

# Entrepreneurial Networks in International Business

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Entrepreneurship is widely recognized as a key factor in economic growth [Leibenstein, 1968]. Historical studies of commercialization and industrialization suggest that the speed of “take off” is higher when entrepreneurs in related lines of activity work well together [Grassby, 1995]. In the aggregate, entrepreneurs may work better as a cooperative network than as a collection of competitive individualists. Unfortunately, attempts to develop the idea of an “entrepreneurial network” encounter the difficulty that both “entrepreneur” and “network” are somewhat nebulous concepts. Using economic theory, however, it is possible to define them in a rigorous manner. This paper elucidates the concept of an entrepreneurial network, distinguishes different levels of entrepreneurial network, and shows how these different levels interact with each other to promote growth in the international economy.

## An Economic Approach to Networks

Until recently, economists assumed that competitive markets could handle information in a costless manner, failing to recognize that, whatever kind of institution is involved, information processing incurs substantial costs. Moreover, to explain why people compete so readily, economists assumed that material greed was the dominant human motive. Recent research has sought to remedy these weaknesses [Casson, 1995]. Information costs have been incorporated into decision making using the theory of teams [Carter, 1995], and ethical constraints on greed have been introduced using theories of altruism [Collard, 1978] and “self-control” [Thaler and Shefrin, 1981]. In line with these trends, this paper emphasizes information costs, and stresses the social and ethical dimension of behavior too.

Within this new theoretical framework, networks emerge quite naturally as coordinating mechanisms. Coordination can also be effected through firms and markets. Networks have been commended as alternatives to firms on the grounds that their decision making is more democratic and their outcomes more equitable. It has been said that networks are preferable to markets because they involve more social contact and encourage information to be shared; they are said to be more cooperative and less competitive, and to

reinforce the sense of mutual obligation on which society depends [Best, 1990]. The new theoretical perspective shows that networks are often more efficient too. Communication may be richer and more reliable within a network than within either a firm or a market. The question is no longer whether networks are required for coordination, but simply under what conditions they work best.

The choice between firm, market, and network may be analyzed using the principle that the most efficient arrangement will survive and less efficient arrangements will not. Individual members of a network face the alternatives of trading impersonally in a market or becoming ordinary employees of a firm. If the gains from belonging to the network are less than the gains they anticipate from these alternatives, then they will quit the network. If everyone behaves the same way then the network will disintegrate. Conversely, if people believe that they would be better off within a network than within a firm or market, then they will quit to join the network instead. In the long run the arrangement used under any given set of circumstances has a tendency to be the efficient from the private individual's point of view.

What is efficient in one industry, however, or in one location, may not be efficient in another. Thus different institutional arrangements may coexist in different parts of the economy. The role of network theory is to identify the factors which govern which arrangement is used under which circumstances. As circumstances alter, the balance of advantages may change over time; thus a successful network may start to decline if a shift in technology or a change in the structure of demand creates new problems with which firms or markets can deal more easily.

Given that networks are widely used, it would be surprising if they all took the same form. Historical evidence clearly points to diversity. For example, the networks of the Northern Italian textile districts [Bull, Pitt and Szarka, 1993] have always been very different from the networks of the merchant community of a great metropolis like London [Brenner, 1993]. There are differences across function (manufacturing, banking, scientific research), across industries (between mining and metal fabrication, for example), over space and over time. Within the general concept of a network, therefore, different types of network need to be identified. The failure, so far, to develop an adequate typology of networks is one of the major obstacles to further advance in the field. Without an adequate typology it is impossible to explain how the form of the network adapts to the specific coordination problems that it used to solve.

The importance of distinguishing different kinds of network is underlined by the way that membership of different kinds of network overlaps. Some people belong to only local networks, based in small regions such as industrial districts or rural "shires." These people include self-employed artisans, leading farmers, local dealers, and so on. In each region, though, there will be a few people who belong to national networks too. These middle-level entrepreneurs include local wholesale merchants, and other leading local employers. Within a national network there will be some who belong to an international network. These high-level entrepreneurs include major export and import merchants, managers of large industrial concerns, bankers, and so on.

A feature of entrepreneurial networks is that members of a high-level network specialize in belonging to several lower-level networks. Thus members of the international network will deliberately keep in contact with several national networks, while members of a national network will deliberately keep in contact with several local networks. The higher-level entrepreneurs maintain a presence in lower-level networks so that they can promote trade and investment between people in different lower-level networks. At each level they use their own network to share information that is surplus to their own requirements, and receive similar information in return. Each member may have knowledge of some local network that they cannot put to any further use themselves, but which may still be valuable to other people. Each member thereby derives advantage from information that others cannot use. Through the network they can also club together to advance their mutual interest in free trade, cheap transport, and security of property.

### Basic Concepts and Definitions

An adequate definition of a network must be sufficiently general to accommodate the diversity noted above, yet specific enough to form the basis for rigorous analysis. For the purposes of this paper a network may be defined as a set of high-trust relationships which either directly or indirectly link together everyone in a social group. A linkage is defined in terms of information flow between two people. It is a two-way flow in which both individuals send messages and receive them. The individual linkage is the basic element from which a network is built up. Different configurations of linkage create different kinds of network. In a dense network almost everyone can communicate directly with everybody else, whereas in a sparse network people often have to communicate indirectly through someone else instead. The geometry of the linkages is one of the dimensions on which a typology of networks can be based.

Networks play an important role in synthesizing information. Most economic decisions – in particular, investment decisions – are sufficiently complex that they cannot be taken using only information from a single source. It is necessary to pool information from several sources. Thus an employer seeking to expand production needs to know about product prices and raw material prices, as well as the cost of machinery and the latest technology embodied in it. While he could research these issues for himself, it is often cheaper to get information and advice from other people instead. “Who you know” is often more important than “what you know” because the *people* that you know can plug the gaps in *what* you know. This, of course, depends on knowing the *right* people. Sometimes the right people are those who know a lot of facts, but more often they are people who simply know a lot of other people who in turn know useful facts. These people can act as brokers, linking the decision maker who demands the information to the person who ultimately knows the facts.

It is important to note that the flows of resources that the network is used to coordinate may also constitute a network, though not a network of the kind described above. They form a network in the sense that different factories within an industrial district may be connected to one another by intermediate product flows, as when leather soles and leather uppers are passed to an assembly line in which they are sewn together to make up shoes. Products may be transported over networks too; thus goods destined for export may be transported over a railway network, passing through various railway junctions (nodes) on their way to a port. Here they may be loaded onto liner ships, which follow a network of routes to different parts of the world. The difference between these networks and the type of network defined above is the network defined above is concerned with information flow, and not with the flow of material products themselves. The material flows are the objects of coordination and the information flows are the means by which they are coordinated. The subject of this paper is information flow, but to understand why different structures of information flow are used in different circumstances it is, of course, necessary to understand the structure of the product flow as well. This is illustrated by the modeling of international trade flows at the end of this paper.

### The Quality of Information

Considered as a commodity, information faces serious problems of quality control. Information may be false, and acting on false information can be very costly indeed. Information may be incorrect because of the *incompetence* of the person who supplies it – for example, his observations may not be correct. It may be due to a *failure of communication* – language difficulties or cultural differences may lead to a message being misconstrued. Finally, the error may be due to *dishonesty*. The source of the information may not bother to check it properly because he knows that someone else will suffer the consequences. More seriously, he may deliberately distort the information to influence the recipient's behavior to his personal advantage. Networks can improve the quality of information by diffusing competence, in the form of best-practice techniques, by standardizing language and culture to reduce communication costs, and by encouraging honesty between members [Casson, 1997].

Dishonesty is a particular problem for information embodied in contracts. Contracts may be offered purely to lure people into situations where they can be taken advantage of. Dishonesty can be controlled in various ways. If there is a prospect of further trades, then enlightened self-interest may suggest to a potential cheat that the cheating should be postponed until further trades have taken place. If there is always a prospect of future trades, so that no one is sure when the last trade will take place, then honesty may be sustained indefinitely. Repetition can be encouraged by breaking down one-off large-value trades into recurrent low-value trades. This may also help to reduce inventory costs, though transport costs will almost certainly increase as a result. There are many instances, though, such as the supply of indivisible durable goods and infrastructure, where this is not practicable.

An alternative approach is to invest in reputation mechanisms. While people may not trade with the same person again, they may well expect to trade with people who are known to them. If they cheat one person then word may get around to other people and future trades will be lost as a result. This discourages cheating at the outset. Because networks facilitate such information flow, they can play an important role in strengthening reputation mechanisms.

The logic of this argument has a weakness though. However enlightened, the logic of self-interest is that the decision to cheat represents a finely tuned response to the circumstances that prevail at the time. The fact that a person cheated one trading partner does not necessarily mean that they will cheat another, because the material incentives may be different in the second case. To transfer experience from one encounter to another in a relevant form, the reputation mechanism must convey a large amount of information on the situation in which the cheating took place.

A further weakness of the reputation mechanism is that it only works if the cheat is caught. While it may discourage some people from cheating, it may simply encourage others to put more effort into devising more subtle forms of fraud. Finally, the assumption that reputation is of purely instrumental value has a number of counter-factual implications. For example, not only will businessmen start to defraud their customers shortly before they plan to retire, but they will maximize the value of their final transactions in order to maximize their fraudulent gain. This is because, by assumption, they care nothing for their reputation in its own right.

This is where the high-trust nature of the network relationship becomes important. In a high-trust relationship both parties can trust each other even though they each face a material incentive to cheat. Because by definition a network is high-trust, the chances of being cheated are much lower when trading within a network than when trading outside it.

The basic idea behind a high-trust network is that people face emotional incentives as well as material ones, and that emotional incentives of an appropriate kind can outweigh material incentives that would otherwise induce people to cheat. If each person knows that the others face an emotional incentive of this kind, then each will believe that the others will not cheat. This belief is warranted because the supposition is correct. No one cheats, predictions are borne out, and so a high-trust equilibrium is sustained.

### **Entrepreneurship: Judgmental Decision-Making in a Volatile Environment**

The key to understanding entrepreneurship is to recognize that decisions are taken in a volatile environment. This reflects the fact that the economy is in a constant state of flux. In the absence of volatility the economy would settle down into a permanent state of equilibrium. Most economists assume that the primary function of the entrepreneur is to organize production. This is a mistake. Schumpeter [1934] distinguished five types of innovation, of which only two have to do with production. Yet self-styled Schumpeterians of

today emphasize technological innovation in production to the exclusion of the other three forms. Two of the other three forms are concerned with developing new markets – for exports of finished goods, and for raw materials from new sources of supply.

Most markets are created because an entrepreneur – or in some cases a group of entrepreneurs – decided to set them up. Markets are institutions devised to overcome a series of obstacles to trade. To overcome these obstacles, markets tend to take a specific form. The entrepreneur acts as an intermediary, buying from sellers, reselling to buyers, and covering his costs by a margin between the buying and selling prices. Ordinary buyers and sellers are happy to pay this margin because the process of trade is greatly simplified for them.

There are four main obstacles to trade. The first is ignorance of who to trade with, which is overcome by setting up a market at a convenient central place. The intermediators have a regular presence there. Sellers bringing their goods to market therefore know that there will always be someone willing to buy, while buyers know that there will always be someone willing to sell. To guarantee this situation, the intermediators need to hold stocks of goods to offer to the buyers, and stocks of money to offer to the sellers.

The mention of money leads to the second obstacle to trade that intermediators help to overcome. This is the difficulty for the trader of specifying exactly what he wants to buy, and describing what he has to offer in return. This is overcome by inspecting goods that are on display – or at least examining a sample of them – and by holding money as a convenient means of payment to offer in exchange. The display consists of the goods that the intermediary holds in stock to satisfy immediate demand. Indeed, the intermediary may have notified the buyers in advance of the goods he has for sale by advertising them to the buyer in his home.

Next is the problem of negotiating price. This is simplified when there are several people to haggle with, since the presence of competitors encourages everyone to offer their best price at the outset. The presence of several intermediators dealing in the same good at the same place gives the buyers and the sellers confidence that the price quoted by each intermediary is a competitive one. The ease of searching for the best price ensures that all the prices are the best, and therefore obviates the need to actually shop around.

Finally, there is the problem of enforcement of contracts. Because of their constant presence in their market, intermediators quickly acquire a reputation. Once they have acquired a good reputation, it becomes a valuable asset which they have a strong incentive to maintain. It pays to be honest with everyone, because word of their default will quickly get around. This is the customer's guarantee of quality, and the supplier's guarantee that he will get paid. If the buyer and the seller were to try to deal with each other directly, then because of their sporadic appearance at the market, and their consequent lack of reputation, neither can fully trust the other. Use of an intermediary therefore creates a chain of trust. The buyer pays in advance, and the seller pays in arrears. The intermediary thereby eliminates the risk from trading with

people of no repute, while the people of no repute can trade because they both trust the intermediary.

### **Entrepreneurial Networks and the Growth of International Trade**

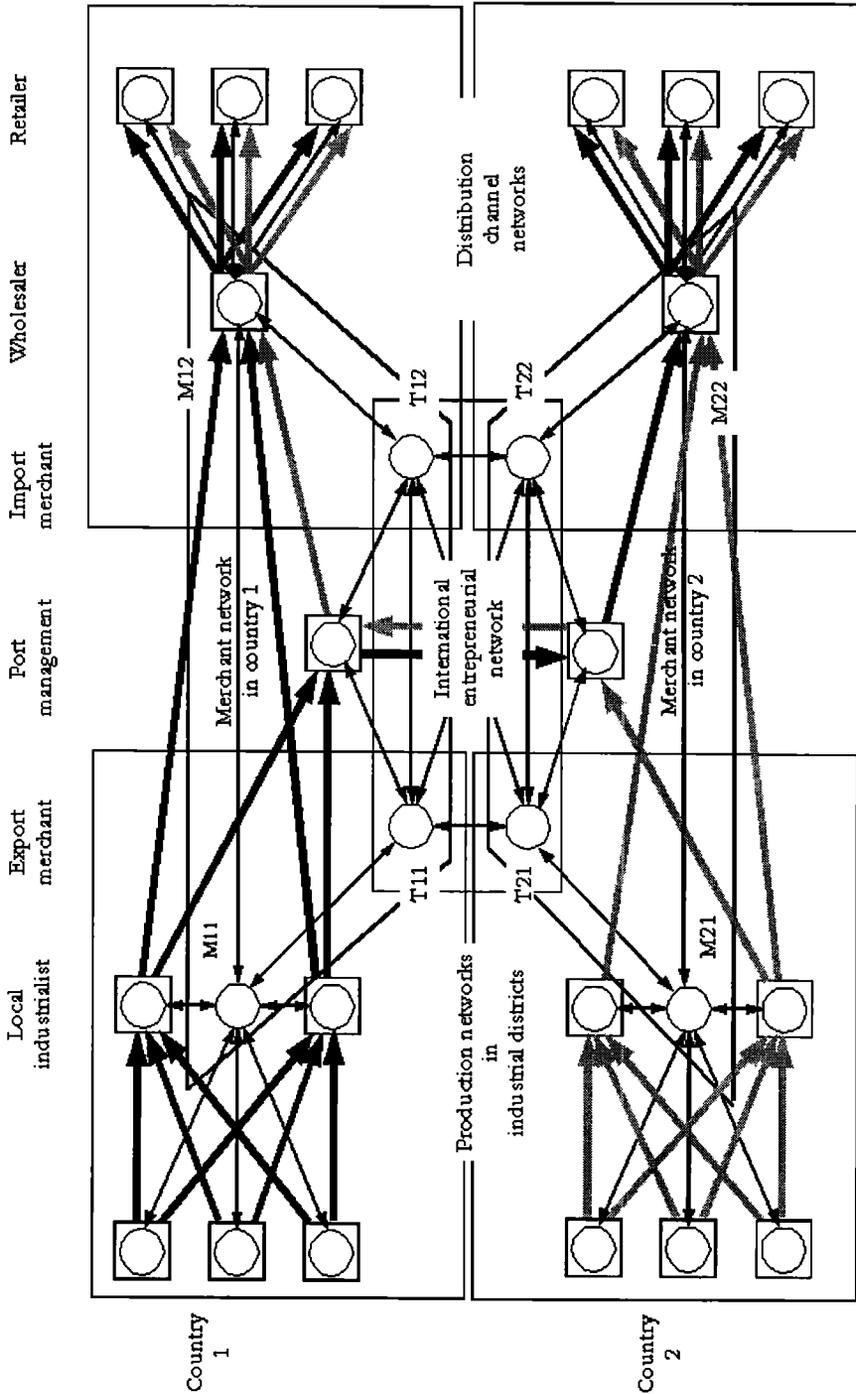
From a historical point of view the most dramatic impact of entrepreneurial networks has almost certainly been in the development of international trade. So far as Western European history is concerned, it is the Age of Discovery, and the subsequent Commercial Revolution, which testifies most vividly to their impact. However, the impact is so pervasive that it can be seen throughout the second millennium [Britnell, 1993; Snooks, 1995].

The obstacles to trade that were overcome were not simply those of transport costs, tariffs, and the difficulty of operating in foreign jurisdictions. International relations were unstable. Where trade was possible, the interests of political leaders lay mainly in levying taxes and tolls. There was popular dislike of merchants who exported local foodstuffs, driving up the prices of necessities such as corn in local markets, or “forestalled” local consumers altogether by buying wholesale at the farm gate [Chartres, 1985]. There was also suspicion of import merchants, who were accused by the puritanical of creating a socially wasteful demand for novelties, and by the working classes of destroying local artisans’ jobs.

The role of entrepreneurial networks in supporting international trade is illustrated schematically in Figure 1. It shows two industrial districts, located in different countries. In each industrial district there are three upstream plants connected to two downstream plants. Each plant is indicated by a square. Because the optimal size of plant is different at each stage, vertical integration is discouraged. It is therefore supposed that each plant is owned and managed by an independent self-employed entrepreneur. Flows of intermediate product from an upstream plant to a downstream plant are indicated by thick lines. The arrowhead indicates the direction of material flow. Any upstream plant can supply any downstream plant within the same district.

Information flows are indicated by thin lines. Information connects people – who are denoted by circles – rather than plants. Information flow is a two-way affair, so there are arrowheads in both directions. In each district a merchant, M11, M21, specializes in handling information. He acts as an information hub. In contractual terms, he buys output from the upstream producers and “puts it out” for downstream processing. He negotiates prices and quantities with the producers, using the information he has gathered from the upstream producers to inform his negotiations with the downstream producers, and *vice versa*. The information he processes is mostly encoded in price quotations.

Figure 1: International Trade – Entrepreneurial Networks



Notice that information flows exhibit a different pattern from product flows. The information flows are intermediated by the merchant, whereas the product flows are not. The merchant handles the information and acts as a nexus of contracts between the producers, but he does not physically handle the product. The product is transported directly from the upstream producers to the downstream producers. The merchant simply gives instructions as to what product is to be delivered where. Because the merchant handles only information, the circle that represents him is not associated with any square.

Now consider the rest of the figure. It is assumed that the two districts produce different variants of the same type of product. Both products are consumed in both countries. Some consumers prefer one variant, and others prefer another. The two variants may differ simply in design, having the same quality of workmanship and selling for roughly the same price. Alternatively, one product may be distinctly superior to the other in terms of quality, and sell for a premium price. Nevertheless, some consumers are always prepared to switch to the other variant if there is a significant fall in its price. To this extent the different varieties are substitutes for each other. Flows of the first variety, produced in country 1, are indicated by thick black lines, and flows of the second variety, produced in country 2, by thick grey lines.

Goods for the home market are consigned directly to a domestic wholesale distributor, whereas goods for export are sent to the nearest port. This is also the port through which the other variety is imported. Goods are consigned from this port to the domestic wholesaler, who then combines the two varieties of good in the proportions requested by local retailers, and dispatches them together.

The diagram shows only one merchant in each industrial district, and only one wholesaler in each domestic market. In practice there are likely to be several merchants of each type, and these merchants may constitute a group in their own right. Potentially they compete with one another, but in practice they can collude as well. Thus the merchants within an industrial district may seek to impose customary prices for putting out when demand is buoyant, while reserving the right to cut prices further when times are bad. On the more positive side, they may organize an apprenticeship system in conjunction with a local college, and encourage "on the job" training by collectively outlawing the "poaching" of staff.

The figure shows four merchants specifically engaged in international trade. There are two in each country – one organizing exports and the other organizing imports. Like their domestic counterparts, these merchants do not handle the product whose flow they coordinate. Each export merchant buys from the merchant in his local industrial district and sells into the foreign distribution channel, setting a margin between his buying price and his selling price to cover his administrative costs. These costs include the charges levied at the ports, the cost of shipping, and the cost of transport to and from the port. Thus in country 1 the export merchant T11 buys from the merchant M11 and sells to the merchant T22, who in turn sells on to the wholesaler M22. The import merchant T12 buys from the merchant T21 and resells to the

wholesaler M12. Similarly in country 2 the export merchant T21 buys from M21 and sells to T12, while the import merchant T22 buys from T11 and sells on to the wholesaler M22.

Note that intermediation by the merchants involves more than just a single stage. The domestic market involves two merchants, the putter-out and the wholesaler, while international marketing involves no less than four stages. Linking the putter-out to the wholesaler are the export merchant in the home country and the import merchant in the foreign country.

The justification for all these stages is that each intermediary overcomes some obstacle which the two adjoining intermediators would encounter if they tried to "cut him out" and do business directly. In domestic markets it is the difficulty that ordinary people face in negotiating large deals, where fine judgement is required in fixing a suitable quantity and price. Collecting reputational information on quality of workmanship, and on reliability in payment and delivery, is also important. In the international context, combining knowledge of two different countries, and keeping this knowledge up-to-date, is the key advantage. Certainly, if critical information must be collected face-to-face then a good deal of time-consuming travel may be involved. It could, of course, be something as simple as a language difference. The export merchant may speak the foreign language, for example, whereas the domestic merchant does not. This can only explain one additional stage of intermediation in an international context, though. There must be another factor too, such as a special knowledge of local customs and laws needed to enforce contracts.

The structure of networks that supports international trade is also shown in the figure. There is a hierarchy of networks with interlocking membership. Each network is indicated by a box, enclosing the individual members of the group. The highest-level network comprises the international merchants. The figure illustrates additional horizontal and vertical links within this group. These links will tend to arise naturally from chance meetings at conferences and international trade fairs. Such events are a traditional method of setting up business deals in foreign markets. The fairs allow export merchants from different countries to share their experiences of other countries with merchants in non-competing lines. They also allow export and import merchants from the same country to share information relating to the prospects for the domestic industry as a whole. More generally, everyone can form an assessment of how well everyone else is doing, and therefore benchmark their own performance against that of their competitors with greater accuracy.

There are two middle-level networks, comprising the merchants of each country. Half the members of each network belong to the high-level international network, and the remainder belong to low-level domestic networks. The figure shows that there are two main types of low-level network: one concerned with production and the other with distribution. Within the production network the role of the putter-out is dominant. As indicated earlier, there will normally be a group of putters out. They will form a local business elite, and socialize with each other. They also form the dominant group within the wider network that includes the artisan entrepreneurs. The self-employed

artisans are the lowest level of entrepreneur in the system in the terms of the overall significance of the strategies they pursue. There is a similar distinction between the wholesalers and the retailers within the distribution network. The wholesalers are essentially the "channel leaders," dictating terms to the retailers because of their superior access to information through their backward links into production.

It should be emphasized that from an economic point of view the links between entrepreneurs at different levels are maintained largely on the initiative of the higher-level entrepreneurs, who find the high-trust network links a cost-effective way of maintaining control. If the international merchants did not socialize with the domestic merchants then they might have to integrate backwards into production, or integrate forward into distribution, to achieve the control they require. Similarly if the putters out did not socialize with the artisans then they would have to integrate into production themselves and take on the artisans as employees. This would require a detailed knowledge of craft production methods which they do not have. Again, if the wholesalers did not socialize with the retailers then they might have to integrate forwards into retailing themselves, and take on the retailers as their employees. The costs of employee supervision are such that it is cheaper to invest in a few "handshakes" and some friendly hospitality instead.

### **The Geometry of Networks**

The geometry of the network at each level is different. In general, the lower the level of the group, the greater is the focus on supporting routine operations and the stronger is the consequent incentive to channel information through a hub.

The local merchant, or putter out, is the hub of communications in the industrial district. Coordination is effected by communication between merchant and artisan, and not between one artisan and another. The artisans defer to the judgement of the merchant in setting the price because he has a wider view of the situation than they possess.

In the high-level network the hub is replaced by a dense web of communications which allows all the members to communicate directly with each other. The network is democratic and collegial. This reflects the dispersion of expertise within the group. Everyone knows something which could conceivably be important to any of the others, and so there is active socialization.

The middle level network resembles a chain, in which each element is connected only to adjacent ones. Putters out are in touch with wholesalers and export merchants; wholesalers are in touch with putters out and import merchants, and so on. This structure reflects the fact that the linkages are focused on maintaining channels of distribution.

## The Location of High-Level Entrepreneurial Networks

Entrepreneurs tend to be relatively footloose. High-level entrepreneurs in particular are willing to pursue profit opportunities wherever they may lead. In international business entrepreneurial ideas may be stimulated by foreign travel on military service, diplomatic service, scientific survey work or engineering work. Historically, travelling could be connected with the itinerant trade of the pedlar, drover, or the latter-day sales representative [Pirenne, 1925; Fontaine, 1996]. Entrepreneurial attitudes are characteristic of many migrants. Many entrepreneurs seem to grow up in relatively open societies where immigration is common, outside influences are strong, and the force of purely local custom and tradition is relatively weak. The strong commercial links of these communities with the outside world make ambitious young people aware of the opportunities that exist elsewhere.

Given that entrepreneurs are mobile, the regions that are most successful in the long run will be those that are most attractive to entrepreneurs. The most obvious attraction is that the region is an information hub. It is here that the kind of wide-ranging synthesis of information that is required for major innovations can most readily be effected. Since a large amount of commercial information is encoded in the form of prices, and prices are set in markets, the range of markets is a crucial factor.

Furthermore, an existing market center is the obvious place for an entrepreneur to develop a new market for an innovative product. By creating a new market where existing markets can be found, the entrepreneur simplifies the shopping process, since on a single visit an ordinary customer can accomplish several trades. This agglomeration economy is reinforced by other economies too. In any given market, the intensity of competition and the degree of liquidity are both important in guaranteeing customers reasonable prices when trading at short notice. By simply joining an existing market an entrepreneur can give that market greater "depth." By reducing customers' information costs, this greater depth makes the market center an even more attractive place to trade. In aggregate terms, this generates increasing returns to market size, as measured by the volume of trade [Krugman, 1991].

To facilitate the enforcement of contracts a market center requires an efficient and honest legal system which is well adapted to resolving potentially complex legal disputes. People must be free to enter markets, and to incorporate companies. Business and government must network effectively, and obviously taxation and the risk of expropriation must be low. The local culture should be welcoming to entrepreneurial immigrants, and conducive to networking. Networking amongst entrepreneurs not only improves their overall quality of service to the customer, but also facilitates the collective financing of strategic investments designed to increase the volume of trade.

A highly competitive and impersonal culture is not appropriate, because it presumes too much self-interest and breeds distrust in matters that inevitably remain inadequately covered by the law. In the long run the most successful central places are those whose culture engineers high levels of trust among entrepreneurs.

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