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6 Money and capital in the human ecology

Rethinking mercantilism and eighteenth-century France

Guillaume Daudin

Introduction

Mercantilism

In the language of human ecology as per Chapter 1, academic fields, as well as schools of thought within a field, are "belief systems," i.e. "ways of organizing alleged truths and convictions." Within economics, two of the most significant belief systems, historically, have been "mercantilism" and "neoclassical" framework. The "neoclassical" framework is now dominant in the economic profession, but the recent failure of the Doha round of trade talks shows that governments and economic leaders may actually believe in the "mercantilist" framework. Both are placeholders for heterogeneous school of thoughts that share some common ideas.

Following Adam Smith, early quantitative historians (called cliometricians after Clio, the Muse of history, and their taste for quantitative methods) challenged in the 1960s and 1970s the idea that empires and worldwide trade were important ingredients of European economic prosperity. They argued that trade with the empires and the rest of the world had profits too small to be of any significance for early modern European economies. They argued also that revenue from external settlements was less than would have been gained if the same capital stock (including administrative and military costs) had been invested in mainland Europe; and even that restrictions on trade and the exclusion of foreigners from colonial trade caused an increase in colonial goods prices which made the colonies a net liability for the domestic economies.

To these arguments it was replied that, considering the organization of the international economy, the real alternative to restrictive trade practices was not free trade, but predatory behavior from the foreign partners: there is no reason to think that prices would have been lower. Furthermore, seemingly non-profitable investments in the colonies were justified by diminishing returns, or the lack of investment opportunities, in the domestic economies. Some quarrels about numbers also took place, showing that, compared with the rather small amount of industrial and colonial investment during the eighteenth century, returns from the empires were not that small. Keynesians affirmed that the empires increased

the effective demand in the economy. And, finally, the most ironic arguments in favor of the colonial systems evolve around the fact that slavery and empires allowed different regions of the globe to be open to trade: this, according to basic trade economics, could only lead to a general increase in welfare. It also implies that the suppression of slave trade was a net loss for Africa, as its abolition actually reduced international movement of production factors (Engerman, 1972; O'Brien, 1982; Thomas, 1968; Coelho, 1973; Solow, 1985; Caves, 1971; Findlay, 1990; Darity, 1982).

Did mercantilism have a fair trial?

None of these discussions, even those arguing for the importance of European empires, uses a mercantilist belief system. Thus, their general conclusion is either that Europeans at least were not doing it the right way – it was a good idea to open transoceanic markets, but free trade would have done the trick better – nor for the right reasons. Yet, there is something wrong in this whole debate. It is that it uses classic and neo-classic models that may be valid for modern economies – and were devised to be such – but miss many important features of the *ancien régime* economy.

Crucially, the study of mercantilist external policies should not be separated from the study of the way domestic economies worked. Hence, this chapter justifies and defends a mercantilist view of the relations between world trade and domestic prosperity. It does not try, though, to defend every mercantilist theory and practice. First, because they were often in contradiction with each other, and second, because many were economically unsound. More specifically, this chapter is not directly interested in trade tariffs (a simple price adjustment to the neoclassical economist), but rather in Navigation Acts-type trade policies, which gave domestic traders uncompetitive advantage over foreigners (a complicated intraspecies negotiation and individualized transaction to the human ecology economist). The aim is to devise a model that attains its aims through mechanisms that would have been recognized by mercantilists.

Belief systems have effects on social agreements and the way human populations deal with their physical environment to increase their wealth and welfare. As such, it is preposterous to analyze economic phenomena exclusively with the tools of one belief system when another belief system is dominant among the society being analyzed. This chapter provides an example of this in the case of one of the major disputes within economics: to what degree has free trade, as advocated by neoclassical thinking, been more desirable for the nation-state, as opposed to the aggressive export promotion, trade, and financial protectionism advocated by mercantilism? The answer depends on the belief system that is dominant. The specific example investigated here concerns the *ancien régime* of France before the industrial revolution. This chapter asks: "What are the mechanisms (i.e. elements of the human ecology) that would have been recognized by the mercantilists and were sustained in part by the mercantilist belief system, but which would not be recognized by neoclassical economists?"

Part of the answer is that eighteenth century early modern mercantilists were very much aware of the difficulties inherent in economic exchange – a sub-variety of intraspecies negotiations and transactions. This corresponds to an important aspect of the human ecology approach which recognizes, as any natural science ecology approach, that intraspecies negotiations and transactions are exploratory, adaptive, often individualized, and the outcomes are not known to all members of the species. This belief system has different consequences to the belief system of neoclassical economics in which transaction costs (a catch-all category for a variety of intraspecies activities) are assumed to be either trivial or not worth exploring except as a general constraint on the otherwise superior "efficiency" of markets.

For example, if full information, to all, on intraspecies transactions is not available, as per the human ecology approach, the evolution of prices is not as straightforward, because prices cannot be changed by spontaneous unanimous social agreement. Thus, as I find in this chapter, money is not simply a veil on the real economies, but could actually have played a major role in the eighteenth century in determining the comparative and absolute prosperity of nations. Money, as an invisible element of the human ecology, or "social agreement," as well as related notions of "capital," within a complicated process of intraspecies negotiation and transaction, are shown to be system drivers; this recognition allows support for mercantilism over neoclassical economics in the specific context of the eighteenth century.

The links between this chapter and Roy Allen's Chapter 5 are obvious. It is probably the case that, despite the apparent dominance of the neoclassical belief system, money nowadays has the same importance in the global economy and can be an important determinant in the relative wealth and prosperity of nations. Three conclusions arrived at for the *ancien régime* are consistent with Allen's conclusions in Chapter 5 regarding current U.S. hegemony: (a) the ability of *the human population* working with *the physical environment and resources* to produce wealth can be significantly affected by *social agreements* regarding the use of money and by financial *institutions*; (b) the *ancien régime* of the eighteenth century – and the U.S. in recent decades according to Chapter 4 – benefited from the inflow of foreign monetary wealth, which was used to expand domestic money, credit, economic growth, and wealth. This process allowed economic activity to be better coordinated and more efficient on a large scale, and it encouraged more intensive production and consumption activities, especially with regard to labor force participation; (c) compared to typical literature, the human ecology approach to economics might allow for better modeling of both the successful *ancien régime* and recent U.S. prosperity. Typical literature has been puzzled by these two epochs, because it looks for the source of new economic growth narrowly – in technology, physical resources, and inherent labor productivity – while assuming incorrectly that the impact of money, changing institutions, and international political power is fairly neutral. The root of this error is in the fact that it does not properly take into account belief systems and social agreements, in opposition to what is advocated by the human ecology approach.

England, like France, supported its economic growth before the industrial revolution period with massive amounts of imports and appropriation of wealth from its empire. The "Malthusian Trap" of overpopulation and poverty was avoided, and human populations grew fast, as aided by new political-economic institutions and organizations, and by belief systems regarding work and exploitation of the physical environment and resources. Enhanced money transactions systems brought under-utilized rural labor into the formal economy in Britain as well as France. Thus, invisible, subjectively allocated money – itself a social agreement – was a "driver" of human populations. And, exploitation of coal, and thus railroads, steam engines, and other changes in the physical environment and resources all co-evolved with these other structural conditions in the human ecology.

Outline

The first step is to devise an appropriate "human ecology model" of the domestic economy: this chapter argues that domestic prosperity depended crucially on the supply of circulating financial capital, because the main limit to economic activity was not *production* but *transaction*. The nature and role of transaction, so basic to inter-species negotiation, coordination, and behavior in ecological models, is often ignored in neoclassical models; the latter may even assume the absence of transactions costs.

The second step is to show that, considering the state of financial markets, this supply of capital ultimately depended on the sign of the balance of "invisibles," as the net export flow of goods and services was compensated mainly by inflows of precious metals that formed the monetary base. Using endogenous growth theories, it is possible to show that the external sector could allow a way out of diminishing returns into unbounded domestic economic growth. Unlike neoclassical models, the human ecology framework thus gives "invisible" money and capital transfers an important role as ecological "drivers" of transactions, coordination, and productive activity. As per the framework of Chapter 1, the invisible can thus drive the visible conditions in a useful predictive sense.

The chapter discusses all these points in the context of France in the eighteenth century. This context is crucial in a human ecology approach, as the structural conditions of the economy are often unique to specific places and times. It adds a new set of evidence to the point developed by other chapters in this volume: money is not simply a veil on the real economies, but actually plays a major role, in the eighteenth century as well as nowadays, in determining the comparative and absolute prosperity of nations.

On the importance of the invisible for the development of the visible French economy

Despite the usual clichés about pre-modern economies, the visible French economy was growing during the eighteenth century. This depended crucially

on the payment of transaction costs by traders that allowed other economic actors to integrate further into the domestic economy. "Thick/thin-markets" models were developed in the 1980s to explain the persistence of long-run under-utilization of production factors. Economic growth in France during the eighteenth century can be viewed as a thickening of markets.

Population and resources

Economic growth

Economic growth in France during the eighteenth century was probably as fast as it was in England (for the first presentation of this see Crouzet, 1966). According to *Institut de Science Economique Appliquée* (ISEA) research, based on contemporaneous estimations, annual growth of the nominal gross physical product (GPP) between 1701–1710 and 1791–1794 was 1.2 percent, from 1,470 million livres to 4,059 million livres (Marczewski, 1961 – this work owes a lot to Molinier, 1957). These macro results are compatible with what we know of the product at the beginning of the nineteenth century (compare Bourguignon and Levy-Leboyer, 1985). Their weakness lies in the quality of the data for the beginning of the period. As the population grew 0.24 percent a year (Dupâquier and Lepetit, 1988), this yields a per capita nominal growth of nearly 1 percent a year.

Starting from sectoral evidence would yield the same result. Agricultural growth was faster than population growth, but not by very much (Toutain, 1995). The rise in the production of wool products – the least dynamic of large French industries – was 1.15 percent (Markovitch, 1976). The growth of linen production can be estimated between 1.5 percent and 2 percent a year, while that of silk was 2 percent (Léon, 1970a). Future "modern" industries were of course growing much faster, but they did not form an important part of the product and are less

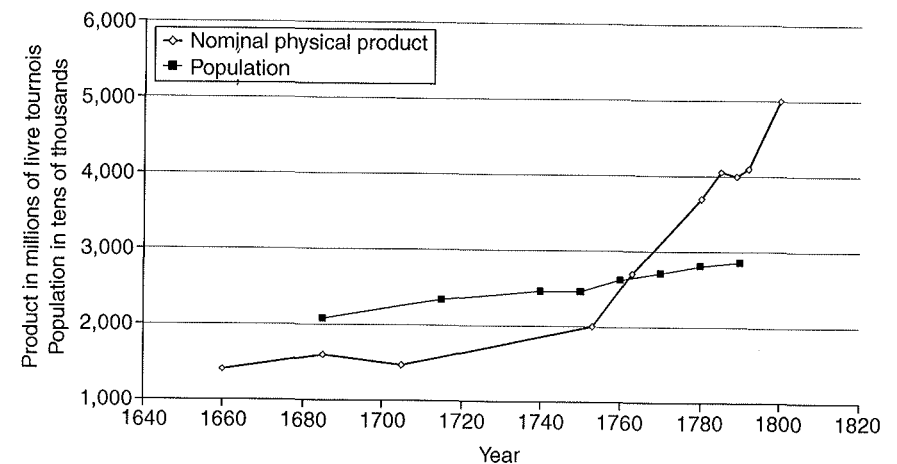


Figure 6.1 French nominal physical product and population.

interesting. Apart from textiles, the other two large industries were farm products (including wine) and construction: no rate of growth of their production can be estimated. Yet, there is enough data to affirm that our global evaluation of GPP growth is plausible.

There is no reliable price index that could be used to deflate this number. However, Labrousse's estimation of the evolution of agricultural prices from 1701–1710 to 1771–1789 can be used, and yields a per capita growth of 0.6 percent. The general evolution of prices is over-evaluated by the evolution of agricultural prices. Yet this is probably compensated for by the abnormally high prices caused by the War of Spanish Succession and the 1709 winter.

The existence of labor reserves

Technical progress only took off with the industrial revolution which happened at the beginning of the nineteenth century in France. In the absence of any exogenous productivity revolution, this growth was possible because more production factors were integrated into the domestic economy. There are three main visible production factors: land, capital, and labor. The stock of land did not change. In so far as fixed capital played a small part in industrial production (compare Grenier, 1996, pp. 84–91; Chapman, 1973; Hudson, 1986, pp. 48–52; Cailly, 1993, pp. 203 *passim*; Caspard, 1979, p. 117; Dornic, 1955, pp. 206–208; Vardi, 1993, p. 131), any increase in the stock of capital was probably too small to explain the speed of growth. A large part of this speed must have come from a more extensive use of human labor.

This was only possible because, in direct opposition to what is usually said about "Malthusian" pre-modern economies, a large part of the labor of the French populations was under-utilized. Demographics tell us that the potential size of the active population was 66 percent of the total population. Grantham has plausibly argued that only between 26 percent and 47 percent of it were needed to produce grain – including part-time workers required during harvest (Grantham, 1994). The proportion of agricultural workers in the actual active population at the end of the eighteenth century was 65 percent of an actual active population estimated at 43.5 percent of the total population (Marchand and Thélot, 1991). This can be interpreted in two ways. If the active population is well measured, 23 percent of the total population could have taken part in the work force and did not. If the active population has been underestimated but if its distribution among sectors is right, between 18 percent and 39 percent of the active population were part of the agricultural population and were not needed – even part-time – to produce grains. Many of them were probably occupied with the production of market agricultural goods, but it seems implausible that it was the case even for most of them.

Of course, considering the measurement difficulties, these numbers should be interpreted with caution. They show however – contrary to common wisdom about "blocked" early modern economies – that the basic subsistence activities required only a small part of the labor force. Hence, there were large reserves of

labor in the countryside. Accordingly, an important potential source of growth was the extension of rural market activities, both industrial and agricultural.

Cost of market participation and growth

A Smithian growth potential

Something had to make worthwhile the integration of under-utilized rural labor in the economy. The claim of this chapter is that it was the development of exchanges between different existing economic cells. This increased the number of potential patrons for rural industries. The markets, to use Alfred Marshall's words (Hall, 1991), gained in thickness. This allowed social returns to scale in the number of participants needed to increase labor effective productivity (for a review of different thick/thin markets-type of models, and a reflection on their utility for the study of pre-industrial growth, see Grantham (1997)). Because of this movement from thin markets to thick markets, this growth phenomenon can be seen as "Smithian," as Adam Smith insisted on the importance of market integration for economic development. This chapter suggests one mechanism for such growth.

A non-integrated market can be compared to an archipelago economy. Social relations at the level of the canton (a 5–10 kilometer radius circle dominated by a market center) were probably strong enough to make the economy look like a perfectly competitive market. Hence, we consider them as the basic cell of economic life, as our "islands": their number was nearly 5,000 in eighteenth century France. Peasant households on these islands have the choice between producing autarkic goods which they can directly consume, or participating in the market domestic economy by producing specialized commercial goods, selling them and buying with the proceeds a basket of commercial goods coming from other economic cells.

Let us first consider a case where trading has no cost. Following the same kind of intuition as the "Big Push" models (Rosenstein-Rodan, 1943; Murphy *et al.*, 1989), one can imagine two different kinds equilibria. When no canton produces market goods, a single canton which would like to start producing market goods would not do it, as it is not interested in the consumption of a single, highly specialized, market good. Hence, no canton participates in the domestic market economy. However, if all cantons participate and produce market goods, the offer of market goods for consumption is enticing enough that each canton has an interest in continuing its production of specific market goods to be able to buy a basket of market goods. There is an optimal level of production of market goods that can be reached if all the cantons can be convinced to produce enough. This level is probably larger than is achievable by spontaneous market mechanisms. As each canton has monopoly power on its specialized market good production, it wants to reduce its own production to increase the price of its variety and increase the amount of its consumption. As everyone is playing this game, the actual production level is smaller than the optimum.

Moving from the "no market good production" situation to the "some market good production" situation is a form of one-time growth, as the economy moves between two equilibria. However, this transition is instantaneous and depends on a change in expectations. This could fit in the human ecology approach: the movement from one equilibrium to the other could be caused by a change in belief systems, as everyone simultaneously decides that market participation is a good thing, and in so doing makes it sustainable. Yet, it does not describe French growth experience: one needs an explanation of the fact that growth was gradual. The suggestion of this chapter is that the costs of participating in the domestic economy were declining through time, thanks to financial capital accumulation by traders. But to understand that explanation, one needs to recognize the role of traders in the domestic economy.

The role of traders in the domestic economy

Representing the domestic market economy as the result of transactions between isolated economic cells neglects the fact that the French market economy was organized around the traders. Except on the canton level, there were always middle-men between the producer and the consumer. Most areas were dealing with a huge part of the national market. Data about goods movement in France at the end of the period show that even the most backward rural areas were drawing goods from many different and distant places (Le Roux, 1996, pp. 135, 144).

There are no comprehensive data or studies on the intensity of domestic trade. Nevertheless, the circulation of goods was probably growing faster than the nominal growth of industry: as each individual industry grew, it had to find consumers further and further away. The circulation of information, on which we have more data, was certainly growing fast: the nominal revenue of the *Poste*, for example, grew 3.4 percent a year – with declining prices – between 1738 and 1791. The revenue of fairs and tolls was also growing faster than global product (Léon, 1970b).

Someone had to deal with these goods movements. Accordingly, most districts had dynamic traders dealing potentially with the whole national market. A perfect example of this has been extensively studied in England (Willian, 1970). In France, the Colombo House in Nice can be said to be representative of these activities. It was quite a small firm of retailers that was drawing supply from as far away as Normandy, using credit and commercial paper extensively. During the French Revolution, its traders showed they were dynamic entrepreneurs by regularly adapting their commercial networks to changing circumstances and trying to mount new speculations (Carlin, 1965). Traders were also responsible for the organization of the production in numerous cases – as the abundant literature on proto-industrialization has shown (for French examples: compare Engrand, 1979, pp. 68–70; Guignet, 1979, p. 29; Vardi, 1993, p. 194). Hence, traders were effectively allowing inter-canton transactions.

That this operation was vital to the way the *ancien régime* economies worked can be shown by the social agreements embedded in the domestic industrial

policies, notably the regulation system. It set down, in a very precise way, how each good should be produced. From the production point of view, the whole system seems to be inefficient. However, information was very valuable in the *ancien régime* economy, and particularly difficult to obtain. In an era when traders would trade whatever would come their way, identifying the quality of each product was impossible. The customers were even more liable to be cheated on what they were buying. No private trademark existed and thus no one could commit himself to the quality of a product – even if through privilege, a form of personal identification could be put on cloth (for an example, see Gayot, 1979, pp. 136–137). Products could become anonymous very quickly, because of multiple middle-men (this was all the more complex as quality did not only refer to the value usage of each good, but also to its integration in an a priori social hierarchy: Grenier, 1996, pp. 63–70; Reddy, 1984). Hence, transaction costs were very high: you had either to trust your partner or to implement a complete inspection of the good each time. Regulations were a good way of partially solving the problem. First, they established a control. Also, because the whole reputation of a town or production centre was at stake in a case of fraud, some auto-monitoring took place. The real obligation was not for a trader to give fair information on the product – even if he should, no large or effective administration was going to control him. The main burden rested on the producer, who could only produce certain qualities and could neither introduce product or production innovations. Quality control helps trade and impedes production.

As such, it is a social control that reveals something important about the interplay of the structural conditions in eighteenth-century France human economic ecology. The idea that trade was more crucial than production was an important part of its belief system (this is confirmed by Bossenga, 1988). Studying the examples of Lille, Lyon, Paris, and Orléans, he shows the way "by which merchants manipulated the corporate regulations in order to secure a monopoly over the sale of reputable goods produced by both urban artisans and rural weavers" (Bossenga, 1988, pp. 694–695).

The role of monetary capital in allowing transactions

The activity of traders can be divided into three parts. First, they were insuring the actual movement of goods along space and time (the cost of keeping inventories), along with their packaging and their bundling. They had to take precautions in order to insure that each member of the trading network behaved well. They had also to adapt to a lack of information – even in the absence of misbehavior – and changing states of the market.

Some of the forms of capital needed by traders for their activity are familiar. On one hand, the exchange activities – especially their transformation side – require what we are used to calling capital in production economies: carts, buildings, etc. (fixed capital). This capital is of the same nature as in most economic models; it needs to be produced the usual way, through work and other capital. This is also the case of circulating capital: the wool that is to be threaded, the threads that are to be woven, etc.

They needed also what is usually called “merchant capital”: circulating financial capital to buy intermediary consumption, used to package and present goods, and the circulating capital embedded in each good as they kept inventories between its purchase and its sale.

They were tackling the problems of misbehavior with work entailed by the inspections and the capital needed to access the legal system that was supposed to enforce propriety rights. However, they could save dramatically on these operations if they had developed enough social and legal links with their partners. This stock could be inherited by offspring of a trading family; be produced out of social capital, by sending members of their family abroad; be produced in its own right out of their work – during travels or apprenticeship; be produced out of financial capital, by buying lands and offices which were tools of integration in a stable community and hence commitment to good behavior. This stock was also very fragile, and it was commonplace to affirm that nothing was at the same time more precious nor more fragile than a reputation – the other term for a large stock of social capital (compare, among numerous examples: how the Pellet brothers started their carrier by sending one of them to the West Indies (Cavignac, 1967); the frequent travels of Pourtalès – knowledge capital was also accumulated in this case (Bergeron, 1970); and the catastrophic effect for Lacoube’s trade and credit of the misbehavior of his nephews (Cornette, 1986). However, there is no machinery that can be used to build up reputation capital. One way to do it is to expend part of one’s wealth to show the commitment – this wealth only has to be symbolic. This is similar to a “bond” approach to social capital and reputation.

Tackling the problems of market uncertainties and changeability required traders to spend time in getting information from all their correspondents and interpreting it. Yet, they could also save on this by using their own knowledge of the market. We can represent this by a stock of market cultural capital: a mix of tricks, best practice, and knowledge. Most of this knowledge could only be transmitted with difficulty. Experience of a particular type of network or market could only be the fruit of day-to-day operations once traders had created the first link. To create this link they had to stake a lot of money, suffer many rebuffs and learn from them (the cost of this was less important if it was done during apprenticeship – see for example Thomson, 1982, p. 302). Hence, traders were sacrificing the money they could get from operations that they were acquainted with in order to get a larger stock of knowledge capital.

Hence, even though the development of transactions required specific production factors, they were highly personal and bound to depreciate very quickly. However, both social and knowledge capital could be increased through a costly transformation of monetary capital. This capital was not the ideal transaction factor, but it was the easiest to exchange and socially accumulate. Hence, in the absence of institutional transformations, what was crucial for the long-run development of transactions was the accumulation of circulating monetary capital.

This was the case in France. Arnould estimated that the circulating stock of metallic money grew 0.8 percent a year between 1715 and 1788 (Arnould,

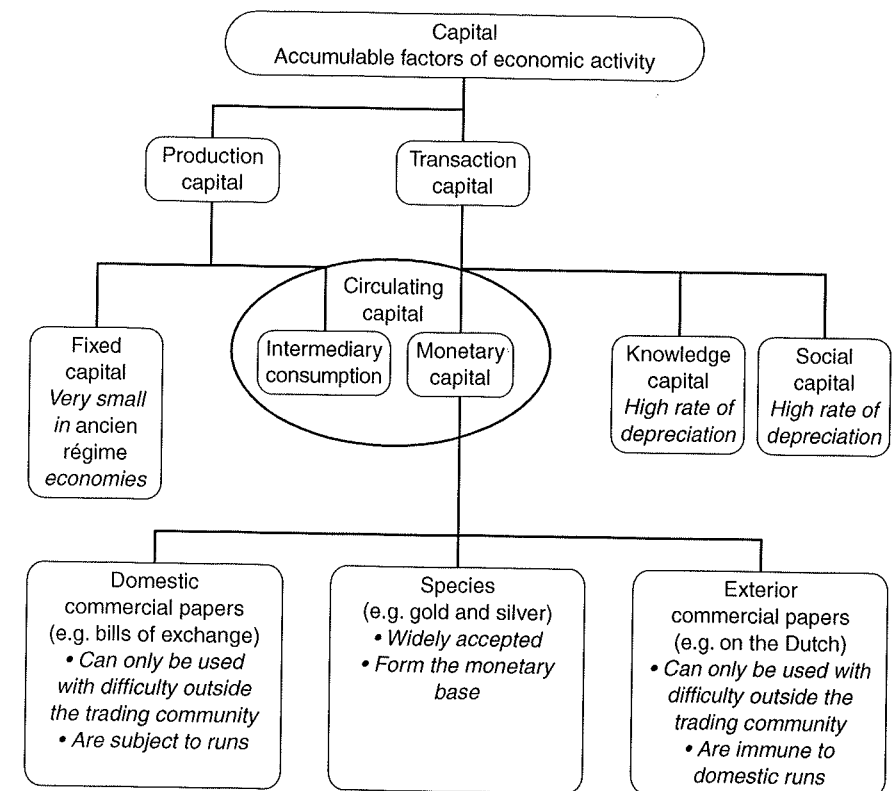


Figure 6.2 Different types of capital.

1791, p. 153). This number is compatible with the growth rate of 0.785 percent a year between 1700 and 1788 computed by modern researchers (Riley and McCusker, 1983, p. 280). The total stock was approximately two billion livres at the end of the period – half the value of the physical product. This specie stock was not the whole money stock, which was also composed of commercial papers like the bills of exchange. Yet according to the sketchy evidence we have, an increase of the real money stock and hence of the circulating monetary capital stock seems a very plausible description of the eighteenth-century situation.

Traders accumulated capital and increased the amount of means of transaction they controlled. The best way to employ this capital in order to increase their profits was to increase the integration of rural producers into the domestic market economy. This is an explanation for French economic growth in the eighteenth century that is compatible with the belief systems and social agreements that can be observed (this model is formalized in Daudin (2002) and Daudin (2005)). France was not at the forefront of the development of the market economy. This explains why there was still benefits to be reaped from the development of national markets, even if, as discussed in Chapter 2 by George Modélski, this is

seen as a very early innovation associated with Sung China. Certainly, the Low Countries, for example, already benefited from a nearly full commitment of their producers in the domestic market economy by the eighteenth century. That was not yet the case in France. However, France did participate in Amerasian trade, associated with the K-wave of the late seventeenth to early eighteenth century. The next section shows how the external sector encouraged increased integration of the domestic market.

On the role of external trade in accumulating circulating financial capital

This section discusses chryshedonism – the attachment to the increase of the stock of precious metals in the economy – and the important role of predatory external trade in allowing more economic growth. Both of these were important tenets of the mercantilist belief system.

The real effects of species

The non-neutrality of the real stock of money

Promissory bills, exchange bills, commercial credit: the preceding section has proffered the idea that money *largo sensu* was the capital that mattered for growth in eighteenth-century France. To think of money as capital is not common in economics. It cannot be avoided though, if one accepts the fact that making transactions is a proper economic activity that should be studied for itself. This can even be extracted from such a money-veil theorist as J.S. Mill:

There cannot, in short, be intrinsically a more insignificant thing, in the economy of society, than money; except in the character of a contrivance for sparing time and labour. It is a machine for doing quickly and commodiously, what would be done, though less quickly and commodiously, without it. ... The introduction of money does not interfere with the operation of any of the Laws of Value laid down in the preceding chapters. ... Things which by barter would exchange for one another, will, if sold for money, sell for an equal amount of it, and so will exchange for one another still.

(Mill, 1909, book III, chpt. VII, §3, p. 488)

The last part of this quote is quite typical; here, the first part is more interesting. The use of the term machine is telling. What Mill is saying about money could be said as well of any machinery or other fixed capital. What is a tool, a device, a machine, if not “a machine for doing quickly and commodiously, what would be done, though less quickly and commodiously, without it”? Capital is a device that helps to save on other production factors. If money helps to save on production factors, can it be considered as capital, in the mercantilist way? (compare Locke in Heckscher, 1935, t. II pp. 203–204). Obviously, in a pure

production world, where transactions do not require the use of resources, as money could not help production, money could not be capital. However, that is not the case in actual economies. Transactions are important: and somehow the society must pay their cost. If money can help, it is right to consider it as capital.

Is it possible to increase a real stock of money? Augmenting a stock of capital is conceptually an easy task, as one has just to add more machines and tools. Increasing the stock of money is trickier. Money is only important as a symbol of real wealth: real money. However, the nominal stock of money is not neutral on prices, and an increase in the nominal stock of money will not lead to an increase in the real stock of money if prices adjust. This can be studied in a variant of Hume’s famous thought experiment. If the nominal money stock is divided by two overnight, and if everyone knows it, prices should decrease as well and the real money stock should stay the same. According to what everyone thinks money is, if everyone knows about this division of the nominal stock, everyone would expect to see the price of money multiplied by two, whatever the situation. As a consequence, prices would be divided by two. Yet this implies rational expectations, knowledge of the neoclassical models of money, and more important, perfect information on the evolution of private stocks of money of everybody.

The contrast between neoclassical models and the human ecology approach to economics is obvious here: in the human ecology approach, as per any ecological approach, intraspecies negotiations and transactions are exploratory, adaptive, often individualized, and the outcomes are not known to all members of the species. If full information, to all, on intraspecies transactions is not available, as per the human ecology approach, the evolution of prices is not as straightforward, because prices cannot be changed by spontaneous unanimous social agreement. There are two main effects that may change the output in the long term. The first effect of the discrete shock – cutting the money supply in half – is to disorganize exchanges, as agents have to renegotiate new contracts to take the modification into account. The demand and supply curves for each good are modified. Sellers face buyers who ask for lower prices. This can only engage distrust: are they giving their practice to someone else? Why do they want the prices to decrease? Sellers are themselves more eager to get money to compensate their mysterious loss. The terms of transactions have to be changed, and new relationships must be implemented. Relation-specific human and social capital become obsolete as relations are changed and the very process of renegotiation requires the use of new transaction goods to get back to the status quo ante. Hence, even if this is possible, the stock of transaction goods is reduced in the economy: the costs in nominal price changes are in themselves important (the whole point of new Keynesian literature is to show that small menu costs may have large effects on the aggregate. The point here is that the cost of changing nominal price is not small – because it entails transaction costs and the destruction of social and human capital. For a textbook presentation of new Keynesian views on this, see Romer (1996, pp. 276–302). For a collection of articles see Mankiw and Romer (1991, vol. 1, pp. 29–211).

The second effect takes place if prices do not adjust fully to the modification of the stock of money. How prices react depends on the way bargaining takes place among the population. If a Walrasian (*tâtonnement*, or an efficient broker) process takes place, no transaction is implemented before the prices take into account the information of the decrease of the nominal stock of money: prices should adjust fully – they are divided by two and the stock of real monetary wealth in the economy does not change. However, this is probably not the case. If for any reason prices adjust only slowly, for example with a one-period lag, or partly because of the menu costs studied before, the stock of real monetary wealth in the economy is reduced. In consequence, the means to create social and human capital in subsequent periods are divided by the evolution of the real stock of money. Furthermore, symbolic relations which allow the building of trust may be subject to nominal illusion and may not adapt at all. As in many monetarist and new classical models, an unexpected modification of the money supply has an effect on output. Contrary to them, though, this short-term nominal shock has a long-term effect because the modification of prices directly changes the assets stock of the economy (an example of these models is the Lucas–Phelps one of limited information, in which agents do not know if evolution in prices are due to changes in relative or absolute prices (Lucas, 1972; Phelps, 1970). For a presentation and a discussion see Romer (1996, pp. 242–251). This model is interesting in our case because its imperfect information hypothesis looks like ours. For a study of new classical economics see Hoover (1988).

Hence, the Humian result has very few reasons to be expected. P is not the only variable reacting to the decrease of M in $M \times V = P \times Q$ (Cambridge equation or quantity equation as discussed in Chapter 5). Q is decreasing too, as may be V . The level of transaction actually decreases in the long term following a large discrete nominal shock. Even though the value of money is symbolic, the way its pricing is organized and the importance of transaction costs makes it possible for a discrete nominal shock to have a long term real effect.

Furthermore, no actual modification in the stock of money looks like Hume's situation. People are affected in different manners by the evolution of the money stock in the economy. Increasing the money stock in the hands of traders who put it into circulation certainly has not the same effect as increasing the peasants' hoarding stock.

The role of specie in the ancien régime monetary system

Chapter 5 defends the idea that the control of the monetary base by the United States, in the form of the U.S. dollar, gave the United States decisive advantages in the twentieth century. In the same way, the control of the monetary base was a decisive question for the increase in the stock of money in France, and hence for the growing integration of producers into the national market economy. Because of different belief systems and social agreements, the monetary base was obviously not the stock of some national currency in the eighteenth century – it was the stock of precious metals.

Money is in essence a problem of convention. That is why in all monetary systems a continuous process of money creation is always possible. In eighteenth-century France, there was no real banking system. Hence, most money creation was undergone by commercial agents. By issuing bills of exchange, which they would remit only some time after, perhaps with other commercial papers, or by extending commercial credit, agents were simply creating means of exchange – that is, money (an approach to these conceptual problems can be seen in Bernanke and Blinder (1988). For an empirical study see Carrière *et al.* (1976, pp. 49–71)). All the more as the flexibility of the use of commercial papers was very high in the eighteenth century (compare Roover, 1953; Carrière *et al.*, 1976). However, this system was completely decentralized, the result of which was the uncoordinated behavior of agents. If a trader had a good reputation, it would be easy for him to place his promissory bonds. On the contrary, if he was not trusted he would probably find it impossible to do any commercial operation except with the support of high-powered money, i.e. precious metals. At a macro-economic level, the amount of accepted money in the economy would be in close relation with the size of the monetary base, i.e. the amount of precious metal. This result is intuitive. Imagine an economy where commercial paper circulates without any means of personal insurance on its backing in precious metal. Creditors ask randomly to be repaid in precious metal. This has a domino effect on their debtors who, in order to face their obligation, demand the same of their own debtors. The smaller the stock of precious metal in the economy, the more difficult it will be to satisfy these commands. If this is not possible, exceptional shocks would result in failures and more generally in a brutal contraction of the money supply in the economy (this problem was important in the 1930s (Bernanke, 1995); mercantilists were aware of it (Heckscher, 1935 (1994), t. II pp. 221–224, 231–237)). Hence, the smaller the monetary base compared to the monetary mass, the less stable the whole system is.

Furthermore, each extremity of the trade chain – producers and consumers – were not integrated in the commercial financial system: the only form of money they accepted was specie. Hence, the real monetary supply was closely related to the stock of precious metal in the economy. Its increase was the aim of chryshedonist mercantilist policies.

A role for mercantilist policies toward trade

French mercantilist policies and their achievement

The aim of external mercantilist trade policies was not as much to “protect” domestic production as to maximize the current account surplus – and hence inward specie flow. They planned on doing that not only through a positive trade balance in goods, but also by encouraging the sale of trading services by French actors to the rest of the world.

This is clear in the following text by Colbert in which he analyzes Franco-Dutch trade at the beginning of the reign of Louis XIV. At the time, Dutch

traders controlled a large part of French maritime trade, external and domestic. His argument is that although French exports were 12 to 18 million livres a year, only between four and six million livres entered as specie each year since the Dutch were paying the French using the following goods and services:

Maritime freight between French ports:	3 million
Colonial goods coming from the French islands:	2 million
Fine clothes, Indian goods, spices, silk, etc.:	3 million
Goods coming from Northern Europe and naval stores	1.5 million

Their ingenuity and our weak-mindedness has been so high that, through the agents they were able to install in every ports of the kingdom, having become the masters of all trade and navigation, they were able to dictate the price of all the goods they sell or buy.

(Clément, 1861–1882, t. II, p. CCLXIX, quoted in Deyon, 1969, p. 100)

There is more than the usual balance of trade theory in this text. Colbert realizes that the main Dutch imports in France were not Dutch-produced goods, but shipping services or re-exports. What is more, the second paragraph stresses that the real problem is the trade position of the Dutch that allows them to make huge commercial profits. What Colbert was complaining about was not Franco-Dutch trade as such, but rather the numerous imports in freight and commercial services caused by the weakness of French traders.

The idea was that trade was to a certain extent a zero-sum game and that each country should help its own traders to get as much as possible from it. The usage of state resources taken from the whole economy in order to secure monopoly profit was but a way of giving back to traders some of the externalities to which the multiplication of exchanges stimulated by their private activity gave rise.

A century later, France had, in effect, taken control of many of these activities, notably by re-exporting colonial products to the whole of continental Europe – effectively controlling a large part of trade between continental Europe and the West Indies. On a smaller scale, the taking over of some parts of inter-Asian trade had the same effect and also yielded important revenues (Haudrère, 1989; Manning, 1996). The distribution of these gains had been decided by the incessant commercial wars and commercial diplomatic agitation of the eighteenth century, notably between France and England. By losing Canada and keeping its West Indies possessions after the worst part of this struggle in 1763, France kept the most profitable part of its Empire and removed a cause for solidarity between England and the Thirteen Colonies. Only during the Wars of the Revolution would England eventually win the Second Hundred Years' War (1689–1815).

French dynamism can be seen in the evolution of French external trade, which is quite well-known (on the production of French trade statistics, see Beaud, 1964). The main aggregate data (from Bruyard (former head of the Bureau de commerce), cited in Romano, 1957) gives a growth rate of 2.25 percent per annum between 1716–1720 and 1776–1780. The other important set of data is Arnould's – Arnould was second-in-command of the Bureau de

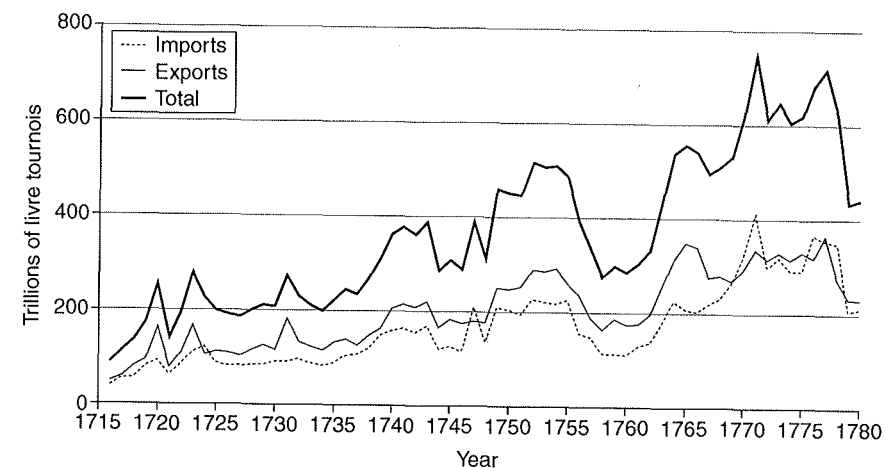


Figure 6.3 Evolution of French trade.

commerce. It implies a growth of 2.34 percent per annum between 1716–1720 and 1784–1788: the results are not so different, especially if we remember that 1778–1783 was a time of maritime war with England, and hence that Bruyard's figures for the end of the period are abnormally low (his numbers are higher than English ones – for a synthesis on these see Thomas and McCloskey, 1981). According to Arnould's figure, the openness of the French economy (the ratio between the mean of imports and exports and the GPP) at the end of the period was more than 14 percent. If we consider services were 17 percent of GDP (data from Bourguignon and Levy-Leboyer (1985) for 1820), this yields a usual measure of openness of a little less than 12 percent. The structure of this trade corresponds to what we have pointed out. From 1716 to 1787, the growth rate of exports in manufactured product to the rest of Europe was only 1.5 percent per annum, whereas the growth rate in re-exports of colonial products was 2.7 percent per annum. This last sector represented as much as 40 percent of French exports to Europe.

Effect of mercantilist policies

As mercantilists knew, external trade was the only means for a country to get a steady inward flow of precious metals and restrictive trade practices were the best way to make this flow as high as possible. There are two sides to this argument.

As domestic production of precious metals was negligible, the external world was their only possible source. During the eighteenth century, European production of precious metals was very small (even the famous Maria-Theresa Thalers were minted out of American silver rather than German (Dermigny, 1954)). It is commonplace to say that Europe was the relay between the production in the Western hemisphere and the hoarding of precious metals in Asia. The problem

for Europe was to keep them as long as possible (on why the pure Ricardian specie flow mechanism could not apply to relations between America, Europe, and Asia see Blitz, 1967), and the aim of each country was to get as large as possible a share of this scarce commodity.

For numerous reasons, it is very difficult to compute the current account balance. Even if the global export and import values are trustworthy, the difference between them is probably not. Furthermore, that would give us only information on the trade balance, not the balance of invisibles. I have tried to compute the balance of invisibles for a specific year (Daudin, 2006). Yet, beside the balance of invisibles, there were other leaks in the system – hoarding, political expenses abroad, etc. – that prevented the evolution of the stock of specie to be equal to the trade balance.

Another effect of external trade was to encourage capital accumulation by domestic traders. For that, external trade had to yield higher rates of return than domestic uses of capital. This can be checked.

It has been argued that capital was in fact in excess in the economy, and was often invested in productive ventures with difficulty – this is in apparent contradiction with the presentation we have made of circulating financial capital being the limiting factor in production. This paradox can be explained by the non-substitutability of a large number of forms of capital – most notably hoarding by all classes of society – with the actual circulating financial capital in the hands of traders. Capital was not a homogenous good. Its characteristic depended on who was using it, or rather on the specific and personal forms of social capital and knowledge it was completed by. Hence, any activity that could transmit it from the other classes of society to dynamic traders was growth enhancing.

Two different families of arguments can be used to show that profits were higher in external than internal trade. The first one is empirical, and based on micro-economic study of actual profits. It was made based on a large database of profit rates (Daudin, 2004). Profits in external trade were only around 6 percent – far from the very high numbers that were advertised in the literature. Yet, this was 40 percent higher – taking into account risk, duration, and liquidity – than what was available in the rest of the economy.

Another family of arguments – macroeconomic and theoretical – also exist. External trade was also the realm of politics, conflict and power. This implies that there was a lot of rent seeking for the profit of traders looked upon favorably by the state. Accordingly, many cliometricians would agree that the only reason the Empire was kept is that it yielded high premium profits to traders and planters (Coelho, 1973). Yet, as in a simple economic framework it is difficult to explain why rates of returns on capital should be constantly higher in one sector, most of them would at the same time defend the idea that the organization of colonial trade, notably slave trade, was competitive and should not have given higher returns than domestic trade (Thomas and Bean, 1974). These two sides of the argument are unmistakably contradictory. To use Smith's words, why would a government influenced by shopkeepers go into important sacrifices to preserve

a system that was not even profitable to shopkeepers? The second hypothesis can be more readily dropped than the first one.

Indeed, external speculation yielded much more scope for profits than domestic transactions. The quality of capital needed for a relationship between two continents, or even two different countries, was different from what was needed for domestic trade. Knowledge and social capital were often relationship-specific, and they were in even shorter supply in this case – hence the higher apparent rate of return on money capital. Even money capital was specific, as the usage of commercial papers was more difficult in these relationships. Capital immobilization and risks were much higher: considering the probable risk-aversion and preference for the liquidity of agents, it would be only fair that profit rates should be higher.

Moreover, the suggestion that external trade was competitive can certainly be contested. The small number of towns controlling colonial trade, their specialization, and the existence of strong social structures that facilitated co-ordination encouraged oligopoly. The important activity of the *Chambres de Commerce* and *Députés de Commerce*, institutions created at the beginning of the century to legalize and facilitate lobbying, are proof that the caste of *négociants* had a real sense of solidarity. The way local institutions worked is another one. The group also ensured its coherence by constant social interactions (see Carrière, 1973, pp. 211–236 for the example of Marseille).

What is more, if profits had not been higher in the external sector, how could we explain the higher rapid growth of external trade compared to the domestic economy and the constant attraction by port cities of trader migrants? This fact alone would indicate that premium profits were indeed being secured. A last point, of course, is that the “small country” hypothesis is at least partly valid here. Compared to the rest of the world, the activities of France (in Europe and the world), or even core Europe for that matter, were small. Hence, an increase in the activity of French traders could not have a large depressing impact on worldwide trade profits.

To sum up, it is plausible that external trade offered a potential for higher profits than any domestic use of capital – even if this potential may have been overstated by the old conventional wisdom. Hence, the encouragement of trading activity abroad by mercantilist policies had an effect on specie accumulation via a mechanism linked to “endogenous growth” theory. The “productive” specie supply was the one in the hands of traders. Their incentive to accumulate specie was linked both to their ascetic behavior (or small preference for the present) and to the returns yielded by circulating financial capital in the domestic economy. As these returns were decreasing, the capital stock accumulation was bound to be smaller than what would be needed to reap the maximum social profits from division of labor. However, according to the predictions of “heart of growth” models (Rebelo, 1991; Glachant, 1995; Lucas, 1988), if traders could have access to a sector with a lower boundary on the return of capital, and insubstantial needs in primary factors (i.e. factors which cannot be freely accumulated, like land and labor), they will tend to accumulate capital without limits as long as it can help

goods production. In so far as we are looking for a sector with no links to labor and land, the profits we are interested in are not so much those associated with a positive balance of trade *stricto sensu* as those associated with the positive balance of invisibles, including commercial and shipping profits. These activities, often overlooked, played an important role in the accumulation of capital in France during the eighteenth century, as they do nowadays in the accumulation of capital in offshore markets – which is a source of the “money mercantilist” profits currently accumulating in the U.S., as argued by Allen in Chapter 5.

Because of these two effects, it was socially optimal to allow traders to make supra-normal profits in the external sector in order to encourage capital accumulation. That was one of the effects of mercantilist policies.

Conclusion

We have shown that a main potential source of growth in *ancien régime* economies was Smithian. Transactions, traders, and money played a central role in allowing this growth to occur. In the absence of a proper banking system, the stock of money depended crucially on the stock of precious metals in the economy. Hence, chryshedonist mercantilist policies aiming at increasing the share of specie of each country through a positive balance of invisibles were growth enhancing.

As in the contemporaneous financial world system, core countries were able to attract specie for the benefit of their domestic economies. There was, actually, already an international finance system. However, it was mainly concerned with national debts and its movement only very rarely had any effect on the commercial financial system, and even less on the monetary base. Hence, this extraction of specie was only possible through trade and the export of both goods and services.

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Part IV

Global concerns, ways of being, and the future

Part IV, comprising Chapters 7, 8, and 9, extends the human ecology framework to "coming challenges to humankind." Most of these ecologically-interrelated challenges within the global system threaten the sustainability of what we know and value, and they include climate change, a rise in poverty and inequality, scarcity of energy, food, and other resources, decline in biological diversity, pandemics, use of weapons of mass destruction, loss of the support of communication and other infrastructures, social strife and violence, large scale economic instability and crisis, failure of global institutions, etc.

Parts I, II, and III have already shed some light on these problems. For example, Part I has discussed periodic "clashes of civilizations" that occur with the rise and fall of political and economic leaders over long cycles of innovation, creative destruction, and evolution within the world system. Part II has discussed causes of poverty, inequality, and other challenges of economic growth and development in the current age of globalization. Part III has discussed causes of large scale financial instabilities and other destabilizing wealth transfers. In most of these investigations, much debate and controversy remains among the experts. And, in most cases, the traditional belief systems and human institutions brought to bear upon the particular problem seem inadequate. Hopefully the human ecology economics framework has been helpful in identifying these inadequacies, and reframing these problems in more comprehensive ways so that better ways of responding to them can be found.

The climate change challenge, as discussed in Chapter 7, may be the ultimate example of an existing institutional framework and its supporting beliefs that have been inadequate, and where reframing institutions is necessary. The fundamental challenge is to transform our energy system and the social organization around it, which stems from an earlier era, and align a new system with the long term needs of humans and other species populating the earth. As discussed in Chapter 7, human ecology economics offers a peaceful and cost-effective way to help.

Yet, however insightful and comprehensive we become in our understanding of climate change and other global concerns, and however cleverly we design new technologies and institutions, it is increasingly clear that the "ways of being" of people may still need to change if what we know and value is to be sustained. Ways of being are defined here to include not only belief systems, but