percent while at the transit level it went up by 5 percentage points. One interesting point here is that, these cost-effects take place irrespective of the location or the source of the uncertainty. For instance, a landlocked country will feel the crunch of increased costs whether uncertainty is taking place locally or in the transit country. The reason for this is that the landlocked country simply has to cross them both.

Our regression shows that non-labor inputs in production are negatively related to profits levels. One possible explanation for this is that labor costs represent a considerable portion of production costs in many developing countries. This figure is between 55 to 65 percent in OECD and other developed countries, leaving 35 to 35 percent for capital expenditures, transportation costs, taxes and other expenses. As such, most of the value added in these countries is generated from capital and technological know-how that enlarge the production pie and spread the profit

margins. Our data shows that the opposite is true in the developing countries whose share of labor cost in production is much lower but that their material inputs – natural resources based – are quite substantial relative to those used in developed countries. Thus, non-labor inputs (capital and technological know how) are negatively related to profit levels in developing countries due to low productivity. On the other hand, non-labor inputs (natural resources based materials) in export based production, as is the case in developing countries, are negatively related to profit levels.

In column three, we added an openness variable to the existing independent variables of local and transit cost, and non-wage inputs to see if such addition could have an impact, if any, on profit levels. The result show that openness is positively correlated with profit levels however the relationship is not statistically significant. Moreover, adding openness did not have any effect on the explanatory power of the equation.

In column four, we included wages as part of cost structure along with transit and local based transportation costs. Secondly, we added a measure of uncertainty to see how it would impact our independent variable. Our regression outcome indicates that wages are negatively correlated with profit levels and the result is statistically significant. For each additional dollar increase in wage related expenditure profit levels are reduce by 35 cents. In this equation, by far the biggest impact on profit comes from uncertainty. Again as indicated above, the uncertainty source may be as varied as the economic and political circumstances of the country. Uncertainty can have devastating effect on export expansion and consequently on profit margins if it results from a disruption of trade transactions, stoppage of production activities, hikes in input prices or the fluctuations in exchange rates. It is important to point out here that uncertainty not only have a direct impact on profit but it also affect it indirectly by playing an influencing role on factors directly associated with trade transactions. Column four serves as a good representative to drive home this insight. As we add the uncertainty variable in column four, we see the coefficient of local transportation cost increase from -0.47 in column three to -0.68, while the coefficient of transit cost moves from -1.06 to -1.16, a jump of -0.21 and -0.10 respectively.

Table 1. Dependent variable: Profit

1 2 3 4 5 6						
Local TC	-0.48 (0.0258)	-0.51 (0.0217)	-0.47 (0.1551)	-0.68 (0.0013)		
Transit TC	-1.06 (0.0001)	-1.11 (0.0217)	-1.06 (0.0001)	-1.16 (0.0000)	-0.22 (0.416)	
NWA	- 0.08 (0.3036)	-0.15 (0.2455)	-0.06 (0.6208)		-0.64 (0.0000)	-0.14 (0.3327)
Tension (u)		- 1.73 (0.5015)		5.88 (0.0088)	0.34 (0.8667)	-0.82 (0.776)
openess			0.96 (0.8651)			4.91 (0.4177)
Wage				-0.35 (0.0019)	-0.74 (0.0000)	
institution					3.07 (0.0685)	-1.75 (0.4694)
llkd					-9.40 (0.0321)	- 1 6 . 9 2 (0.0000)
Constant	16.13 (0.001)	20.30 (0.0079)	14.29 (0.1551)	25.69 (0.0000)	49.50 (0.0002)	21.19 (0.1692)
N	39	39	39	3936	39	
R square	0.58	0.58	0.58	0.68	0..81	0.61

In column five, we include landlocked and institutional quality variables into the equation. The result shows that both variables precipitate considerable influence on profit levels, albeit in opposite directions. For each additional dollar of trade costs incurred due to landlockedness the profit pool is reduced by 0.91 cents. This is almost as if each increase in the amount of the cost of doing business must be borne by the exporter. On the other hand, the institutional quality variable has a strong positive impact on profit levels. Improving the quality of institutions by one index point leads to substantial increase in profit dollars. In the last column, we regressed the uncertainty, openness, institutional quality,landlockedness and non-labor inputs on profits. We find that, although the result delivers all the expected signs, none with the exception of the landlockedness, have a statistically significant outcome.

Conclusión

The results from our alternative model are relatively close to findings in our earlier estimations. In both studies, we find that remotness and the uncertainty associated with it wreak havoc on price levels. We also observed that any increase in the cost of doing business is always met by a proportional decrease in profit levels. This affects the ability of economic agents to involve themselves more in productive activity. The problem with remotness is that economic activities within it are always overshadowed by a fog of uncertainty. In such a situation, a litany of risk factors drives internal and external economic agents to alternative investments, to the detriment of local trade expansion and growth.

We believe the answer lies in one of the most fundamental concept in economics: scarcity. Nations compete against each other for scarce resources. This may be a fierce contest over grazing lands for cattle, water reserves, oil and precious metals. They may compete for foreign capital or foreign markets but the country with a strategic edge will always be willing to take advantage of his position. This situation can be explained using a simple exercise in strategic game theory.

Consider a simultaneous game played, just once, between two agents A and B. These agents can be thought of as two traders or as two countries we call C_1 and C_2. Consider country C_1 has a strategic edge because it is a coastal country and wants to use that edge whenever possible. C_2 on the other hand is an underdog because it is landlocked. will attempt to dictate economic outcomes X on country C_2.

References

Alexander,Volbert and Martin Mandler (2006) "Economic Integration, Uncertainty, and Trade: The European Experience"

Barkoulas et al. (2002). " Exchange Rate effects on the Volume and Variability of Trade Flows" Journal of International Money and Finance, 21 (4) 481-496.

Barro, Robert and Sala-i-Martin. (1999). Economic Growth. MIT Press.

Blanchflower, David and Andrew Oswald (1990) "What Makes a Young Entrepreneur" Journal of Labor Economics 26 (1): 26-60.

Bourgheas, S et al. (1999), "Infrastructure, transport costs, and trade", Journal of International Economics, 47, 169-189.

Bruce, Donald and Douglas Holz-Eakin (2001) "Who are the Entrepreneurs? Evidence from Taxpayer Data" Journal of Entrepreneurial Finance and Business Ventures 1 (1): 1-10.

Butzen, Paul, C. Fuss and Philip Vermeulen (2002) "The Impact of Uncertainty on Investement Plans" National Bank of Belgium working papers – Research Series

Calvo, Guillermo and Stanislaw Wellisz (1980) "Technology, Entrepreneurs, and Firm Size" The Quarterly Journal of Economics 95 (4) 663-677.

Canning, David (1998), "A database of world infrastructure stocks, 1950-1995", Washington, D.C., World Bank research paper.

Carcamo-Diaz, R. (2004) "Towards development in landlocked economies" United Nations Commission for Latin America and the Caribbean (ECLAC/CEPAL)

Clark, X., David Dollar and Alejandro Micco (2004) Port Efficiency,Maritime Transport Costs and Bilateral Trade NBER working papers 10353

CIA (1989-2005) The World Factbook. http://www.odci.gov/cia/publications/factbook/index.html

Chatterjee, L and T. R. Lakshman (2005) "The Entrepreneurial City in the Global Market Place." International Journal of Entrepreneurship and Innovation Management

Claus and Li (2003) "New Zealand's Production Structure: An International Comparison" New Zealand Treasury, Working Paper 3 (16)

Diamond, Jared (1999) "Germs and Steel: The Fates of Human Societies" New York: W. W. Norton

Doci. G, K. Pavitt and L Soete (1990) The Economics of Technical Change and International Change. New York: Harvester, Wheatsheaf

Elborgh-Woytek, Katrin (2003) "Of Openness and Distance: Trade Development in the Commonwealth of Independent States 1993-2002"

Fonseca, R. P. Lopez-Garcia and C. A. Pissarides (2001) "Entrepreneurship, Start-Up Costs and Employment" European Economic Review 45 (4): 692-705.

Frankel, J. and Romer, D. (1999). "Does Trade Cause Growth?." American Economic Review. 89 (3) : 379-399.

Hamilton, Barton. (2000) "Does Entrepreneurship Pay? An Empirical Analysis of the Returns of Self-Employment" The Journal of Political Economy 108 (3) 604-631.

Head, K. (2003) "Gravity for Beginners," mimeo.

Heston, A., R. Summers and B. Aten (2002) Penn World Table Version 6.1, Center for International Comparisons at the University of Pennsylvania (CICUP)

Hummels, David (2001) "Time as a Trade Barrier" GTAP working papers # 1152.

Limao, N. and A. Venables (2001) "Infrastructure, geographical disadvantage, transport costs and trade", The World Bank Economic Review, vol 15 no. 3 451-479

MacKellar, L, Worgotter, A. and Worz, J. 2000: Economic Development Problems of Landlocked Countries. IHS working paper no. 14 Institut fur HohereStudien: Vienna.

Micco, A. and Pérez, N. (2002): "Determinants of Maritime Transport Costs" Inter-American Development Bank. Research Department Working Paper # 441.

Moneta, Carmellah (1959) “The Estimation of Transportation Costs in International Trade” Journal of Political Economy, LXVII 41-58.

Radelet, S., J. Sachs and Jong-Wha Lee, (1997) “Economic growth in Asia” mimeo Harvard Institute for International Development, Development Discussion Paper No. 609

Rodriguez and Rodrick (200) “Trade Policy and Economic Growth: A skeptics guide to the Cross-National Evidence” NBER Macroeconomics Annual.

Schumpeter, Joseph (1934). The Theory of Economic Development. Cambridge, Mass.HarvardUniversity Press.

Shiue, Carol H. (2002) Transport Costs and the Geography of Arbitrage in Eighteen Century China. American Economic Review 92 (5) 1406-19.

Tinbergen, Jan. (1962) “An analysis of World Trade Flows in Shaping the World Economy”New York: The Twentieth Century Fund.

Wacziarg, Romain and Karen Welch (2003) “Trade Liberalization and Growth: New Evidence” NBER Working Paper # 101152