

CHAPTER 5. ENTREPRENEURS AND CITIES

Economic progress is self-perpetuating, but it is not automatic. Market expansion creates potential—opportunities to profit from reorganizing production or from adopting technology. But only if someone exploits those opportunities is the potential realized. The reorganization of production and technological progress, in turn, create new opportunities for profitable expansion of the market. But, again, only if someone exploits the new opportunities does the market actually expand. The someone who identifies and exploits profit opportunities is the entrepreneur: it is the action of entrepreneurs that brings about economic progress.¹

Furthermore, new profit opportunities do not just appear anywhere: they largely appear in and near cities. It is also in and near cities that it is easiest to exploit profit opportunities. Cities are both generators of economic progress and catalysts of economic progress.²

We will examine the role of entrepreneurs and of cities in bringing about economic progress in preindustrial Europe. We will conclude the chapter, and the part, with a review of what we have learned so far about the nature of economic progress.

ENTREPRENEURSHIP

All three economic activities—commerce, production, and predation—present opportunities for entrepreneurship.³ In preindustrial Europe, the entrepreneurs of commerce were mostly merchants. The entrepreneurs of predation were mostly members of the predatory class (the nobility). But the entrepreneurs of production were not usually producers. Producers did play a limited role, but most of the entrepreneurship in production came either from the nobility or from merchants. Let us look at each in turn.

¹The writer who, more than any other, has emphasized the role of the entrepreneur in economic progress is Joseph Schumpeter ((Schumpeter 1955 [1911]), (Becker, Knodsen et al. 2011)).

The conventional theory has no place, of course, for the entrepreneur—there being by assumption no profit opportunities to for him to exploit ((Blaug 2000), (Holcombe 2007) Ch. 1).

²The first to emphasize the role of cities in economic progress was Jane Jacobs (Jacobs 1969).

³(Baumol 1990); (Baumol and Schilling 2008). We will consider entrepreneurship in commerce in Chapters 6 through 9 and entrepreneurship in predation in Chapters 10 through 12.

Producers as entrepreneurs

Entrepreneurship in production can take a variety of forms—the creation of a new type of organization, the adoption of a new process of production, or the production of a new good.⁴ In each case, the entrepreneur has to recognize an opportunity, has to mobilize the necessary resources, and has to be willing and able to bear the associated risk.

As we have seen, the typical producer in preindustrial Europe was a family enterprise—a family farm or a family workshop—with no direct contact with distant markets. Consequently, producers themselves were rarely aware of new market opportunities, and even when they were, they lacked the resources to exploit them.

In the subsistence-tribute economy at the opening of our period, peasant households lacked not only resources and information but also any inclination towards entrepreneurship. The culture of subsistence is conservative: the risk of failure and starvation weighs more heavily than any prospect of betterment; and the obligation of mutual assistance places a heavy tax on those who do succeed. Indeed, we saw in Chapter 3 that the first response to the opportunities created by an expanding market came not from producers but from the predatory class, in the form of demesne agriculture and industry.

However, as markets continued to develop, producers did respond to opportunities that required only local knowledge and limited resources. The origins of the open field system are obscure, but it is plausible that it was village associations that took the initiative. Much of the consolidation of small plots into viable family farms was undertaken by enterprising peasants, and these were responsible too for many of the small improvements in agricultural technique.⁵

In industry, the structure of the new manufacturing was probably created by individual artisans who decided to set up on their own to specialize in a particular sub-process. In mining, new initiatives came at first from individual prospectors and miners.

⁴(Schumpeter 1955 [1911])

⁵For example, smallholders led the way in using horses for plowing. They could not afford to keep more than one animal, and horses were better than oxen for dual use in plowing and transportation. (Langdon 1986)

And, of course, migration is a form of entrepreneurship. Peasants were ready to move to new areas of settlement and colonization. Urban craftsmen were ready to carry their skills to wherever the returns were highest.

Later, as producers accumulated more resources and were better able to bear risk, they became more venturesome. In agriculture, the more substantial farmers led the way in introducing new techniques and new crops.⁶ We have seen that in industries in which proprietary knowledge was important enterprises were larger and more profitable—for example, in ‘chemical’ industries such as dyeing, glass, and metallurgy. In these industries, as a result of their scale of operations, producers had a greater capacity for entrepreneurship.

To the extent that producers had to rely on their own resources for funding, anything that increased their profits made it easier for them to be more entrepreneurial. In agriculture, rising prices and falling rents both had this effect. Since rents were fixed in money terms, a significant inflation could erode their real value, leaving farmers with greater profits. Inflations in late medieval northern Italy and in sixteenth-century England were both followed by periods of unusually vigorous entrepreneurial activity on the part of farmers.⁷

The predatory class as entrepreneurs of production

Members of the predatory class—the nobility—derived their incomes from the territories they controlled. They therefore had a clear interest in increasing the economic output of their territories.⁸ The nobility also, at least in principle, commanded the necessary resources. Consequently, the nobility frequently acted as entrepreneurs of production. Not surprisingly, given their close association with the land, they did so mainly in agriculture and in land-related industries.

⁶(Clay 1984)

⁷On the former case, see (Laven 1966) Ch. 1; on the latter, see (Kerridge 1967).

⁸We will have more to say about this in Chapters 10 and 12.

In agriculture, we have seen that manorial lords were the ones who responded to the market expansion of the eighth century by developing demesne agriculture.⁹ They recognized the opportunity and understood that only they were in a position to exploit it.

In later centuries, in similar circumstances, local lords in Sicily and Calabria established large plantations to grow sugar and silk, and those of Andalusia and Portugal did the same to grow sugar, fruit, wine, and oil.¹⁰ As we will see, nobles also cooperated with merchants to establish plantations in overseas colonies.

In industry, the nobility were particularly active in mining and metallurgy. Mineral rights to precious metals belonged to the prince; those to base metals, to the local lord. Owners of mineral rights would grant miners the right of extraction in exchange for royalties. They would also invest in smelting facilities both to encourage exploitation of the mineral resources on their land and to make sure of their cut of the proceeds.

In late sixteenth century England, local lords played a prominent role in developing the iron and coal industries.¹¹ Local lords also played an entrepreneurial role in milling, paper, and glass—all industries connected with the land.

There were, however, limitations to the entrepreneurship of the nobility. While they possessed substantial resources, those resources were generally illiquid and therefore harder to mobilize. While they might have better access to market information than producers, particularly agricultural producers, their access was still limited compared to that of merchants.

There was also a cultural obstacle. For the members of the nobility, there was a stigma associated with production and commerce that stood in the way of their direct participation in either. The stigma was weaker for the ecclesiastical nobility, which may be why its members played a greater role as entrepreneurs of production. The stigma also

⁹See Chapter 3. While demesne agriculture gradually gave way to commercial family farms, it continued to be progressive—at least in England ((Karakacili 2002)).

¹⁰See (Epstein 1998) on the former and (Davis 1973) on the latter.

¹¹(Palliser 1983) Ch. 8. “In the Elizabethan period the most active entrepreneur in the country was not some busy merchant or thrusting member of the new gentry, but a peer of ancient stock, George Talbot, 6th Earl of Shrewsbury.” p 258. Shrewsbury was one of the great ironmasters and also owned a steelworks, lead mines, coalmines, and glassworks.

varied considerably by place and time. For example, the nobilities of northern Italy and the Low Countries were far more willing to engage in economic entrepreneurship than those of France or Spain. And the English nobility became increasingly willing to do so over time.¹²

So while members of the nobility did play an important role as entrepreneurs of production, the main outlet for their entrepreneurial energies was, naturally, in predation. It appealed to them more to increase their wealth by adding to their territory than to do so by increasing the product of the territory they already controlled.

Merchants as entrepreneurs of production

Merchants were entrepreneurs by profession: they were always on the lookout for profitable trading opportunities. To find such opportunities, they devoted much of their effort—through travel and correspondence—to the gathering of information. To be able to exploit such opportunities whenever they found them, merchants made sure to have ready access to liquid resources—whether their own or borrowed from others. Merchant culture was also highly entrepreneurial: it valued initiative, enterprise, inventiveness, and (successful) risk-taking.

Well informed, well financed, and predisposed towards entrepreneurship, merchants were ready to exploit whatever opportunities came their way. While their primary interest lay in trading, if they stumbled across a profitable opportunity in production—or, indeed, in predation—they were not averse to taking it.

Merchants as landowners and agricultural entrepreneurs

Merchants became involved in agriculture primarily through their extensive investment in land. They found land an attractive asset: it promised a steady, relatively safe stream of income in the form of rents, making investment in land attractive to them as a form of diversification.¹³ Its relative ease of management made land ideal for

¹²Edward IV first made commerce respectable when he personally became involved in numerous trading ventures from the 1460s. (Ross 1997) quoted in (Baumol 2002).

¹³(Postan 1973) The potential for speculative profits was an added attraction: there was considerable speculation in urban land and in rural land when its price was depressed by war ((Van der Wee 1977)). In the Low Countries, in the fourteenth century, peat bogs (a source of fuel as we saw in Chapter 4) became a

funding a merchant's retirement, for providing for widows and orphans, for a dowry, or for an endowment or bequest to a charitable or religious institution.

And land was not necessarily illiquid. A market for loans secured by land developed early, and this market made it possible for a merchant landowner to turn his investment in land into cash at short notice by borrowing against it.

The ownership of land, in sufficient quantity, also conferred important non-economic benefits—status and even noble rank. Merchants moved up the social ladder by marrying their daughters to the nobility and by setting up their sons with country estates. In sixteenth century England, some 30-40% of the land was in the hands of the 'gentry'—descendants of merchants who had quit commerce and derived their income exclusively from the ownership of land. Their holdings exceeded those of the crown, the church, and the old nobility combined.¹⁴

Even if merchants did not acquire land for strictly entrepreneurial reasons, they could not refrain from being entrepreneurial in their management of it: habits of enterprise die hard!

Merchant landowners played an important role in restructuring land into efficient family farms. When wealthy merchants purchased entire manors from lords or abbeys, they would generally break up the demesne and consolidate the smallholdings.¹⁵ To facilitate the leasing of the farms created in this way, merchant landowners pioneered new forms of tenancy contract.¹⁶

Merchant landowners also led the way in the adoption and diffusion of new techniques and crops. They were the best informed about practices elsewhere and the most willing and able to bear the risks of innovation.

popular investment and there was something of a speculative boom as peat prices rose in response to the increasing scarcity of wood ((Nicholas 1971)).

¹⁴This situation came about partly because of the dissolution of the monasteries and the sale of their land and partly because of the sale of crown land to finance wars. (Clarkson 1971).

¹⁵See, for example, (Jones 1968) on northern Italy during the Commercial Revolution, (Hoffmann 1977) on medieval central Europe, and (Thrupp 1948) on fifteenth century England.

¹⁶(Jones 1968)

Merchant contractor-developers

Of course, non-merchant landowners were not fools: they noticed the success of their merchant neighbors in increasing the income from their estates, and they imitated their methods. In some cases, lords even brought in merchant contractors to restructure their land for them. Like today's investment banks called in to advise on mergers and acquisitions, these contractors provided expertise and arranged the necessary financing.¹⁷

Merchant contractors played a similar role in developing new land. In twelfth century Picardy and Flanders, the Counts granted nobles and religious houses coastal territories on condition they reclaim the land from the sea. The grantees generally engaged contractors to organize the work, to recruit settlers, and to obtain the necessary financing.¹⁸

The story was similar with the German expansion into eastern Europe.¹⁹ The new owners of the land—nobles and religious houses—brought in merchant contractors to create whole new villages. This meant dividing the land into family farms and constructing the necessary infrastructure. It also meant recruiting settlers (mainly Germans, but also Flemish and Dutch), paying for their transportation, and supporting them until their first harvest. Of course, all of this required considerable financing, which the contractors would raise in urban financial markets.

Merchant as developers of colonies and suppliers of slaves

In the northern zone, the predatory class—kings, nobles, and religious orders—generally took the initiative in the development of new land; they acquired new territory and then called in merchant contractors to develop it. In the Mediterranean zone, however, it was the merchants who took the initiative, either conquering new territory themselves or working with princes to do so.

Colonization in the Mediterranean was closely related to the spread of plantation agriculture.²⁰ Europeans had originally imported cotton, sugar and malmsey (a sweet

¹⁷(Jones 1966) p 418

¹⁸(Nicholas 1992); (Ganshof and Verhulst 1966).

¹⁹The following draws on (Aubin 1966), (Carsten 1954), and (Powelson 1988).

²⁰The following draws on (Laven 1966), (Epstein 1991), (Scammell 1981), and (Verlinden 1970).

fortified wine) from the Levant. The high price of these commodities made import substitution attractive, but most of Europe was unsuited to their cultivation. So when the Crusaders conquered Palestine, Venetian merchants were quick to take over and expand the sugar and cotton plantations they found there. And when the Venetians themselves later conquered Crete and Cyprus, they established sugar and cotton plantations there too; the Genoese similarly set up plantations on Chios to produce malmsey.

From the eastern Mediterranean, the cultivation of sugar, cotton, and malmsey spread westwards. In the fifteenth century, Pisan merchants brought these crops to Sicily, setting up sugar mills and refineries there. Genoese merchants played a similar role in Andalusia, the Algarve, and North Africa. And when the Spanish and Portuguese colonized the Atlantic Islands and then the Americas, Genoese developers worked closely with them, bringing the cultivation of sugar, cotton, and malmsey to the new territories. By 1600, the Portuguese colonies in the Atlantic and Brazil were supplying Europe with large quantities of sugar, with the trade firmly in the hands of Genoese and Florentine merchants.²¹

To work their plantations in Crete, the Venetians initially recruited settlers from Armenia. However, when the supply of settlers proved insufficient, they turned instead to importing slaves. From then on, the use of slave labor spread westwards together with plantation agriculture. Genoese and Venetian merchants were the main suppliers of slaves. Slaves came initially from the Balkans and then from the Black Sea. The Genoese later played a major role in developing the African slave trade that supplied the plantations of the Atlantic islands and the Americas.

The prevalence of plantation agriculture in the southern colonization seems to contradict the argument in Chapter 3 that the most efficient form of enterprise in agriculture was the family farm. However, plantation agriculture probably arose for the same reason that demesne agriculture arose in the earliest phase of the European expansion—urgency. Huge profits were to be made, especially from the cultivation of sugar, and being efficient was much less important than being quick. Plantations could be established far more rapidly than an agriculture of family farms.

²¹(Davis 1973) Ch. 1

Merchants and land reclamation

Merchant entrepreneurs were involved in land development in other ways too. As agricultural land in the Netherlands rose in value during the sixteenth century, merchants there started to take an interest in reclamation. As we have seen, reclamation projects had a long history in the Low Countries. However, they grew substantially in scale when, beginning in the 1560s, the merchants of Antwerp and later Amsterdam took a hand.²²

Large groups of merchants formed partnerships to reclaim substantial areas ‘on spec’—hoping to divide them into farms that they could then lease at a profit. The total investment in such projects was enormous. Between 1590 and 1650, Amsterdam investors sank over ten million gulden into projects in one area of Holland alone—an amount equal to the total capital of the Dutch East India and West India Companies combined.

The specialized contractors and technical experts who undertook these projects later went on to apply their skills in reclamation elsewhere—in the English Fens and in France, Italy, and Mexico. In many cases, Dutch merchant investors provided the financing.

Exploiting opportunities created by supply interruptions

There were yet other opportunities for merchant entrepreneurship in agriculture. Many arose as a result of a major interruption of supply that sharply raised local prices. Producers themselves, of course, responded to the rise in prices. However, a higher level of entrepreneurship was sometimes called for, and then it was usually merchants who took the initiative.

For example, when the Hundred Years war interrupted the supply of English wool to northern Italy, Genoese importers found an alternative source of fine wool in North Africa. However, this source proved unreliable, so they brought North African (merino) sheep to Spain to improve the quality of the wool produced there. The experiment was so successful that by the fifteenth century merino wool had become the backbone of the Spanish economy and a major source of profit for Genoese and Spanish merchants.²³

²²(de Vries and van der Woude 1997); (de Vries 1974); (Slicher van Bath 1977)

²³(Vicens Vives 1969) Ch. 20, quoting (Lopez 1953).

The Elizabethan ‘projectors’ provide another example of merchants taking the initiative in response to interruptions in supply. War with Spain and the devaluation of the pound raised the cost of various imported agricultural commodities in England. One example was woad, a dye essential to the woolen industry. Merchant entrepreneurs responded by organizing production of these commodities at home, thereby introducing to England a number of new crops.²⁴

Yet another example is the rise of the Dutch herring industry.²⁵ For centuries, the main source of fish for western Europe had been the Baltic—the trade in fish being second in importance only to the trade in grain. In the fifteenth century, however, the Baltic fishery went into a precipitous decline.

The Dutch brokers who mediated the trade in Baltic herring were quick to fill the gap with local production. To expand the scale of the modest Dutch fishery, they developed a new type of large boat, the herring buss, suitable for fishing the deep waters of the North Sea. The brokers also facilitated local production by providing on-land processing and packaging. They also obtained the large quantities of salt needed to preserve the fish. Indeed, by employing their ships in the off-season to bring salt from the Bay of Biscay, they boosted their profits considerably.

Merchants establishing new industries

Merchants were generally reluctant to become involved directly in industrial production. They did not wish to tie up their capital in illiquid assets or to be distracted from their primary activity of trading. However, the potential gains were sometimes so great as to overcome their reluctance.

For example, market expansion might create the potential for a whole new industry, but producers themselves might lack the ability to bring it into being. It was for this reason that merchants were responsible for establishing the ‘new manufacturing’ in twelfth-century Flanders.²⁶

²⁴(Thirsk 1978)

²⁵(de Vries and van der Woude 1997) Ch. 7; (Michell 1977); (Unger 1996)

²⁶(Munro 1998); (Nicholas 1992); (Murray 1990)

Market expansion created a growing demand for Flemish woolens in northern Italy, but Flemish merchants could not satisfy it—in quantity or in quality—by relying on their traditional rural suppliers. So they set up workshops in the cities, directly employing craftsmen whom they recruited from the country.²⁷

By the late thirteenth century, the industry had evolved the characteristic structure of the new manufacturing—a host of small, specialized independent producers coordinated by middlemen (weaver-drapers) and supervised by guilds. Since merchants could now buy as much cloth as they needed by purchasing it in the urban trading halls, they withdrew from direct involvement in production.

Merchant entrepreneurs were similarly responsible for establishing the fustian industry in South Germany. During the Commercial Revolution, northern Italy had become a major producer of cottons. But labor costs rose there sharply in the fourteenth century as a result of the Black Death, and merchants saw an opportunity to produce cottons more cheaply across the Alps in South Germany.

There already existed a rural linen industry there that could be converted relatively easily to fustian—a cotton-linen mix. Merchants, like the Fuggers of Augsburg, purchased the necessary cotton yarn in northern Italy, commissioned local weavers in Germany to produce the cloth, and marketed the output in Venice and, later, Antwerp; they also, of course, provided the financing.²⁸

When merchants arrived in a distant market to trade, they sometimes discovered a local product that, with some modification, could be exported profitably. For example, Genoese galleys arrived at Southampton in England at the end of the thirteenth century carrying alum for the English and Flemish woolen industries. Genoese merchants observed the local woolen cloth and saw a potential for marketing it in the Mediterranean. To obtain precisely the kind of cloth they needed, they organized

²⁷(Van Werweke 1954)

²⁸(Mazzaoui 1981)

production themselves in the area around Southampton, employing local craftsmen to full, dye, and finish cloth to their specification.²⁹

The role of merchants in technological progress

We saw in Chapter 4 that the initial adoption of a technology involved considerable costs and a great deal of uncertainty as to its ultimate profitability. This was true whether the technology in question was a new invention or one that had long been available but had not yet been put to use. So the adoption of technology was an act of entrepreneurship.³⁰ Merchants were the most active entrepreneurs in this area too.

Merchant entrepreneurs were also instrumental in the diffusion of new processes and new goods. For example, the same merchants who organized the new manufacturing in the Flemish cities were presumably responsible for bringing the horizontal loom from northern Italy to Flanders.

And the ‘projectors’ of Elizabethan England were active in industry as well as in agriculture.³¹ In industry, too, their projects were often aimed at import substitution. Merchant entrepreneurs—some of them refugees from the Low Countries—established a number of new industries in England, importing the necessary technology, coordinating production, marketing output, and providing financing. The new goods they introduced ranged from stockings to tobacco-pipes.

Merchants sometimes found it necessary to become directly involved in production to ensure for themselves a steady supply of product. It was for this reason that metal traders

²⁹(Bauer 1991) remarked on the similar role of merchants in founding new industries in developing economies: ““In British West Africa in the 1950s, every single successful local industrialist had started his business as a trader.” p5

³⁰For Schumpeter, innovation, the adoption of technology, was the quintessential entrepreneurial function: “As long as they are not carried into practice, inventions are economically irrelevant. And to carry any improvement into effect is a task entirely different from the invention of it, and a task, moreover, requiring entirely different kinds of aptitudes.” (Schumpeter 1955 [1911]) p. 88-9

³¹(Thirsk 1978)

became involved in smelting.³² While smelting facilities were usually built by landowners and princes, metal traders often leased and operated them.³³

As the scale of mining increased, landowners and princes had to borrow to finance the sinking of new mines. It was only natural that they would turn to these same metal traders for financing. Since default was common, the mines securing the loans often fell into the hands of the metal traders. That was how the Fuggers—who, as we have seen, originally made their money in fustians—came to control so many of the silver and copper mines of Central Europe.

It was metal traders who were responsible for the diffusion of the technology of mining and metallurgy. Those with proprietary knowledge of new techniques could maximize their returns by applying them as widely as possible: licensing was not an option. For example, the Venetians and Nürnbergers who had developed the *Saigerprozess* acquired mines in all the principal producing regions of Central Europe for just this reason. Similarly, the Augsburg-Hungarian partnership of Fugger and Thurzo, which had developed the cementation process for extracting gold from auriferous silver, extended its application through acquisitions and partnerships in all the major regions of production—including Cuba and Mexico.³⁴

In England, the two main companies in mining and metallurgy—the Society of the Mines Royal and the Company of Mineral and Battery Works—were established with the participation of the Augsburg house of Haug, Langnauer and Company.³⁵ And the iron and copper industries established in Sweden in the early seventeenth century were established with the help of Dutch-Liègois arms and metals merchants—particularly the de Geer and Trip families. These foreign firms created new mining and metallurgy industries where there had been none before by bringing in the necessary experts, marketed the output, and provided the financing.³⁶

³²Much of the following is based on (Nef 1987) and (Glamann 1977)

³³(Glamann 1977)

³⁴(Blanchard, Goodman et al. 1992)

³⁵(Rees 1968)

³⁶(Israel 1995) pp. 274-5; (Müller 2005)

CITIES

Entrepreneurs are the people who made things happen; cities, generally, are where they happen. Cities are both catalysts of economic progress and generators of economic progress.

Cities as catalysts of economic progress

Cities are catalysts of economic progress, because they represent large concentrations of demand and because of their low trading costs.

Cities as concentrations of demand

The demand of a large population concentrated in a small area creates local scarcity and raises local product prices.³⁷ The stimulus to production increases the demand for land and for labor and increases their cost too.

As we have seen, the agriculture of preindustrial Europe underwent two crucial changes—its restructuring into family farms and its increasing intensification. Both occurred first close to major cities and were stimulated both by the high product prices and by the high costs of production.

It was the high price of labor in and around cities that drove restructuring. Agriculture had to offer farmers a return competitive with that of employment in the city, so farms needed to be large enough to provide the farmer with a sufficiently high income.³⁸ Similarly, it was the high price of land near cities that motivated intensification—despite the simultaneously high price of labor. Indeed, intensification did not happen far from cities where labor was cheap, but close to cities where labor was dear.

Both restructuring into family farms and intensification involved significant, indivisible fixed costs. It was the high local price of farm output—together with the

³⁷(Grantham 1999) emphasizes the importance of urban demand in stimulating the development of agriculture.

³⁸(Allen 1998) cites the importance of high labor costs for the development of agriculture. (Kislev and Peterson 1982) develops the connection between the opportunity cost of the farmer and farm size. This connection is nicely illustrated in early modern Holland, where dairy farms near cities each milked 15-25 cows, while those far from cities each milked only a few. Moreover, as the level of income rose, the size of dairy farms increased and they employed more capital (another way of boosting the farmer's income). ((de Vries 1974)).

comparatively stable prices offered by large urban markets—that made restructuring profitable enough to overcome the hurdle of these fixed costs.³⁹

And, as we have seen, it was merchant landowners who led the way in making these changes. Merchants preferred to buy land close to the cities in which they lived. So the supply of agricultural entrepreneurship was also greatest near cities.

As a result, the most productive agriculture was to be found in regions close to cities.⁴⁰ It should come as no surprise, then, that the urbanized central regions of the two zones—the Low Countries in the North and northern Italy in the South—were leaders in agriculture, no less than they were in industry. Agricultural productivity was higher overall in the urbanized central regions, because a larger proportion of the rural population in these regions lived close to urban markets.

One implication of this association between agricultural productivity and proximity to cities is that it is a mistake to compare productivity across countries.⁴¹ Before 1500, for example, productivity was higher in general in the Low Countries than it was in England or France.⁴² However, some regions of the Low Countries were isolated from urban markets and they were relatively backward, while some regions of France and England with good access to the markets of Paris and London respectively were quite advanced.⁴³

Low trading costs

Another reason why cities were catalysts of growth was their comparatively low trading costs—both internally and externally.

Internal trading costs were low because of proximity.⁴⁴ It was the low trading costs within cities that made possible the development of the new manufacturing. Division of labor across enterprises was feasible only because proximity lowered trading costs between them.

³⁹(Grantham 2007)

⁴⁰(Hohenberg and Lees 1995)

⁴¹(Jacobs 1984) emphasizes that the proper unit of economic analysis is not the national economy but the city-centered region.

⁴²(Allen 1998)

⁴³See (Britnell 1989) on England, (Hoffman 1996) on France.

⁴⁴See Chapter 2 for a discussion of the relationship between trading costs and distance.

External trading costs were low because cities were transportation hubs and because they invested in the infrastructure of transportation and commerce—both justified by the size of the market. Low external trading costs often made cities areas of relatively low commodity prices.

For example, the development of the Baltic grain trade with Antwerp and Amsterdam ultimately provided these cities—and their hinterlands—with relatively cheap grain. This enabled the farmers of the region to purchase their subsistence needs cheaply and reliably in the market. And, as we saw in Chapter 3, this was necessary if they were to specialize in the intensive cultivation of non-food crops.

Similarly, we saw in Chapter 4 that the development of an inter-regional trade in peat and coal turned the major cities from being places of high energy costs to places of low energy costs. The low cost of energy then attracted to those cities numerous energy-intensive industries.

Cities as generators of economic progress

Cities generate economic progress by creating new kinds of work. This emerges from the interaction between commerce and production and from the interaction between different types of production in close proximity to one another. It is the particular circumstances of a city—a large concentrated market and low trading costs—that create these interactions.

In her classic study, *The Economy of Cities*, Jane Jacobs explains how this happens. She describes several distinct mechanisms that produce new work; all were in evidence in preindustrial Europe.⁴⁵

New work generated directly by commerce and trade

Commerce created new work directly through its demand for goods such as ships, wagons, and containers. For example, the expansion of Dutch trade with the Baltic created a growing demand for ships. This stimulated the development of a vigorous shipbuilding industry, which eventually became a major supplier of ships to commercial

⁴⁵(Jacobs 1969)

fleets and navies all over Europe. Similarly, the demand of Dutch shipping for maps and instruments helped to make the Netherlands the leading producer and exporter of both.⁴⁶

Entrepôt trade created new work in processing commodities that passed through. For example, Antwerp, and later Amsterdam, refined imported sugar and metals, cut and wrapped imported tobacco, and processed and blended imported wines.

Transportation costs provided an additional incentive for such processing, because processed products generally had a higher ratio of value to bulk than raw materials. For example, before shipping grain from the Baltic to the Low Countries became profitable, the Baltic cities of the Hansa turned cheap local grain into beer and shipped that instead. Similarly, their timber exports were initially ‘embodied’ in ships and wood products.

Imitation of imported goods

Trade brought all sorts of new goods to a city. Their high price would initially put them out of reach of all but the wealthiest. However, the city’s craftsmen would soon begin to produce cheap imitations for the local market—yet another kind of new work. As the quality of these imitations improved, they would be added to the city’s exports and their production would further expand. Imports of the original good would be replaced in the city’s trade by imports of the raw materials needed to produce it locally.

The cities of northern Italy offer numerous examples of this pattern. Northern Italy initially imported fine silk and cotton textiles from the Levant for its own consumption and for re-export to northern Europe. Local manufacturers began to produce poorer quality imitations for the local market, importing the necessary raw silk and cotton.⁴⁷ As the Italian silk and cotton industries developed and their products improved, they began to export them to markets in northern Europe and the Mediterranean—even to the places from which they had originally imported those same goods.⁴⁸

The story was similar with other goods initially imported from the East—paper, glass, ceramics, soap, and porcelain—and with fine woolens initially imported from northern Europe. The story was similar too in other places. The cities of the Low Countries, for

⁴⁶(Glamann 1972)

⁴⁷ Such imports became economical as trading costs fell.

⁴⁸{Mazzaoui, 1981 #1983 Ch. 3

example, initially imported cotton textiles, paper, and porcelain from northern Italy. They then began to produce cheap local imitations and eventually became exporters of all these goods themselves.

The richest source of the sorts of new goods that served as potential candidates for imitation was inter-zone trade—trade between the two zones of Europe, between the southern zone and the Muslim world, and, in the seventeenth century, directly between Asia and Europe.⁴⁹ However, trade within each zone provided some candidates for imitation too, although usually of a less exotic kind. For instance, the Low Countries initially imported beer from the Baltic, but in the fourteenth century the cities of Holland began to imitate the northern brew, and by the end of the fifteenth century beer was their second most important export.⁵⁰

One thing leads to another

This process of trade generating production and production generating trade was reinforced by a second process that might be described as ‘one thing leading to another’.⁵¹ The early industrial development of the northern Netherlands provides some good examples.

The high local price of grain drove Dutch merchants to seek out foreign sources of supply. Since shipping costs accounted for a large part of the delivered price, they had a strong incentive to develop a shipping industry that would lower shipping costs. Shipping led to shipbuilding and to the manufacture of containers (barrels, sacks, and packing). These in turn led to importing lumber and to sawing (for residential construction as well as for shipbuilding and cooperage).

Low shipping costs lowered the price of grain to the point that it became worthwhile to produce beer from imported grain rather than importing beer from the Baltic. Cheap imported grain made the local growing of grain unprofitable, which pushed Dutch

⁴⁹See Chapter 2.

⁵⁰{Unger, 1989 #2036}

⁵¹This second process, too, was first described by (Jacobs 1969).

farmers up-market into horticulture and dairying: cheese, butter, fruits, vegetables and flowers all became important exports.⁵²

Low-cost shipping also enabled the Dutch to take over much of the trade with the Baltic. As we have seen, when the supply of herring, one of the mainstays of the Baltic trade, began to dry up, the Dutch developed their own herring fishery in the North Sea—their shipbuilding skills enabling them to produce the new kind of ship that this required. The growth of the herring fishery drew the Dutch into the salt trade and into salt refining.

Each of these steps generated new work. Beer, ships, planks and barrels, dairy products and fresh produce, herring, and refined salt—each eventually became an export.⁵³

A fertile environment for new work and for startups

The enormous range of goods that cities produced, and the division of labor in the production of each, created a rich mixture of activities and skills. The division of labor broke up the process of production among multiple specialized producers. For example, the new manufacturing involved specialization not just by product, but also by stage of production: producers specialized not just in woolen cloth but in weaving woolen cloth or in finishing woolen cloth.

Raw materials were readily available through the market, so that producers no longer had to produce them for themselves. And as the market for tools and machinery grew, producers no longer needed to make their own but were able to purchase what they needed from specialized suppliers.⁵⁴

As an indication of the range of goods and skills available, cities in northern Italy at time of the Commercial Revolution frequently recognized over a hundred different

⁵²(de Vries 1974) Ch. 4

⁵³(de Vries and van der Woude 1997)

⁵⁴The increasing use of purchased producer goods is sometimes described as an ‘increasing roundaboutness’ in production. This is an aspect of the reorganization of production in response to market expansion that is emphasized by (Young 1928) and (Kaldor 1985) and by the Austrian school of economics.

artisan trades.⁵⁵ And the pool of specialized skilled labor was constantly being augmented by immigration.

These many skills could be recombined easily in new ways or adapted to new tasks.⁵⁶ A new product could be created by taking intermediate goods from one process of production and combining them with intermediate goods from another. In one example offered by Jane Jacobs, Smith's pin factory did not arise from an increasing division of labor in traditional pin-making.⁵⁷ Rather the production of a completely different good—the carding comb used in straightening wool fibers for spinning—required the making of stiff wire bristles that resembled headless pins. Someone had the idea of adding a head—which could easily be made by some skilled craftsman producing yet another good. The resulting product was not quite as good as a traditional pin, at least initially, but it was much cheaper.

Cities not only provided opportunities for many kinds of new work, they also provided an environment that was particularly hospitable for undertaking new work—for startups. The story of printing illustrates this rather well, because it involved new work that originated outside of a major city, but which soon moved to a major city because of the advantages it offered.⁵⁸ Printing in Europe began around 1450 in the Rhineland. However, two of the pioneers of printing soon decided to move to Venice.

Venice attracted them, not only because of its large local market, but also because its commercial infrastructure provided ready access to markets as far away as Portugal and Poland. With respect to inputs, while no paper was actually produced in Venice, the excellent paper of Fabriano was marketed through the city and so was readily available. And, of course, skilled labor and financing were abundant. It is hardly surprising, then, that by the end of the fifteenth century, it was Venice and not the Rhineland that had become the center for printing and publishing in Europe and a major exporter of books.

⁵⁵(Jones 1997) p 161

⁵⁶“The greater the sheer number and varieties of divisions of labor already achieved in an economy, the greater the economy's inherent capacity for adding still more kinds of goods and services.” (Jacobs 1969) p 59

⁵⁷(Jacobs 1969) p81

⁵⁸(Lane 1973)

Cities and the supply of technology

In Chapter 4 we looked at technological progress in terms of the supply of technology and the demand for it. The supply is the stock of technologies available for adoption; the demand is the willingness of producers to adopt it.

We saw that the demand for technology is driven by expansion of the market and by the resulting reorganization of production. Since cities are the centers of market expansion and the principal location of the reorganization of production, they are also the focus of the demand for technology. We have seen in this chapter how cities generate new work, and new work is another important source of the demand for technology.

Cities also play a central role in the supply of technology. Before we examine that role, we need to take a closer look at the process of invention.

The self-perpetuating process of invention

Although new inventions often seem to come out of nowhere, they are always adaptations or combinations of technologies that already exist. Indeed, how could it be otherwise?⁵⁹ So the potential for invention is defined by the pool of technologies that already exist and are thus available to be adapted or combined in new ways. But a new technology invented in this way is itself an addition to the pool of existing technologies and therefore expands the potential for further invention. Invention, too, is a self-perpetuating process.

The potential for invention is, however, not enough : there has to be a reason, a motive, for exploiting that potential.⁶⁰ Inventors generally develop new technologies to satisfy particular needs or to solve particular problems. And it is economic progress that generates the needs and creates the problems that motivate invention.

As we have seen, the reorganization of production creates opportunities for the application of technology. Also, expansion of the market may make available new goods or new resources, which call for the adoption of technology to take full advantage of them. And technological progress itself often creates new needs and new problems. In all

⁵⁹(Arthur 2009) argues that every new technology is a combination of old technologies. (Duggan 2007) makes the same point for new ideas in general.

⁶⁰(Arthur 2009)

these cases, a suitable technology may already exist: we saw that this was often the case in preindustrial Europe. However, if it does not, it may be possible to invent a new technology that will do the job. So invention, too, is both a cause and a consequence of the self-perpetuating process of economic progress.

Cities are where it happens

Cities are where the process of invention happens. Cities offer the readiest access to a broad pool of existing technologies: they host a wide range of different activities, all in close proximity, and all using different technologies of their own.⁶¹ And cities are where new technologies and products from other regions and other zones first arrive, adding to the pool from which inventors can draw. For example, we saw in Chapter 4 that gunpowder weapons were first developed in Europe in the cities of Northern Italy—exploiting both the technology of casting in bronze developed for church bells and the technology of gunpowder brought from China.

Cities also provide the motivation for invention. As the location of the processes which create a demand for technology, they offer abundant opportunities for invention and present a host of problems in need of a technological solution. Moreover, urban life itself as a rich source of such problems.⁶²

Some inventions succeed in serving their intended purpose, but many do not. However, such ‘failures’ may prove valuable nonetheless in some other, unrelated and often unanticipated use. The wide range of activities in cities increases the probability that a given invention will find some useful application.⁶³

The close proximity of activities in cities also facilitates the adaptation of a technology used in one activity to its use in another—the ‘repurposing’ of technology. For example, when the cities of northern Italy started to produce cheap local imitations of imported cottons, merchant entrepreneurs imported the necessary equipment from the Levant. This included the horizontal loom and the spinning wheel. At the time, northern

⁶¹(Jacobs 1969)

⁶²(Jacobs 1969)

⁶³(Jacobs 1969) emphasizes the serendipitous and unintended nature of invention. One of her examples is the post-it note—an ingenious application of an adhesive that was insufficiently sticky.

Italy already possessed a woolen industry. Someone presumably saw the potential for adapting the newly introduced cotton technology to woolen production, and local craftsmen possessed the necessary skill to make the required modifications.⁶⁴ Flemish merchant entrepreneurs, visiting Genoa to sell their cloth, discovered this ‘new’ technology and carried it north.

Cities and competition

It was not only the carrot of opportunity that made cities generators of growth, but also the stick of competition.⁶⁵ Producers in cities were subject to intense competition: those producing for the home market faced competition from imports; those producing for foreign markets faced competition in those markets from the exports of other cities.

The nature of competition

This competition was a result of the low trading costs that made the city part of a larger market. Competition was also a consequence of the cycle of import, imitate, and export: each city’s exports were imitated by others, which then became exporters themselves and so competitors.

Competition came not only from producers of the same good, but also from producers of other goods.⁶⁶ For example, cottons, silks, linens and woolens all competed with one another in a general market for textiles. Moreover, technological progress was constantly opening up new forms of competition: improvements in glass technology, for example, brought glassmakers into competition with makers of wooden cups, eventually driving the latter out of business.

The unit of competition was not the individual producer but the group of producers making a particular good in a given city. Such a group would find itself competing with similar groups in other cities and with other groups producing different goods in its own city. The producers of a particular good were usually organized as an association or guild. We saw in Chapters 3 and 4 that it was in many ways the guild rather than the individual

⁶⁴Invention, in that it involves perceiving a potential—in this case for adapting or combining technologies—has much in common with entrepreneurship.

⁶⁵(Lewis 2004) shows that the key to productivity growth today is product market competition.

⁶⁶(Hirshler 1954)

producer that was the preindustrial equivalent of today's corporation. It was the guild that possessed the brand name, and it was the guild that possessed the proprietary knowledge.

Price competition

One dimension of competition was price: this was particularly important for relatively inexpensive, mass-market goods. The pressure to lower cost drove production from areas of expensive labor to those of cheaper labor—particularly, as we saw in Chapter 3, from city to country.

Cities had an enormous advantage in starting up a new industry. However, as production became routinized, any remaining advantage was outweighed by the high cost of operating in the city: space was dear, labor was expensive (because of the high cost of living), and taxes were heavy.

So merchant entrepreneurs sought alternative, less expensive places to produce—in other cities, in smaller towns, and in the country.⁶⁷ For example, during the Commercial Revolution, rising costs caused the center of woolen production to migrate from Artois to less developed Flanders and then, when Flanders developed, from there to less developed Brabant and Holland.⁶⁸

Product competition

A second dimension of competition was product innovation. Indeed, like today, competition was the principle driver of product innovation.⁶⁹ For example, the Italian cities that dominated the silk industry during the long sixteenth century—Genoa, Milan, Venice, Bologna, Florence, Lucca and Naples—competed with one another aggressively in the international market, turning out a steady flow of new products. One city would gain a temporary advantage with some particular innovation. But this would be imitated

⁶⁷(Jacobs 1969) suggests that even agriculture originally went through this cycle, being invented originally in trading centers and only later 'outsourced' to the country.

⁶⁸(Van der Wee 1993) Ch. 11; (Nicholas 1992). We saw earlier that cotton (fustian) production moved for similar reasons from the cities of northern Italy to rural southern Germany.

⁶⁹(Baumol 2002)

quickly by the others—aided by the migration of craftsmen and of merchant-entrepreneurs from one city to another.⁷⁰

The process of inter-city competition was one of ‘creative destruction’.⁷¹ Cities gained new industries only to lose them later to lower-cost or more innovative competitors. However, healthy urban economies were able to replace the old work they lost with new work.

Antwerp provides a good example.⁷² When its principal industry, woolens, was threatened in the late fourteenth century by lower-cost competition from England, it reoriented its production to finishing English cloth. In the fifteenth century it supplemented textiles with a number of luxury manufactures—printing, diamond-cutting, glass and mirrors, majolica tiles. All of these products began as imitations of Italian imports, but they each later became important export industries. In the sixteenth century, Antwerp added sugar refining (it was the main destination of sugar imports from the Atlantic islands), silk textiles, gold- and silversmithing, furs, and painting.

CONCLUSION

This chapter completes our discussion of production and of the mechanisms that increase its productivity. There have been two major themes—that economic progress is a self-perpetuating process and that commerce plays a vital role in that process.

At the core of economic progress is the process first described by Adam Smith. Expansion of the market induces changes in how production is organized and in the technology it employs: these changes combine to increase productivity.⁷³ The increase in productivity raises incomes and expands the supply of goods and services, and this in turn induces a further expansion of the market—the demand and supply multipliers. The process is continuous and self-perpetuating.

⁷⁰(Mola 2000)

⁷¹(Schumpeter 1942).

⁷²(Van der Wee 1993)

⁷³Increased productivity means two things—the ability to produce existing goods and services more cheaply (with fewer resources) and the ability to produce new and more valuable goods and services (greater value from given resources).

A parallel self-perpetuating process takes place within commerce. Market expansion increases the volume of exchange that commerce mediates. The expansion in the market for its services induces productivity-enhancing changes in the organization of commerce and in the technology it employs. Rising productivity in commerce lowers trading costs, and this makes further expansion of the market profitable and so this results in additional growth in the volume of exchange.⁷⁴

These two processes interact, within cities, to create opportunities for new kinds of production and commerce. The new work that is created in this way creates opportunities for yet more new work—the self-perpetuating process described by Jane Jacobs. The new work also creates new opportunities for market expansion, reinforcing the first two processes.

These three processes create a demand for technology, and this motivates the invention of new technology. The invention of new technology—together with the diffusion of technology brought about by market expansion—increases the pool of technologies available. Since new technology is always a combination of existing technologies, this makes possible yet more invention. This fourth self-perpetuating process feeds back to reinforce the other three. This is yet another multiplier effect—a technology multiplier.

Technological progress is not, therefore, something that happens outside the economy and that causes an otherwise stagnant economy to progress. On the contrary, it is very much a part of the overall process—a consequence of economic progress no less than a cause.

These four self-perpetuating processes have a number of things in common. Each involves exploiting existing potential, which in turn generates further potential. Each process is driven both by the carrot of opportunity and by the stick of competition. In each, the response to these incentives requires entrepreneurship. All of the processes take place in or near cities. Each is reinforced by the others and reinforces them in turn.⁷⁵

⁷⁴Trading costs are, therefore—like market expansion in general—partly endogenous. Consequently, the conventional theory, seeking exogenous causes of economic progress, tends to dismiss trading costs as a factor—as it does market expansion more generally. See, for example, (Clark 2007).

⁷⁵There is positive feedback both within and among processes.

Economic progress does not, therefore, require causes outside itself: it is self-perpetuating.⁷⁶ In fact, economic progress is a complex, mutually reinforcing, combination of self-perpetuating processes.⁷⁷

Commerce plays a central role throughout. In the core process, it is responsible for expansion of the market, and it is an integral part of the more complex and productive organization of production that results. It plays a major entrepreneurial role in expanding the market, in the reorganization of production, and in the adoption and diffusion of technology. Commerce is responsible too for the existence of commercial cities, where the process largely unfolds.⁷⁸ Commerce plays a similarly central role in the other three processes—in the trading cost multiplier process that takes place within commerce itself, in the Jane Jacobs process of creation of new work, and in the self-perpetuating process of invention.

⁷⁶Although external factors can be a help. We saw, in particular, that the spending of the newly wealthy Frankish nobility gave recovery from the post-Roman decline an external boost.

⁷⁷Including, perhaps, additional processes yet to be identified!

⁷⁸We will see in later chapters that not all cities are commercial cities, having their origins in commerce. Predation and government also give rise to cities.

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