Distance and Competitiveness - Emerging Continental Network Barriers and Strategic Partners

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ABSTRACT

The ties between transportation and economic development are complex and relatively little understood. Here we look at the usefulness of gateway and barrier concepts as ways of linking the two subjects on the macro- and meso-scales. The paper examines the roles that gateways and corridors may play in stimulating economic development but overcoming network barriers, and in fostering the competitive position of countries, regions or cities. It is much less concerned with their importance to individual producers. It approaches the subject from the perspective of institutional and microeconomics and considers the role that public policies may play in stimulating the creation of corridors and gateways through investment strategies. A particular concern is the role that partnerships and alliances can play in creating gateways and corridors and linking them to the larger economic development process.

INTRODUCTION

Over the years there has been a continuing interest in the role that transport can play in the economic growth process. Despite this, economists are still very bad at explaining why particular countries, regions, or cities perform better than other, and certainly they do not have a stellar record of forecasting winners. Economic and political theories abound and policy suggestions are numerous and varied. Interest has fluctuated between looking at the general role of transport as an economic stimulus - de facto, as a major causal factor - and the specifics of particular modes of transport or forms of transport initiative in particular economic and geographical growth contexts.

In simple terms, transport allows the realization of physical and intellectual arbitrage. But what that means exactly in terms of economic gains is still unclear. Certainly, the interest in the role of transport in economic development is not at all new. Adam Smith (1776) certainly thought that transport had a major and positive role to play, and spends considerable time in the Wealth of Nations explaining this, and also that government has an important responsibility in ensuring adequate infrastructure is provide, although not necessarily through taxation financing:
The third and last duty of the sovereign or commonwealth is that of erecting and maintaining those public institutions and those public works, which, though they may be in the highest degree advantageous to a great society, are, however, of such a nature that the profit could never repay the expense to any individual or small number of individuals, and which it therefore cannot be expected that any individual or small number of individuals should erect or maintain.

Changes in transport technology, and most notably the creation of the steam engine, coincided with the sea changes in agricultural industrial productivity in western economies during the early years of the nineteenth century when rather than per capital incomes rising 0.5% every decade, they began to grow at 1% or so a year. The rapid opening up of continental America was facilitated by the railroads and steam ships.

More recently, and particularly since the end of World War II and the institutionalization of much development policy, the planning and operations of transport have taken a major role in global approaches to economic growth and its distribution across countries and regions. Transport investments have formed a major component of both bilateral and multilateral aid strategies aimed at stimulating the economies of developing and transition economies (World Bank, 2007).

Within the more affluent nations, the empirical work of David Aschauer (1989) stimulated debates in the 1990s over the link between public infrastructure investment, a large part of which is in transport facilities, and national productivity. The positive link that he found indicated that additional public expenditure on infrastructure would generate a larger increase in national productivity than comparable private sector outlays. Subsequent empirical analysis, however, brought this into question with particular concerns being expressed about the implied direction of causality in Aschauer’s models and the level of spatial aggregation at which they were calibrated. In the specific context of transport, Clifford Winston (1991) expressed concern that the nature of investment was not considered and that public expenditure per se is often less relevant than the way in which monies are spent.

These types of debate about the role of physical infrastructure have perhaps also become less important in recent years with the barrier challenges confronting policy makers often being more to do with institutional structures than hardware. Globalization and internationalization of production and the growth of service industries has led to enhanced interest in coordination of policies and removal of legal barriers so that poorer regions can link into the wider economic growth that is taking place. Physical infrastructure remains important but the context in which it is delivered and managed is now seen as important as its scale if it is going to contribute to economic development.

The concern here is not so much with the generic issue of the potential links between transport and economic growth, or the role transport may play in the spatial distribution of welfare, although both come into the discussion, but rather on particular concepts often related to transport supply and to the formulation of transport policies, namely those of “gateways” and “corridors”.

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1 There are a number of definitions of these concepts in economic geography; e.g., Charles Whebell (1969) talks about a corridor, “a linear system of urban places together with the linking transport media”. 
geographical barriers that can inhibit trade and how they may affect the competitive positions of various locations. In a way the interest in gateways and corridors is about the focusing of transport and other resources to facilitate economic growth, rather than spreading them thinly.

Three broad questions are addressed regarding gateways and corridors. First, has the concept got any real economic meaning given the nature of modern transport? Second, even if it is not possible to give an exact definition to the gateway/corridor concept whether, like terms such as “entrepreneurship” and “sustainable development”, there is an underlying approach or philosophy that can be useful in helping understanding links between transport and economic growth? Thirdly, there is the question of who are best suited to develop corridors and gateways if they are perceived as a useful way of driving economic growth.

But before this discussion we offer some definitions and discussions of concepts. This is not a trivial concern; the notions of gateways and corridors are widely discussed by less frequently defined.

GATEWAYS AND CORRIDORS

Economic activities require the movement of resources; factors to points of production and goods and services to markets. The distances involved have historically been increasing until now the making of any final produce may have required many thousands of miles of transport input. Distance *per se*, however, is not always (and perhaps seldom) the crucial element that influences the relative success of competitive production sites; other things being constant, factors such as time, frequency, reliability, and security are often more important. In this context appropriate transport is relevant. This, because of the attributes of transport and the costs of delivering them, often leads to a channeling of movements through gateways and along corridors. This is not in itself the issue. The challenge concerns the nature and number of these gateways and corridors, their form, and the way they are accessed. The focus here is primarily on the first two challenges.

As with any economic resource, transport services suffer from scarcity; they are not ubiquitous and, indeed, allocating resources to them inevitably involves taking resources from elsewhere. In the past this scarcity, and with it an opportunity cost, was often neglected in trade theory and, by association, economic development theory. Classical Ricardian economics, for example, focused exclusively on the comparative advantages in production at different locations, while in classical spatial economics, albeit at a more local level, it was assumed there existed infinite radial transport links within a concentric economic geographical space (von Tünen, 1875). But transport supply is constrained by its particular characteristics, as well as the normal factor costs of producing services, and this inevitably affects its role in trade, economic development, and the geographical spread of economic activities.

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2 Although not discussed here because of its more local nature, there is also a literature initiated by Robert Solow and William Vickrey (1971) that looks at linear urban forms that implicitly embraces a corridor type concept.
Concepts

Transportation is a network industry and it is, therefore, natural to think in terms of the role that transport may play both in stimulating economic development along links in transport networks and at various nodal points. *Ex post,* historians have long viewed the trade and migration passages that existed in prehistoric times as important for the spread of civilization as it emerged, and subsequent trade routes as facilitating economic progress and disseminating knowledge. Those living at nodes in the networks—these early commercial cities that Kenneth Hirth (1976) called “gateway communities”—benefited from the flows passing through their areas and they could exercise control over them; essentially extracting monopoly rent. The flows along these routes allowed adjacent communities to develop their comparative advantage, and also led to the creation of a trading class, and ultimately services such as banking and insurance, to manage the movement itself.

The much more recent opening-up of north America has attracted a lot of attention, in part one suspects because of the availability of written records. Whebell (1969) explained the growth of Southern Ontario in terms of a five-stage corridor development process occurring over an extended period and embracing significant technical changes. In contrast Andrew Burghardt (1971) focuses on gateway cities, distinguishing between them and hubs and examining the ways in which they change over time. Gateways are explained in this case in economic terms by considering threshold values of distance and levels of productivity.

While discussions of gateways and corridors, together with their role in economic development, are not new they aroused particular interest in the 1980s and 1990s with the onset of the “hi-tech boom”. Indeed, many concentrations were designated either explicitly or implicitly by their corridor geography—Silicon Valley, the M4 Corridor, Route 128 Corridor, the Dulles Corridor, etc.—while others, such as Research Triangle, were visualized in terms of having a gateway role. These concentrations highlight the synergies between transport and certain types of capital investment, but are more local in their orientation than the macro-corridors and gateways that are seen as linking regions or countries to wider markets.

Historically, from a political and security perspective gateways and corridors offer both advantages and dangers. They facilitate controlled movement along a link and regulate what can enter and leave areas thus allowing those in control to regulate the system relatively efficiently and, because property rights are relatively easy to define, allow prices to be levied to cover costs and earn profits. But gateways are also often the most vulnerable point in any physical system and historically, have proved difficult to defend in military terms. Their numbers were often limited and mechanisms for opening and closing them were sophisticated and thus costly. Additionally, once breached they leave those “inside” vulnerable with limited scope to escape. More recently, economic gateways have posed problems for controlling flows of commodities and migrants, and the blocking or circumventing them is common.

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3 In terms of spatial development theory, because of the asymmetric geographical pattern of development at gateway cities, this can be seen as a sort of secondary growth-pole effect; secondary to the more symmetric effects around at hub cities.
Gateways and Hubs

Gateways have tended gradually to move farther apart as it has become easier for traffic and individuals to both pass through them and, as transport systems have evolved, to transverse the distance between them. Figure 1 represents the traditional view of gateways (Burghardt, 1971). At the national level in most countries there are one or more major hub cities that are linked to their borders by corridors that end at gateway cities offering links to the international market⁴. Parallels can be drawn at the regional level. In spatial economic terms, the main distinction between the hub city is that while it fulfills the classic role of serving a concentric hinterland, a gateway city services a cone-shaped market extending away from the border and along the corridor.

Figure 1: Burghardt’s notion of gateways, corridors, and hubs

Corridors are essentially links between major nodes; in some ways they can be treated as “super-links” and this is seen as distinguishing them from spokes in a hub-and-spoke network. A major difficulty, however, involves the level of aggregation that one is dealing with.

At the global-historic, macro-macro level corridors are defined as routes that mankind used to populated the world - e.g., the “Bering land-bridge” allowing migration from Europe to the American continent. But in the modern, high technology age a corridor may be an electronic channel over which a piece of information is sent. The term suffers from almost infinite vagueness. This is not very helpful when it comes to in-depth analysis or forecasting but it does have its uses in general assessments of trends and can serve as a focal piece of

⁴ Hub cities allow the reaping of economies of scope and density from transport and communications industries by focusing interchanges at a key center. Most development takes place at the hub with limited spread along links. The economic problem of this structure is that without adequate pricing of infrastructure there is a tendency for excessive congestion to develop at hubs that can ultimately form bottlenecks in the networks. The internal economics of gateway cities is largely under explored.
DISTANCE AND COMPETITIVENESS

terminology when policy makers want to coordinate actions; as for example in the creation of trade corridors.

It is also relatively easy to relate the picture seen in Figure 1 to specific contexts in more recent history. In the US, for example, the two gateway cities may be seen as New York on one coast and San Francisco on the other in the mid-1800s. Once into the country, goods or migrants could move into the hinterland, often dispersing more broadly through a hub such as Chicago. Railroads largely facilitated this movement. The nature of international maritime and domestic railroad transportation at the time, as well as institutional controls, led to this pattern of behavior. The gateways proved challenging barriers to cross and, while trade and migration was extensive, it was not easy and it was costly, and reverse migration and visits to family left behind proved almost impossible for the vast majority of individuals even if they did succeed in their new land.

The pattern of the Canadian railroad networks (Figure 2) provides a classic representation of the form that in theory a gateway/corridor structure looks like, and it is perhaps no accident that much of the early analytical writings on the subject came from Canada (Burghardt, 1971; Whebell, 1969). The maritime gateways on the two coasts, and the inland crossing gateways, to the US funnel goods and, more in the past, individuals to and from the major hubs cities of the country - Toronto, Montreal, etc. Similar patterns emerge for the more recent road network.

**Figure 2:** Canadian National’s (upper) and Canadian Pacific’s (lower) railroad network.
THE CHANGING WORLD

The world is changing and transport has been both a cause of this change but, mainly because of the derived nature of the demand for its services, has also had to react to it. These changes have implications for the demands that are placed on mobility of both people and goods. They have produced significant changes in the amount of geographical specialization and in both internal and external trade. The traditional barriers to trade, most obviously the physical geographical ones associated with oceans, mountains, rivers, and distance, but also the institutional ones tied to tariff and non-tariff barriers and fragmented financial markets, and the social ones of cultural diversity and linguistic have had their potency reduced.

Transportation costs for both passengers and freight have fallen considerably over the past three or four decades. This is, in part, a function of technology improvements, including those found in complementary sectors such as telecommunications and warehousing, but also stem from institutional developments and especially the liberalization of many transport markets, the economies of scale and scope that have come with the freeing of international trade more generally, and the adoption of innovative methods of supplying logistics services of all types by the private sector.

The full picture of what has happened is complex and is still not fully documented or agreed upon. Figure 3 is thus a simplification of the implications of changes that are taking place as a result of these developments in transport supply over the past quarter of a century or so, and that have relevance for the gateway/corridor paradigm - see Jean-Paul Rodrigue (2004) for similar ideas.

The figure makes distinctions between the developed and the developing world and gives attention to primary product and to finished goods production and movement, but not to services. The aim of the simple exercise is to show where the type of trade-flows that are growing and the new asymmetries that are accompanying them.

As stylized, in the 1960s and 1970s, the primary movement of goods, and of factors of production, was within countries and largely within the wealthier nations. Only about 4% of the US's GDP in the 1960s was, for example, the result of international trade, whereas in recent years this has risen to 16% to 17%. International trade in the past involved a disproportionate movement of raw materials. The advent of new production methods, demands for new goods and services, the relaxing of institutional trade barriers and developments in transport systems has led to relatively larger flows between nations but also the involvement of more countries, especially developing countries and former Soviet bloc nations, in trade.

There has also been increased trade between the developing countries, although part of this is attributable to new patterns emerging as colonial regimes gave way to independent trading-partners, there has also been facilitation through the actions of international agencies such as the World Bank and through aid in bilateral form.

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5 For a critical assessment of the extent to which the demand for transport is derived, see Rodrigue (2006).
Figure 3: Changing patterns of flows of goods, services, and factors of production.

The creation of trading blocks and free-trade areas have also been facilitators. This has meant that the importance of the main gateways and hubs has changed, often in absolute terms, and that the roles of the various traditional corridors have also shifted, and new ones have been added.

The increased volume of trade, both within and between countries, and changes in its nature, have led to the emergence of new gateways and corridors to handle it. The degree of competition between various gateway/corridor combinations, and their importance in economic development, even those involving existing combinations, have also changed for a variety of interacting reasons.

Changes in Institutional Structures

Even when transport is provided in a market context, formal and informal institutional structures are important in determining such things as, bargaining practices, property rights and transactions costs (Williamson, 2000). In the past, many gateways and corridors have been established by fiat rather than being natural geographical phenomenon. The tendency was to use these gateways to regulate flows of trade to the supposed interest of the country concerned; for
example they were convenient points at which to collect taxes or enforce non-tariff trade-barriers.

While there is still a residue of this approach, institutional changes have been large since the 1970s. Much of this change in focus can be attributable to the broad philosophical shifts that have occurred with their movement away from the highly interventionist approach of the “Continental School”, whereby the onus of proof in policy adoption was to show that market forces produces superior outcomes to planned systems, to the dominance of the “Anglo-Saxon School” with its emphasis on market forces unless intervention is demonstrably better. The outcome of this has been changes in the way national governments view institutions and the creation of new ones.

The World Trade Organization and more open bilateral agreements, for example, have removed many of the legal impediments to trade, and, in so doing have reduced the role that gateways play in national fiscal policy. Regional economic blocs, and especially within the European Union, have moved away from being simply trading blocs to fully integrated markets and have removed barriers to factor mobility and constraints on who can supply transport services. The Single European Act, it has been estimated, increased intra-European transport movements by 40% after its enactment in 1992. Added to this has been the creation of new free trade areas such as NAFTA.

Linked to this move away from institutionally trying to direct trade has been the general decline in government involvement of micro-management of economies. The decline of Communism is the clearest example but there have also been extensive programs of deregulation and privatization in many traditional quasi-market-style economies. This has not only changed the way transport operations are conducted but also in the way transport infrastructure is being supplied (Gómez-Ibanáñez, 2003).

Globalization has led to significant changes in the ways things are produced, financed and moved, and in the places where key decisions are made. Globalization in particular has removed many decisions away from the local market place to corporate headquarters that are remote and where a much wider geographical view is take as to where things are made and consumed and the way that intermediate and final goods are to be transported. In particular, the infrastructure network is looked at more broadly and far more gateways are considered. This moves away from the more nationalist view of corridors that tends to dominate traditional ideas on the subject and to shape the policy arena.

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6 Legal efforts to funnel traffic along favored corridors and through particular gateways has also traditionally have effects on the “informal economy” as some groups sought to avoid the tariffs and constraints imposed by the formal channels.

7 Adam Smith, once again, provides the reality to the picture; “The greater part of such public works may easily be so managed as to afford a particular revenue sufficient for defraying their own expense, without bringing any burden upon the general revenue of the society.”

8 Changes are taking place in policy thinking as seen by the TENs initiatives in Europe that are discussed later and in initiatives that accompanied the signing of the North American Free Trade Agreement in 1994.
Changes in the Product Mix demanded

Bulk commodities have traditionally made up the majority of the physical quantity of goods transported. In the past they also often dominated the value of goods moved as well, and still do so in some markets. Today, expensive, low volume goods are, however, more important in terms of the overall value of goods traded. Their transport needs, normally involving simple cost financial considerations, are not the same as for bulk raw materials and modal characteristics such as speed, flexibility, security, and reliability have become more important. Some 40% of world trade by value, for example, is moved by air transport and waste quantities travel shorter distance by road. In simple terms, the costs of carrying large inventories of high-value products makes it efficient to pay for high-speed and reliable transport.

The advent of the container in the 1960s has been a major facilitator in the creation of the modern freight transport system because of the ease of transshipment of unitized consignments and the security that they offer. While not quite providing a seamless service, unitization provides a means of approaching it. Regions that do not have the transport facilities to meet these new parameters of competition inevitably find it had to develop their high-valued added industries (Slack, 2001).

It is in this context of speed and reliability that the “last-mile problem” has become more acute as distribution and collection raise increasing problems in supply-chain management. It is often neither the gateway nor the inter-urban corridor that determines the quality of door-to-door transportation but rather the more local issues of what happens within cities. Intra-urban corridors are often clogged and the quality of the transport that can be offered is as a result highly variable. These factors have influenced local land-use patterns, and, in many cases, to remain competitive urban areas have moved their industrial activities to peripherals of cities; essentially outside of the traditional local gateways.

An added dimension to the debate is the oft-neglected issue of factor mobility. Increasingly, it is not production of the most valuable goods that is going to site of lowest cost, but rather labor and capital moving to existing production locations. The World Bank finds labor migration to be growing and about 3% of the World’s population has been living outside of their country of birth for one year. While migration is not new and rail, maritime, and foot transport have been responsible for mass movements, the advent of cheap air transport has made migration easier, particularly temporary migration, and allows emigrants to visit their homeland regularly (Button and Vega, 2007).

Developments in Transport and Logistics

Supply-chain supply management has been transformed over recent years, indeed as Trevor Heaver (2001) points out, the term “logistics management” in manufacturing and distribution has only gain acceptance in the past 40-years or so. The transformation has come about as containerization has spread, new information, tracing, and tracking systems have been developed, and as advanced
managerial concepts have been applied to the transport element of production. This has coincided with, and partly driven, longer supply chains, often with international elements. The traditional idea of corridors relies quite heavily on the need for fixed track – railroads, wire communications, and roads. These factors are still important in supplying many transport services. Added to them, however, are the new requirements of wireless communication and air transport that are far more flexible in terms of their fixed infrastructure corridor needs. Indeed, even in terms of commercial aviation, that was dependent on the “virtual corridors” defined by air navigation systems, the advent of free flight technology is gradually removing the need for external channeling of traffic. While developments have certainly not brought about all the changes once predicted by people such as Frances Cairncross (1997) they, at the very least, have changed the way transport services are delivered and broadened out the notion of the way one can think of corridors.

These virtually corridors are flexible even if there is some stability in terms of nodes, although even here costs of modifications are often small. This makes it difficult to think, as in the past, of even relative permanency. In terms of the traditional Burghardt style framework this means that the hubs and gateway concepts merge, and the types of assumptions that become germane revert back to those similar to von Thünen and the other classical economic geographers.

Alliances are a common feature of the modern transport world – e.g. there are strategic alliances between airlines and maritime alliances. Their forms differ, but their effects are largely the same, better coordination of services and the ability to reap greater economies of scale, scope, and density. Added to this has been the gradual emergence of multimodal forms of transport that, by enabling the movement of unitized consignments by several possible combinations of nodes, adds to the flexibility of transport systems. Alliances and multimodal transport often provide more options for transport users by facilitating alternative routings between nodes; effectively by allowing more indirect as well as direct routings they create more corridors and open more gateways.

CORRIDORS AND ECONOMIC DEVELOPMENT

The notion of gateways/corridors has often historically carried with it the connotation of planned development. There has been the need in many cases to obtain international cooperation, or on occasions physical coercion, to ensure coordination of activities, but beyond that corridors seldom served a purely economic function.

Even the Great Silk Road (or rather routes, since here were several) of antiquity was not a genuinely market driven structure but was heavily regulated and controlled by the nations it passed through to ensure they (or at least their rulers) reaped some economic returns. Because of the benefits governments could

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9 The literature of modern supply-chain management is extensive; a useful handbook on the subject is Brewer et al (2001).
10 In the Netherlands the importance of the multimodal nature of transport combined with an appreciation of the need to bring together complementary activities in the supply-chain has led to the “Mainport” concept based around Rotterdam.
11 While there is often discussion about alliances between gateway cities, and indeed some simple alliances do exist, most alliances involve movements along links.
enjoy, many corridors were thus designed and controlled by the state and passage was seldom free. The important trade routes of the time in Western Europe were in some ways better organized from a planning perspective because of the central power of the Roman Empire. The organization was seldom, though, for strict commercial purposes and the Roman’s found it militarily advantageous to be able to move their armies to armies from Rome to any point in the Empire in 40 days.

A contemporary example of the way that networks of corridors are being developed is the approach of the European Union. The Union’s Trans European Network – Transport (TEN-T), initiated in 1990 and subsequently widened to include energy networks (TEN-E) and telecommunications (eTEN) – has been drawn up along traditional lines of plotting corridors of “public interest” (European Commission, 2001). The networks were devised from the bottom up, with initial inputs at the national level on local perceptions of important European corridors by transport modes from their individual perspective. While lines are being drawn by the public agencies, there is a strong reliance on the private sector to finance many of the corridors envisaged.

The reluctance of citizens to accept high tax burdens, together with the sophistication of international finance markets, has resulted in increasing amounts of private sector finance being used for infrastructure development. This inevitably affects the nature of the transport corridors and gateways that are emerging.

Corridors have traditionally been seen as being at their most effective in stimulating economic development at their nodal points. Those located adjacent to a corridor often enjoyed a high level of access to the main nodes. Modern supply-chain management based largely on inventory minimization seeks speed and reliability from its transport inputs. This can produce conflicts between growth at the poles and growth along the line of a corridor. A train, for example, cannot be high-speed if it continually stops to collect and deposit en route; the same is true of all modes. It is not altogether clear how one gets a compromise between the quality of service that economic efficiency at major nodes require, whilst at the same time offering good access to those located along a corridor.

There are also problems at many gateway locations in terms of the benefits actually enjoyed by their residents. Passing through a gateway with minimal restraint is seldom beneficial to residents; the removal of barriers through gateways has often reduced employment for those previously involved in physical or legal interchange activities at the gateway – customs officials, security persons, are currency exchanges fairly obvious examples, but in many cases passing through a gateway can involve changes in transport guage and technology as was common in the past within Europe railways. Interchange requirements can also offer the opportunity for local value added activities that are again lost once the gateway ceases to be an impediment to traffic and reduces the multiplicand for employment multipliers.

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12 Although this only proves effective for both regions at the end of a corridor when there are no scale effects in production. If the economic base at one node benefits from economies-of-scale then linking it by a corridor to another nodes will effectively suck economic resources from the latter – the “Appalachian effect”.

13 Alain Bonnafous, the leading French transport economist, once described the impact of the French high-speed rail system (TGC) as having about as much impact on the economy along the line as a low flying Airbus.
STRATEGIC PARTNERSHIPS AND ALLIANCES

While public policies of developing gateways and corridors may not always be the optimal, or even desirable, way of stimulating economic growth, in circumstances where they may play a useful role there arise questions about how their development should best be encouraged. The modern world is a little more complex than that of Adam Smith’s time, especially because of the sophisticated global financial markets that have emerged, and there are now various groups of stockholders14 who may need to be engaged. Public-private partnerships of various types are common, but within each of these groupings there is often the need for alliances to allow for appropriate economic and political risk sharing15.

In conventional economic terms, individual production by small enterprises often limits the ability of a supplier to reap economies of scale when producing a homogenous product, scope when there are multiple products, and density when there are networks involved. Traditionally this problem has been overcome by mergers of producers or by simple growth to become a larger producer. The degree to which size is important varies considerable with context, and certainly there are cases where diseconomies of scale due to such things as managerial inability to handle complex information issues can begin to bite at a relative low level of production even with homogeneous output. Similar diseconomies may be found regarding ranges of products and network complexity. In these cases, coordinated actions by autonomous smaller units may prove optimal rather than merging16. In addition, divestiture and outsourcing may be justified on these grounds. This type of situation can lead the business case for creating partnerships and alliances17.

Strategic alliances of incumbent suppliers can also act to deter market entry by new enterprises. This may be through scale effects of different types, but can also exist in situations where there are limited resources and the alliance members have exclusive access to them; e.g. airlines holding slots at congested airports. While these forms of alliance may be seen as simply exploitive – basically monopoly rent seeking – in some cases they provide a mechanism for limiting excessive competition where there are large fixed costs to be recovered. Without the ability to exercise some market power, in these conditions competitive supply can lead to short-run marginal cost pricing with no contribution towards fixed costs – technically there is an “empty core”. In the long-term, the prospect, as industry learns from experience, is that there will be underinvestment. Appropriate alliances can allow the market to be structured to limit the risk that full cost recovery would not be possible.

14 The term “stockholder” is used to reflect the fact that we are concerned with groups who commit resources rather than the socialist oriented term “stakeholder” that has wider and less specific connotations.
15 For a discussion of risk issues at this general level see Rubin (2003).
16 There may also be economies of market presence on the demand side that can stimulate alliances. Effectively by combining their marketing efforts, and sometimes products, an alliance of companies can attract more customers. The strategic alliances formed by airlines, for example, can offer many more on-line services than the total available if they acted in isolation.
17 As a very broad generalization, most alliances involving commercial undertakings tend to be between suppliers of services along corridors (e.g. shipping companies, railway operators, and airlines) rather than gateway activities such as airports or seaports. One reason for this may be that the main benefits in this classic case for alliances stem from integrating services, standardizing output and maximizing synergies and benefit these are more pronounced along links than at nodes.
Beside the classical economic arguments for alliances, there are also institutional reasons that may create the climate for alliance formation. In particular, legal fiat gives specified authorities - e.g. federal, provincial, and city governments - property rights over certain resources but allows no, or very limited, trading of these rights. For example, one local agency, say a county, may have the right to regulate land-use planning in its jurisdiction but cannot trade away this right to another agency or county. This means that any form of coordinated action cannot come about by institutional merger without wider legal reforms. This leaves cooperative action via some form of alliance as the only way to reap synergies within any given institutional context. The alliances here are thus not because of any technical features of the market but rather because of the way laws have been laid down. These types of institutional driven alliances are also found in the private sector when mergers are not permitted; e.g. the strategic alliances between international airlines and between liner shipping companies.

Public-private partnerships take a diversity of forms, partly influenced by the secondary levels of alliances that may exist within the two broad groupings. The exact form and usefulness in policy enactment depends partly on the objectives of the partnership - they tend to be tighter and more legalistic in nature the more precise the objective - and partly on the technical nature of the allied activity. Gateway investments are increasingly involving public-private investments; many airports in South America are built and subsequently operated for a period based on concessionary agreements, and most seaports have a mixture of public and private capital tied down in them. In terms of corridors, air navigation systems are embracing more joint involvement and, although few have gone as far as the explicit NATS public-private partnership in the UK, many involve public and private financial alliances through such activities as outsourcing. An increasing number of roads are being constructed under the umbrella of public-private alliances; build, operate, transfer being a common model.

A feature of many alliances and partnership is that they are relatively transient and regularly transmogrify as circumstances change. The continually shifting membership of airlines alliances epitomizes this pattern of behavior. This is not to say that there are not some common features that seem to provide a degree of durability. Commonality in objectives is a key criteria and one that is often difficult to develop in public-private partnerships where the profit motive conflicts with notions of social welfare maximization. Synergies in production are often held to be important because they suggest little variation in the production costs of individual members but these may take a variety of forms in corridor contexts. Agreements may involve alliances between competing suppliers of services within the corridor - e.g. an alliance between Canadian National and Canadian Pacific over links in their network may reduce track requirements and ipso facto costs. But this may also lead to the creation of monopoly power. Alternative the synergies of the alliance may come from end-to-end agreement, say one railway providing feed into the services of the other. Evidence from the US railroad industry (Dennis, 1988), and supported by studies the airline industry indicates that horizontal alliances and mergers can enhance efficiency and reduce costs.
CONCLUSIONS

There is no doubt that the idea of gateway/corridor interactions can be useful in looking at transport and development in very broad terms, but its usefulness begins to weaken as more options become available to those wishing to make use of transport, or where there are more possible locations with economic growth potential. Technical changes, institutional reforms, and changes in the types and mix of people and goods that are to be moved means that, while it is not ubiquitous, transport is more available. Equally, the mobility of factors of production and the ability to move the locations of production itself quite rapidly makes it more risky to become tied to any rigid notion of a corridor.

From a policy perspective, a good model, following Friedman's (1953) rather obvious argument, should, as a necessary condition, be able to produce reasonably good forecasts. In the past, the stability of technology and of the goods transported made the gateway/corridor concept a viable modeling tool in some context. Most of the routes selected were determined by geographical considerations, and the bundles of goods moved were quite narrow in their composition. This is less so today as transport becomes more flexible and the number of potential gateways and corridors increases, as the variety of things moved increase in their range, and as more possible origins and destinations come into play. It is always easier to forecast the behavior of a monopolist where there is no gaming involved between the suppliers, than that of suppliers in imperfectly competitive markets with their numerous forms of interactions and product varieties.

In the past it was not only technology, and in particular the scale economies embodied in virtually all infrastructure, that limited competitive supply but also the institutional environment whereby government determined who was to supply transport infrastructure and services. The reduced role of government in terms of both active investment and regulation of operations means that the degree of uncertainty regarding the use, and the nature of the use, of any corridor is difficult to forecast. Again, the gateway/corridor concept has a use in terms of generalizing but as an ex ante model for predicting successful development policies, and the detailed forms they should take, it is a rather imprecise tool.

If analysis, or policy expediency, indicates that planning is desirable to facilitate a gateway or corridor development, then its success can depend heavily on the type of institutional structure adopted. Such large-scale initiatives, that involve not only physical investment in transport but also a variety of other investments and the creation of often-novel legal structures, are inevitably risky and uncertain. One way of handling the diversity of risk in any gateway or corridor approach is to seek the formation of alliances between the various stakeholders. At one level, this inevitably involves various forms of public-private partnerships, although not necessarily joint ownership or management. One thing that is transparent from the efforts at developing public-private partnerships that have occurred over recent decades is that there is no standard template. But even

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18 In his support of the notion of corridors, Whebell (1969) argues that they both have physical qualities and temporal qualities - "time dimensions". The real problem is that while the former may form the basis of a predictive model, the latter is inherently uncertain. Indeed, the work of both Whebell and Burghardt is ex post in the sense that it does not offer support for the type of model validation sought by Friedman.
within both the public and private sector groupings alliances need forging if any substantial amounts of resources are involved or institutional structure require changes.

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