

## PART I

### Foundations of an alternative theoretical perspective



# 1. The Other Canon: the history of Renaissance economics

**Erik S. Reinert and Arno M. Daastøl**

---

## 1. TYPOLOGIES OF ECONOMIC THEORY AND THE FOUNDATION OF THE TWO CANONS

It has been said that economics as a science – or pseudoscience – is unique because parallel competing canons may exist together over long periods of time. In other sciences, periodic gestalt-switches terminate old theoretical trajectories and initiate new ones. In a paradigm shift, the scientific world moves from a situation in which everyone knows that the world is flat to a new understanding that the world is round (Kuhn 1970). This occurs in a relatively short time. In economics, the theory that the world is flat has been coexisting for centuries with the theory that the world is round. In this essay we shall argue for the existence of an alternative to today's mainstream theory: the continuation of the canon that dominated the worldview of the Renaissance – The Other Canon. Using a metaphor from Kenneth Arrow, 'this tradition acts like an underground river, springing to the surface every few decades'.<sup>1</sup>

We argue that during the Cold War the 'underground river' of Renaissance Other Canon economics all but disappeared from economic theory, and that it is time to reintroduce it. Traditionally, The Other Canon has been resurrected in times of crisis, such as national emergencies, which bring production – not barter – into focus. This occurs, for example, when an exclusive focus on barter has caused financial bubbles that subsequently burst, when nations are engaged in serious catching up with the prevailing world leader (as the United States, Germany and Japan were in the nineteenth century, or as Korea was until recently), or when a war economy forces a national political system to focus on production (of materials of war). Today the urgency of a change of focus toward the Renaissance conception of economics is particularly acute in the Third World and in formerly communist Eastern Europe. Unfortunately, this is not where economic theory is produced.

The two different canons are based on fundamentally different world-views, which can be traced back to ancient Greece, where the term

'economics' was first used. Today's standard economics is based on a mechanistic, barter- and consumption-centred tradition – static in the tradition of Zeno – that explains human economic activity in terms of physics. Renaissance Other Canon economics is production-centred and dynamic in the tradition of Heraclitus, and tends to explain human economic activity in terms of biology rather than static physics (for a discussion of the traditions of Zeno and Heraclitus see Popper 1997, pp. 112–13). The mainstream tradition belongs to what Werner Sombart (1930) calls *ordnende Nationalökonomie*, which is concerned with organizing the economic sphere. The Renaissance tradition is what Sombart calls *verstehende Nationalökonomie* and what Nelson and Winter (1982) refer to as 'appreciative economics'. The first tradition is represented by Malthus's dismal science, the second by Christopher Freeman's *Economics of Hope*.

Present mainstream economic theory descends in a canonical sequence from the physiocrats via Adam Smith and David Ricardo to the neoclassical tradition beginning with William Stanley Jevons, Carl Menger and Alfred Marshall. The sequence has been made clear to generations of economists as the 'family tree of economics' featured in many editions of Paul Samuelson's *Economics*. The alternative canon in economic theory runs parallel in time with the tradition of Samuelson's 'family tree'. We have named this alternative canon The Other Canon, or alternatively 'Renaissance economics', because never before or since have the values that this canon represents dominated the world picture as they did during the Renaissance. The mainstream canon is a product of the Enlightenment, in opposition to Renaissance values and outlook. Rationality and individuality during the Renaissance were based on an image of man as a spiritual being: creative and productive. The Enlightenment had a more materialistic understanding of human rationality and individuality: mechanical and consuming. Today, the Renaissance canon disappears in the history of economic thought, as this branch of economics increasingly concentrates on the predecessors of neoclassical economics. We would claim that the absence of the history of economic policy as a branch of economics is responsible for pushing the alternative canon into virtual oblivion.

Renaissance economics is optimistic: the never-ending frontier of knowledge stands in sharp contrast with Malthus's dismal science and with the production theory of mainstream economics. Other main features of the Renaissance canon of economic theory are the following. The fundamental cause of economic welfare is human productive creativity and morality, the immaterial production factors. In order for these ideas to materialize, capital is needed. Capital *per se* is sterile. The Renaissance tradition can be contrasted with the mainstream using Schumpeter's description of the economics of John Rae, a nineteenth-century US economist of the Renaissance

canon: 'The essential thing is the conception of the economic process, which soars above the pedestrian view that it is the accumulation of capital per se that propels the capitalist engine'.<sup>2</sup> Squarely put, whereas the Renaissance canon focuses on culture as the main source of production and welfare, the mainstream canon focuses on nature. Mainstream economics defines its origins in the French school of physiocracy (that is, 'the rule of nature'),<sup>3</sup> where value is created by nature and harvested by man. In Renaissance economics, value originates through man's wit and will (that is, 'ideocracy'). During the mechanization of the worldview that took place during the materialistically oriented Enlightenment, the defenders of the Renaissance tradition were the antiphysiocrats.<sup>4</sup> The Renaissance tradition is holistic and idealistic, not atomistic and materialistic. At the core of the system is the individual, set in a complex web of interrelations. The beneficial effects of these interrelations first became evident in Renaissance towns, giving birth to the Renaissance expression the common weal, *il bene comune* or *das Gemeinwohl* depending on the language (Latini et al. 1993, Henderson 1994) – a synergetic understanding of society as being more than the sum of its parts.<sup>5</sup>

Towns permitted communication, which unleashed individual freedom, creativity and diversification, which in turn engendered unprecedented wealth. Later nation-building in this tradition tried consciously to reproduce these synergetic benefits of towns on a national scale. In order to achieve this, law and administrative science had to be cultivated and promoted. Renaissance economics emphasizes the crucial role of nation-states and the duties of the ruler – that is, government – not only to regulate in order to provide incentives for the creation of welfare (in the ancient tradition of law and economics), but also to initiate projects creating a demand for knowledge-based production.

The strategy of the Renaissance Other Canon tradition included two tightly interrelated parts: (1) the promotion of new knowledge, and (2) the promotion of infrastructure in its broadest sense, thereby permitting the communication of knowledge and the exchange of goods at lower transportation and/or transaction costs. These two types of investments, typically being public goods – private investors would not be able to collect the benefits of such investments – need public entrepreneurship produced by a visible hand.

An integral part of this nation-building strategy was a notion that a national market had to be created, that it did not appear spontaneously. For this reason, communication and state-initiated investments in large-scale infrastructure projects hold a very strong position in the Renaissance Other Canon tradition, from the dams and irrigation canals of the Sumerian kingdoms to Colbert's canals to Eisenhower's interstate highways. We

could say that the strategy of Renaissance economics was to create perfect competition within national borders and dynamic imperfect competition in the export trade. Contrary to the common preconceptions of economics before Adam Smith, 'Competition was often artificially fostered [nationally] . . . in order to organize markets with automatic regulation of supply and demand'.<sup>6</sup> It was commonly agreed that a national competitive advantage had to be created in knowledge-intensive activities before free trade with the most advanced nations could be established.

The two canons should be seen as 'ideal types' in the Weberian sense. Through time, several distinguishing features have clearly separated them. One of these is their different conceptions of the origin of wealth:

- In the mainstream canon, wealth originates from material sources: nature (land), physical labour and capital. The accumulation of these assets takes place through trade and war. This accumulation is static – more of the same.
- In The Other Canon, wealth originates from immaterial sources: human culture, creativity and morality. The accumulation of assets takes place through innovations cumulatively changing man's stock of knowledge and of his tools (technology). This accumulation is dynamic – something new and qualitatively different.

A second major distinguishing feature of the two canons is their analytical focus:

- In the mainstream canon, the focus of analysis is on barter, consumption and accumulation (man as trader and consumer).
- In The Other Canon, the focus of analysis is on production and innovation, productivity being the force that unites mind and matter (man as creative producer).

A third major difference between the canons is:

- In the mainstream canon economic development is spontaneous and independent of any collective will. (See Viner 1972 for a discussion of the invisible hand as it relates to beliefs in Fate and Providence.)
- Since the Renaissance, economic development in The Other Canon is the result of wilful and conscious creation and policy intervention in order to promote a synergetic common weal.

At a very fundamental level, the two canons of economics are founded on two different views of how Man differs from other animals. We shall let

Adam Smith represent the material and barter-based canon, and Abraham Lincoln represent Renaissance economics – the immaterial and production-based canon.

Adam Smith:

The division of labour arises from a propensity in human nature to . . . truck, barter and exchange one thing for another . . . It is common to all men, and to be found in no other race of animals, which seem to know neither this nor any other species of contracts . . . Nobody ever saw a dog make a fair and deliberate exchange of one bone for another with another dog. (Smith 1976[1776], p. 17)

Abraham Lincoln:

Beavers build houses; but they build them in nowise differently, or better, now than they did five thousand years ago . . . Man is not the only animal who labours; but he is the only one who *improves* his workmanship. These improvements he effects by *Discoveries* and *Inventions* . . .’ (Speech of the 1860 Presidential Campaign)

There are, of course, inventions also in Adam Smith, but they are exogenous; they are created outside his economic system. The term ‘innovation’, which was important in English economics from Francis Bacon’s ‘An Essay on Innovations’ (ca 1605) until and including James Steuart (1767), disappears with Adam Smith (see Reinert & Daastøl 1997 for a discussion).

We argue the existence of an immaterial and production-based canon through time. (1) The continuity of this immaterial and production-based tradition in economic theory can be traced from the 1400s to the present, and this filiation of thought and its geographical movements from nation to nation can be documented, through citations and economic policy. (2) The roots of this economic theory, both in philosophy and in economic policy, can be traced back through the Byzantine and Carolingian empires to Platonic philosophy, to Ptolemy’s Egypt and the Sumerian kingdoms. In other words, our approach is mainly diffusionist. However, we do not exclude ‘independent discoveries’ of the rational principles of Renaissance economics, particularly in times of national crisis and war. We also see a consistent pattern of application of The Other Canon in the framework of successful economic catching up.

No nation-state has ever developed from poverty to affluence without taking the production-based canon as its fundamental guide for economic policy over long periods.<sup>7</sup> This was true in France (where a modern starting point for policy could be Louis XI, in 1461, and Barthélemy Laffemas (in 1597), Antoine de Montchrétien, Jean Bodin and the Duc de Sully for theory); in England (where a logical starting point for policy is the reign of Henry VII, in 1485); in Germany; in the United States (Benjamin Franklin,

Alexander Hamilton, Daniel Raymond (1820), Henry Clay, Matthew and Henry Carey, E. Peshine Smith); and in Japan (the Meiji Restoration). Today we see the production-based economic strategy at work in East Asia. The Third World has never fully experienced the production-based canon.

On the practical policy level, the two canons conflict because whereas in the Renaissance theory different economic activities offer different potentials for achieving national welfare, in the barter-centred theory (discounting the different circumstances under which the bartered goods are actually produced), all economic activities become qualitatively alike. If anything, in the standard canon superiority is awarded to agriculture, which is more 'natural' because (1) it delivers nature's produce, and (2) competition here is more 'natural', atomistic and 'perfect'.

Tracing the Renaissance canon of economic thought presents several problems. First, the history of economic thought has to a great extent developed into a genealogy of neoclassical economics. For this reason the 'unorthodox' economists who are not part of the canonical sequence are left out. Second, the overwhelming dominance of Anglo-Saxon economists – today generally with very limited skills in languages other than English and mathematics – and of Anglo-Saxon economic policy in the post-Bretton Woods period has added an ethnocentric dimension to this development. Third, in spite of their profound impact on economic policy, the people who represented the Renaissance canon are often not classified as economists. Even Schumpeter's *History of Economic Analysis*, which is unique in this tradition in its geographical and linguistic scope, leaves out people such as Gottfried Leibniz and Christian Wolff. As economists, Leibniz and Wolff were not only very important for the economic policy of their time, but they also laid the foundation for the whole German economic tradition, which largely coincided with the US and Japanese traditions during the nineteenth century up until the Second World War. Many of these German economists tend to be classified as sociologists, particularly Max Weber. Schumpeter (1954, p. 117) writes: '[T]he great names of Leibniz and that of his faithful henchman Christian Wolff, are left out advisedly: they were polyhistorians, of course, and greatly interested, among other things, in the economic events and policies of their day; but they made no contribution to our subject.' It was only in the post-Bretton Woods era that Adam Smith and David Ricardo completely won the day in economic policy, so the economists of alternative traditions who were crucial to economic policy are therefore almost entirely left out of today's history of economic thought. The last history of economics to provide good coverage of the theories behind the nineteenth-century economic policy was Spann (1926). This was translated into several languages; interestingly, the British edition was published under the title *Types of Economic*



*Theory*, underscoring Spann's awareness that there are, indeed, different types of economics, not just one monolithic canon.

## 2. THE FAMILY TREE OF THE OTHER CANON

Traces of the Renaissance Other Canon can be found in pre-antiquity. Statecraft and the accumulation of knowledge – exemplified by the Library of Alexandria and the scientific academies of Sumeria under Hammurabi (2030–1995 BC) – were important features of the early Middle Eastern kingdoms of Sumeria and Egypt. These kingdoms also produced extensive literature and documents on economic and legal matters which survive today. As occurred later in Asia and in the Andes, irrigation seems to have been the first technology to create important increasing returns to scale, and consequently to require statecraft. Irrigation was therefore instrumental in the establishment of the first states. The cuneiform script of the Sumerians remained the standard for the Middle East region for the next 2000 years, and the Code of Hammurabi tells of an enlightened and humane system of law.

Later, during the Phoenician dominance of Mediterranean trade (from about 1500 to about 500 BC), there was clear practical recognition of the Other Canon principle that adding knowledge and labour to raw materials through the production of manufactured goods produces a superior standard of living to only extracting and selling the raw produce. We find this same theory clearly stated in Botero (1590), but only Serra (1613) would later explain the economic mechanisms behind this principle: why the Republic of Venice, with little or no raw materials, was so rich compared to the Kingdom of Naples, with its abundance of natural wealth. Later colonial and neocolonial projects would retain the pattern set by the Phoenicians and well expressed in the maxims of Charles King (1721): imports of raw material and export of manufactured goods are 'good trade', export of raw materials and import of manufactured goods are 'bad trade', while exchanging manufactured goods for other manufactured goods is 'good trade' for both trading partners. The 'New Trade Theory' of the 1990s again modelled Charles King's maxim, but alas with no practical consequences for the Third World.

The philosophical foundation of the Renaissance canon displays a clear continuity. Plato and other Greek philosophers were to some extent influenced by Egyptian civilization. Augustine's *De civitate dei* (413–426) was written in the Platonic spirit. Occasional rediscoveries of Plato such as this led to sporadic 'renaissances', among them the Carolingian Renaissance under Charlemagne (768–814). Charlemagne was counselled by Thomas of

York, a follower of Augustine. Under Charlemagne the fondness of Renaissance economics for education, industry and infrastructure was already evident. Charlemagne was actively promoting the textile industry; in Friesland, he built roads and worked on a canal linking Europe's greatest rivers, the Danube and the Rhine; and he promoted Latin as a standard administrative language in Western Europe.

No doubt inspired by the developments in Italian city states, France under Louis XI (1423–83) experienced an early mini-renaissance. Louis XI established a pattern that came to typify Renaissance economics: he allied himself with the middle class against the noblemen, establishing a tax system favouring the urban, middle-class value of industriousness against the landowning upper class's feudal valuing of agriculture and trade *per se*. Renaissance economics – creating centralized nation-states – was an important factor in bringing about the decline of feudalism. In Spain, with the 1521 civil war known as the Revolt of the Comuneros the feudal class won over the modernizing urban middle classes, thus contributing to the political foundations for Spain's deindustrialization following the inflow of precious metal from the Americas.

The Italian-born Renaissance was a rebirth of knowledge as the central engine of human change; it led to a reinterpretation of Man's place in the divine scheme. Innovations had previously been tantamount to heresy – all Man was supposed to know was already in the Holy Bible and in the writings of Aristotle. Knowledge production was confined to the interpretation of these scriptures. The influence of the Eastern church and the inflow of refugees from the crumbling Byzantine Empire to Italy completely reversed these perceptions: Man was created in the image of God, and God's most salient feature was his rational creativity. Consequently, innovations were no longer heretical; on the contrary, Man's essential and pleasurable duty was to innovate. Figure 1.1 shows the main contributions to the Renaissance and the philosophers who helped promulgate Renaissance economic thinking in Europe.

'To me the Renaissance will always mark the high point of this millennium', says Nietzsche (2000, p. 10288). The Renaissance worldview released enormous creativity; it gave us da Vinci, Michelangelo, Rafael, Kepler and Copernicus. In all arts and sciences, the people of the Renaissance still stand out in history, whereas the statesmen and economists of the Renaissance today are represented by the caricatures Adam Smith created. In the spirit of the Renaissance, Francis Bacon – Queen Elizabeth's Lord High Chancellor – wrote *An Essay of Innovations* (ca 1605). Bacon became the 'scientific leader of the new industrialists',<sup>8</sup> urging the use of science to produce manufactured goods and profits.

This conviction that a society based on manufacturing is fundamentally

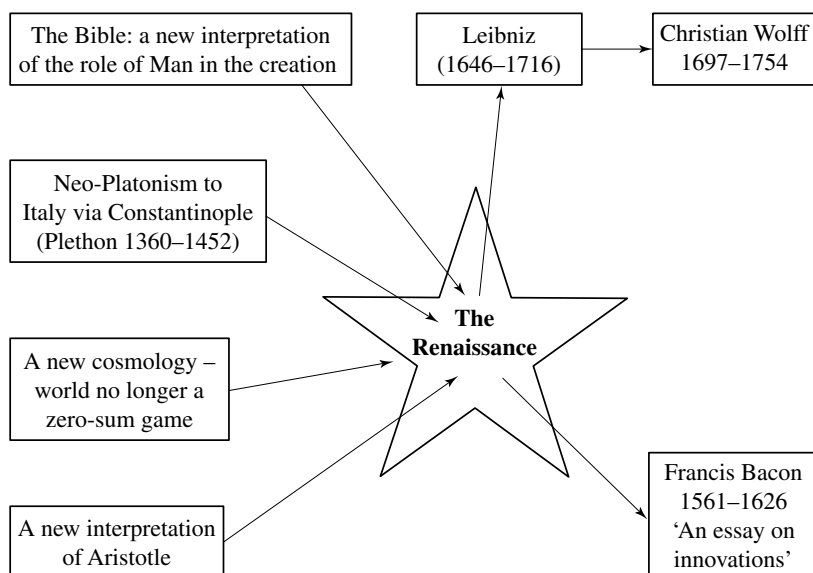


Figure 1.1 *The Renaissance: influences and consequences for economics*

superior to a society without a manufacturing base is an essential feature of what we label Renaissance economics. Emphasis on the 'intrinsic value of manufacturing' has been an integral part of the economic policy of all nations that have ever successfully embarked on a strategy of catching up with leading nations. Only when the catching up has been achieved have the industrialized nations (beginning with England) embraced the classical/neoclassical tradition. In other words, no nation has ever achieved general welfare without going through a period of Renaissance economics. In England this period lasted for more than 400 years, starting in the late fifteenth century; Korea achieved a great deal in only 40 years.

Bacon's emphasis on scientific knowledge was very similar to that of Friedrich List more than 200 years later: 'Industry is the mother and father of science, literature, the arts, enlightenment, useful institutions and national power . . . The greater the advance in scientific knowledge, the more numerous will be the new inventions which save labour and raw materials and lead to new products and processes.'<sup>9</sup> In this sense, there is a continuity of argument from the Renaissance through Bacon and List to today's evolutionary economics, which emphasizes the role of research and development and of innovations in improving economic welfare. As to natural resources, List (1904, p. 79) says that 'industrialisation will greatly increase the value of a country's natural resources'. This thinking was the

basis for economic policy in the resource-rich nations that have achieved general welfare: Canada, Australia and New Zealand. A manufacturing sector (even though it was not competitive with England's) was needed to transform the natural resources of a nation into national wealth (Reinert 1998).

List (1904, p. 142) expressed the view of industry that prevailed among nations catching up with England during the nineteenth century:

Let us compare Poland with England: both nations at one time were at the same stage of culture; and now what a difference. Manufactories and manufactures are the mothers and children of municipal liberty, of intelligence, of the arts and sciences, of internal and external commerce, of navigation and improvements in transport, of civilisation and of political power. They are the chief way of liberating agriculture from its chains. . . . The popular school [that is, Adam Smith and J.B. Say] has attributed this civilising effect to foreign trade, but in that it has confounded the mere exchanger with the originator.

Deindustrialization, on the other hand, has been a corollary to economic disasters and massive reductions in human welfare; examples include the deindustrialization of Holland after 1650, of Northern Italy following the French invasion, of France following the Napoleonic Wars, of Eastern Europe after the fall of the Berlin Wall, and of several Third World countries after the 'adjustment policies' of the Washington Consensus (see the case studies of Mongolia and Peru in this volume). List, who originally had been a free trader and continued to believe that free trade was the final goal of development, recognized the crucial role of manufacturing when he saw the devastating effects of the deindustrialization of France after the Napoleonic wars on the welfare of the nation.

In List we find again the synergy-based arguments of Renaissance economists such as Giovanni Botero and Antonio Serra. As stated earlier, the goal of the state's economic policy was to increase the common weal – the prosperity of the community. This is the starting point of virtually all economic writing of the period. To the Renaissance economists, systemic effects seem to have arisen first from the observation that widespread wealth appeared to accumulate in the cities, not in the countryside. This was the fundamental observation of one of the earliest best-selling books in economics, *Delle Cause della Grandezza delle Città*, by Giovanni Botero (1543–1617). The English translation, published in London in 1606, is titled *The Cause of the Greatnesse of Cities*. This argument was discussed in detail by Antonio Serra in 1613, whose work is cited nine times and with extensive comments by Friedrich List.

In the best theoretical works of the time, the difference between the wealth and poverty of cities and countryside, and between cities, is

explained in terms of the following main factors: (1) size and density of population; (2) different ‘qualities’ of economic activities, manufacturing being ‘good’ and agriculture alone being ‘bad’; (3) the presence or absence of diversity of economic occupations; (4) the different capacities of economic activities to initiate ‘virtuous circles’ or positive feedback mechanisms; and (5) a steady, orderly and liberal government providing economic policy based on the above principles. The systemic effects in the economy are described by Renaissance economists at three levels of sophistication:<sup>10</sup>

1. Observations that higher welfare is produced by some economic activities than by others, a static and nonsystemic observation of welfare being activity-specific. (To give a modern-day example: lawyers make more money than people picking lettuce; therefore, a nation of lettuce pickers will be poorer than a nation of lawyers.)
2. Observations that certain economic activities are at the core of systemic synergies which produce and spread welfare locally or nationwide. (‘Where there are many people working with machines, the shopkeepers are wealthier than in other places where machines are not used.’)
3. There are degrees of understanding how these systemic synergies develop into positive feedback systems, but the most sophisticated is that of Antonio Serra (1613), who describes Venice as a true autocatalytic system in which increasing returns and diversity – the latter expressed as the number of different professions in a nation (that is, degree of division of labour) – are identified as being at the core of virtuous circles that generate wealth. Naples represents the opposite effect in Serra’s system, because the production of raw materials is not subject to increasing returns.

These synergy-based arguments are found today in the works on increasing return by authors such as Paul David, W. Brian Arthur and James Buchanan. In our opinion these authors are reinventing the role of knowledge, synergies and path-dependence, which are main characteristics of Renaissance economics throughout history. Take, for example, List’s (1841/1904) view of manufacturing’s role:

The productive powers of agriculture are scattered over a wide area. But the productive powers of industry are brought together and are centralised in one place. This process eventually creates an expansion of productive powers which grow in geometric rather than in arithmetic proportion.

This is why the population of an industrialised society is brought together in a few conurbations in which are concentrated a great variety of skills, productive powers, applied science, art and literature. Here are to be found great public

and private institutions and associations in which theoretical knowledge is applied to the practical affairs of industry and commerce. Only in such conurbations can a public opinion develop which is strong enough to vanquish the brute force, to maintain freedom for all, and to insist that the public authorities should adopt administrative policies that will promote and safeguard national prosperity . . .

In addition the manufacturers are the focus of a large, lucrative, and world wide trade with peoples of varied standards of culture who live in many distant countries. Industry turns cheap bulk raw materials, which cannot be sent long distances, into goods of low weight and high value which are in universal demand.

List was in many ways the main nineteenth-century propagandist of the Renaissance canon. He emphasized the immaterial foundations of wealth (knowledge and human ‘wit and will’), the superiority of manufacturing over agriculture and raw materials, the crucial role of infrastructure, the systemic nature of economic growth (as a ‘national innovation system’) and free trade among nations at the same level of development. These are all typical traits in pre-First World War theories of economic policy in Germany, the United States and Japan. Later these ideas spread to Korea and Taiwan and are now the basis for China’s economic strategy, where Sun Yat-Sen (Yat-Sen 1922) and Chang Kai Shek were followers of List’s system.

However, List’s analysis of why these policies were so efficient is somewhat lacking. No doubt his observations were accurate, but his theoretical concepts are vague and his explanations of the economic mechanisms at work are imprecise. Werner Sombart comments: ‘His concepts levitate like undelivered souls on the banks of Hades’.<sup>11</sup> In spite of this, List’s holistic vision of the fundamentals of economic development creating national wealth or poverty is almost unprecedented.

The Renaissance theory often works through abduction – the kind of intuitive knowledge that precedes induction and deduction. Lemons helped sailors in the Mediterranean prevent scurvy 800 years before the exact mechanisms through which these lemons work were established (that is, vitamin C). Similarly, economic growth was successfully promoted in the Renaissance tradition of economics using ‘new knowledge’ and ‘use of machinery’ as proxies for the underlying factors causing systemic economic growth. The German cameralist tradition in economics recognized the superior potential of manufacturing over any other activity as a basis for collecting taxes. This was one of several reasons why manufacturing was favoured in the German states, and increased economic wealth and technical change were by-products of this policy.

We argue that there is a strong continuity in this canon (see Figure 1.2). Serra (1613) provides a theoretical framework to the mercantilist view that

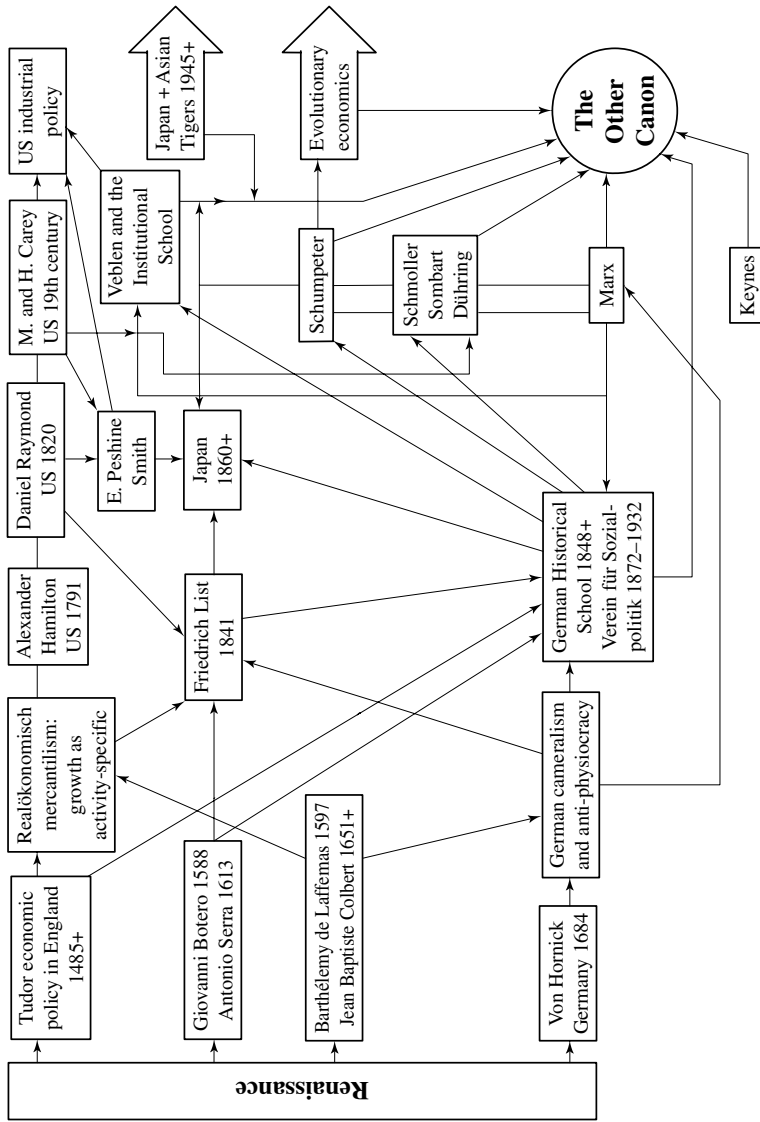


Figure 1.2 Reality economics: the knowledge- and production-based Other Canon of economics

some specific economic activities are carriers of economic growth. He also explains the mechanisms creating the synergies which the mercantilists called the common weal. At the core of these mechanisms Serra sees increasing returns in manufacturing but not in agriculture. The purpose of Serra's treatise is to explain the wealth of Venice and the poverty of Naples, despite the fact that Venice had virtually no natural resources and Naples abounded in natural resources. Serra provides a theory which can explain why the English strategy, starting with Henry VII, was so successful.<sup>12</sup>

In France, the seventeenth-century policies of Sully and Colbert are based on the same type of reasoning. Based on the theory provided by Laffemas (1597), the voluminous letters and instructions of Colbert make clear his role as a businessman in charge of a huge empire.<sup>13</sup> He was faced with what historians of technology call 'reverse salients'<sup>14</sup> – 'dynamic bottlenecks' – retarding the system and demanding managerial attention. In the German-speaking world an early spokesman for the same principles was Philipp Wilhelm von Hornick, whose 1684 work *Österreich über alles wann es nur will* appeared in 16 editions, the last one as late as 1784.

The bridge between English mercantilist policies and the industrial policy of the United States can be documented by two strong pillars: Benjamin Franklin's admiring and enthusiastic footnotes to the second edition of Whatley's (1774) late mercantilist tract, and Alexander Hamilton.

It has been shown that Hamilton knew his Adam Smith but rejected the free trade conclusion. Excerpts from Malachy Postlethwayt's *Universal Dictionary of Trade and Commerce* were scattered through Hamilton's *Army Pay Book*<sup>15</sup> and later provided much inspiration for his 1791 *Report on the Manufactures*.

When in the 1850s Wilhelm Roscher put increasing returns on the map again as a determinant of uneven economic development, he repeatedly quoted Antonio Serra just as List had done a decade or so earlier. Serra's work had been reprinted in Italian in 1803. The German Historical School of economics thoroughly understands and appreciates the wisdom of *realökonomisch* mercantilism, although Sombart jokingly admits to the risk of defending any economic theory older than Adam Smith's: 'I say this in spite of the risk of being branded as a neo-mercantilist, and as such to be transferred into the collection of the oddities of our profession.'<sup>16</sup>

A crucial feature of nineteenth-century economic thought is the theoretical cross-fertilization between the biggest nations that were attempting to catch up with England: Germany, the United States and Japan. They were united in their opposition to the theories of Smith and Ricardo, particularly as it applied to free trade. Michael Hudson (1969, p. 45) traces the 'institutionalist (historical) school of economists which flourished in



America during the final decades of the nineteenth century. The line appears to have run from the protectionist circle around Matthew Carey and Daniel Raymond, through Friedrich List to Germany and from there, via Roscher's circles, to American students such as Patten and Ely studying at German universities.' There were no graduate courses in economics in the United States at the time, and most US economists had their PhD from Germany. This includes all the founders of the American Economic Association. The transfer of Other Canon economic ideas to Japan after the Meiji Restoration was made by German economists – and by US economists who had studied in Germany – when 'a stream of German teachers of political economy and related disciplines continually flowed in'.<sup>17</sup>

The mercantilist inspiration for production-based economics can also be traced to the twentieth century. The main economist behind the Third Reich was Hjalmar Schacht, who was one of the two prisoners immediately freed after the Nürenberg trials. The subject of Schacht's PhD thesis at the University of Kiel in 1900 was 'Der theoretische Gehalt der englischen Merkantilismus' ('The theoretical content of English mercantilism').<sup>18</sup> Schacht's skilful use of mercantilist production-based war economics, combined with a Keynesian understanding of credit, for a long time worked wonders for Hitler's Germany. Schacht's work also proves, though, the fundamental point of the Other Canon Renaissance economics – that economics cannot and must not be separated from morality. The influential German economist J.F. von Pfeiffer (1715–87), an ardent antiphysiocrat, put it this way: 'You can make of human beings what you want. The way he is governed, commends man to good, or to evil.'<sup>19</sup>

### 3. THE TWO CANONS: SELECTIVE USE, METHODOLOGICAL SCHIZOPHRENIA AND OPPORTUNISTIC IGNORANCE

We do not imply that the world is a binary one, where all economists belong to one tradition or the other. On the contrary, a key characteristic of several important economists is their at times schizophrenic allegiance to both sets of theory. One example of this is the conflict between the Marshall whose 'Mecca of the economist' was based in economic biology (Marshall 1890, p. iv) and the Marshall of the appendices to his *Principles*, which were deeply steeped in 'physics envy'. In order to create the equilibrium that characterizes today's physics-based standard economic theory, Marshall paradoxically had to resort to a biological metaphor. Increasing returns had been an important argument for industrial policy beginning with Serra (1613) and continuing through the nineteenth century. To reconcile the

existence of increasing returns with equilibrium, Marshall (1890, pp. 315–16) uses a lengthy metaphor of firms growing and dying like trees in the forests. This evolutionary growth process supposedly counteracts the tendency toward uneven accumulation caused by increasing returns to scale.<sup>20</sup> The argument that killed all future biological analogies in neoclassical economics was a biological analogy, which was important in making economics what it is today, a profession in which a physics-inspired equilibrium is the central gestalt.

Schumpeter emanated from the Renaissance tradition of the German historical school and spent his life on the hopeless task of formalizing the creative essence of Renaissance economics – entrepreneurship, novelty and creative destruction – into the framework of the dead equilibrium that is at the core of neoclassical economics. Schumpeter was indeed ‘a living, breathing contradiction’, as Mirowski (1994, p. 5) puts it. We would claim that this contradiction was a result of being steeped simultaneously in two irreconcilable paradigms (see Reinert 2002 for a discussion).

Marx was steeped in the same two irreconcilable paradigms. In his emphasis on technology and economic dynamics Marx, like Schumpeter, belongs to the Renaissance production-based canon. Marx’s and Schumpeter’s visions have a common basis in the German economic tradition. In Anglo-Saxon economics, these economists come across as extremely original; seen from the German side, they are both firmly rooted in that alternative canon. The one aspect of Marx’s theory that belongs to the Anglo-Saxon canon is his use of Ricardo’s labour theory of value. This theory is out of place in the German tradition, in which entrepreneurship, ideas, knowledge, leadership and management make vital contributions to the value added by physical labour.

Although he was – after John Locke and Bernard de Mandeville – the true founder of the mainstream canon, Adam Smith himself suffered from the same canonical mental split. In his discussion of the Navigation Act he was clearly in favour of the protectionist policy, blocking Dutch ships and imports. His argument was to a large extent based on considerations of national defence. To Smith (1976, vol. 2, p. 219), ‘The art of war . . . is certainly the noblest of all arts’.

It is of great interest to note that to Smith, the father of free trade, the mercantilist and protectionist Navigation Act was ‘the wisest of all commercial regulations in England’ (1976, vol. 1, p. 487). This apparent double standard and selective use of the different canons in order to suit English interests was frequently denounced by German and US economists in the nineteenth century. Their slogan was, ‘Do as the English did, not as they say’. Today an appropriate strategy for the Third World would be, ‘Do as the Americans did, not as they say’. Part of this use of a double standard

was, and is, an ‘opportunistic ignorance’ (to use Gunnar Myrdal’s term) of the history of one’s own nation’s economic policy.

Before his meeting with the French physiocrats, Adam Smith clearly expressed the Renaissance view of the common weal as the motivating force for establishing manufactures. These were established neither to assist the producer nor to assist the consumer:

The same principle, *the same love of system*, the same regard to the beauty of order . . . frequently serves to recommend those institutions which tend to promote the public welfare . . . When the legislature establishes premiums and other encouragements to advance the linen or woollen manufactures, its conduct seldom proceeds from pure sympathy with the wearer of cheap or fine cloth, and much less from that with the manufacturer or merchant. The perfection of police [that is, policy], the extension of trade and manufactures, are noble and magnificent objects. The contemplation of them pleases us, and we are interested in whatever can tend to advance them. They make part of *the great system of government*, and the wheels of the political machine seem to move with more harmony and ease by means of them. We take pleasure in beholding the perfection of so beautiful and grand a system, and we are uneasy till we remove any obstruction that can in the least disturb or encumber the regularity of its motions.<sup>21</sup>

As we have indicated, the two alternative canons have ebbed and flowed throughout history. However, quite often we find the same nation-state applying both canons at the same time, but for different end-users. For example it is clear that, starting in the 1830s, England used Ricardo’s trade theory (the barter-based classical canon) for export and Charles Babbage’s works on the importance of machinery and of science (the knowledge- and production-based Renaissance canon) for domestic purposes. The United States conveniently followed this same canonic dualism in the nineteenth century. At a time when the United States was busily protecting its own industries, US commodore Matthew Perry was sent to Japan to convince that nation of the benefits of free trade. This resulted in the ‘unfair treaties’ that hold such a dominant position in the Japanese perception of their own history.

The same contradictory policies continued into the twentieth century. A book from the Washington-based Institute for International Economics in 1986 introduces the description of US trade policy as follows: ‘With bipartisan regularity, American presidents since Franklin Delano Roosevelt have proclaimed the virtues of free trade. They have inaugurated bold international programs to reduce tariff and non-tariff barriers. But almost in the same breath, most presidents have advocated or accepted special measures to protect problem industries. Together the two strands of policy have produced a contradictory profile.’<sup>22</sup> On these occasions, arguments from the

Renaissance-based canon – recognizing that both manufacturing and other knowledge-based activities matter – are invoked in order to protect both the national manufacturing base and the knowledge-based service sector. On the other hand the World Bank, following a strategy that ‘manufacturing does not matter’, carries out structural adjustment programmes which in many cases lead to the deindustrialization of whole nations, with a consequent collapse of national welfare (see the chapters on Mongolia and Peru in this volume). This is the paradigm of organized free trade, which in practice follows the Golden Rule: ‘The one who has the gold makes the rules.’

An important feature of the opportunistic ignorance of today’s leading industrialized nations is the fact that the history of their own economic policy – the policy that they used to catch up with the wealthy nations – to a surprising extent has been forgotten. This is very clear in the United States. The economists who laid the foundations for nineteenth-century US trade and industrial policy are hardly mentioned in today’s history of economics, and if they are mentioned it is to point out their ‘failures’. It is curious how today’s American economists virtually unanimously declare that both the industrialization of their own country and the New Deal were carried out by ‘bad economists’. Economists such as E. Peshine Smith,<sup>23</sup> who later played a key role in bringing the ‘American System of Manufactures’ to Japan, Matthew Carey, Daniel Raymond, Alexander Everett, Calvin Colton, Francis Bowen and Stephen Colwell are unknown today. Only Henry Carey is remembered by a few.

This is of course a parallel to the well-established ‘fact’ of economic science that the Renaissance economists who brought Europe out of the Middle Ages all belonged to the despised category of ‘mercantilists’. We have collectively absorbed Adam Smith’s caricature of all economists before himself: that they mistook gold for real wealth. German economist Eugen Dühring scorns *die Karikierer des Merkantilismus* – the caricature-makers of mercantilism – who ‘only too often spoke as if the business people and the statesmen of the day almost believed that precious metal could be used as food for the human body’.<sup>24</sup> The important systemic and production-based aspects of the Renaissance theory – the creation of a national common weal – are left out of today’s accounts. Recently however Cosimo Perrotta (1988) has published a book that resurrects Continental mercantilism as a theory focused on production and employment.

The strategy of ‘theory juggling’ is also present in the European Community. The Cecchini Report on the single European market identifies most of the benefits from the single market as coming from economies of scale. On the other hand, EU policy toward the Third World is based on a theory which denies that economies of scale and increasing returns exist. During the nineteenth century, the existence of increasing returns in indus-

try was an important argument for the protection of industry in all the nations that followed the English path to industrialization. Today, this argument is used only internally in the European Union, not in its policy toward the Third World. The industrialized nations are today ‘pulling up the ladder’ of development from those who tried to industrialize later. Only in Asia, where the activity-specific Renaissance strategy is copied from Japan, do we see real catching up.

Friedrich List saw clearly that Adam Smith’s theory contradicted the policy followed by England during its ascent to world power. List’s succinct and accurate summary of the history of English economic policy states: ‘The principle “sell manufactured products, buy raw materials” was for centuries the English substitute for an [economic] theory.’<sup>25</sup>

To List (1904, pp. 368–9), English classical economic theory

conceal[s] the true policy of England under cosmopolitan expressions and arguments which Adam Smith had discovered, in order to induce foreign nations not to imitate that policy. It is a very common clever device that when someone has attained the summit of greatness, he kicks away the ladder by which he had climbed up, in order to deprive others of the means of climbing up after him. On this lies the secret of the cosmopolitical doctrine of Adam Smith, and of the cosmopolitical tendencies of his great contemporary William Pitt, and of all his successors in the British Government administrations. . . . William Pitt was the first English statesman who clearly saw in what way the cosmopolitical theory of Adam Smith could properly be made use of.

The actual historical record of free trade confirms that England carried out at home the very policies that its theoretical economists tried to prevent in the rest of the world. Conventional wisdom has it that in the nineteenth century, France was a fortress of protectionism while England was the bastion of free trade. Consulting actual trade data, however, yields the surprising conclusion that ‘French average tariffs were . . . consistently below those of Britain throughout most of the Nineteenth Century, even after the abolition of the Corn Laws’.<sup>26</sup> The double standard is not new, but is still amazingly effective in maintaining and widening the gap between the leaders and the laggards of the world’s nations.

#### 4. COMMUNICATION, INFRASTRUCTURE AND FINANCE

In spite of its sparse treatment in economic theory, infrastructure is a key factor in any advanced economy. Infrastructure is the necessary policy response to the existence of geography and distance. Investments in transportation and communication are both productivity-enhancing and

price-reducing (deflationary), and as such a prime engine of general investment. Traditional infrastructure induces investment in engineering and in the production of heavy machinery, while advanced infrastructure, as for example in telecommunications, is highly science- and innovation-driven. In both cases, transaction costs are reduced, labour productivity and employment are increased and the tax base widened.

In the Renaissance tradition, the bases for increased economic welfare are knowledge and infrastructure, broadly defined. Knowledge concerns the human ability to think, to generate hypotheses and to communicate. This communication in turn depends on the phenomenon of *consensus gentium*, which we elaborated upon in our article on Leibniz and Wolff (Reinert and Daastøl 1997).

Initial public institutions and public works focused on the need for defending society and for establishing justice; later institutions facilitated the extension of commerce and the promotion of education. An early invention that brought wealth was the institution of the well-ordered city, with its tight communication, extended division of labour, markets, legal and political administration, and well-ordered communication with the outside world. This dates at least to the Indus civilization of 2300 BC, where Mohenjodaro was probably the first planned city in the world; it included a highly developed division of labour with many 'modern' inventions such as the wheel, the plough, intense irrigation, a sewer system, local markets and a vast international trading network.

As already mentioned, the concept of the common weal was synergetic, as had been observed already by Xenophon (Xenophon and Ambler, 2001). Serra (1613) specifically relates the wealth of a city to the number of different professions contained therein, that is to the extent and degree of the division of labour. Adam Smith's division of labour, known to the ancients and elaborated by numerous authors before him,<sup>27</sup> clearly implies increasing returns to scale. This is probably the reason why the division of labour has never been integrated into classical or neoclassical economic modelling. The division of labour is in some very fundamental sense not compatible with constant returns to scale; rather, it is a result of fixed costs – either of knowledge or of other tools – which automatically cause increasing returns to some degree. In the Renaissance conception of economics, therefore, returns increased with the size of population of a nation. Recreating and extending this observed urban advantage, the urban bias of development, to the whole nation-state was a central challenge to Renaissance rulers. Both List and Wallerstein point out that while England achieved this increased size through national unity, Italy, the Hansa and Holland did not develop beyond a collection of city-states, which they see as a main reason for their loss of leadership.<sup>28</sup>

Early municipal (city-state) mercantilists observed the beneficial effects of denser populations clustered in towns giving rise to productive synergistic effects through differentiation, personal and political freedom, and economies of scale. Having a large population was therefore regarded as a great benefit to any nation. Roscher (1882, p. 343 § 254) writes on the early policy of Henry IV that '[n]ot many had as much insight as Henry IV: la force et la richesse des rois consistent dans les nombre et dans l'opulence des sujets', and Petty 'would give up Scotland and Ireland entirely, and have the inhabitants settle in England'. For a discussion of early population theories, see Stangeland (1904). In this philosophy, building infrastructure became a key tool to later nation-building mercantilists and cameralists. State mercantilists tried to emulate on a national scale the agglomeration advantages found in urban areas through state-initiated construction of various means of infrastructure, communication and transportation. These economists and policy-makers tried to reconstruct artificially the observed benefits of the cities' high population densities in geographical areas with lower population densities. Law and order; industrial quality control; labour codes; labour discipline; standardization of language, measurements, coins and education; the construction of ports, roads, canals, postal routes and 'refuelling stations' along transportation routes were all parts of this strategy. These measures were intended to create widespread national welfare as opposed to the municipal mercantilist strategy which flourished, in the main, in coastal city-states. These city-states mostly functioned as enclave economies that were relatively isolated from the hinterland. State mercantilism or 'statism' changed this early merchant mercantilism. In its pursuit of public power and wealth, state mercantilism fused the monarchic and municipal mercantilist traditions. This alliance between the king and the middle class, which opposed the feudal aristocracy, created a powerful instrument: the nation-state, an instrument that unified formerly separate towns and regions.

In sparsely populated areas, a policy of corridor development was pursued, similar to the old Silk Road caravan tracks between the Roman and Chinese empires established by the first Han (206 BC–220 AD) or the Emperor's Grand Canal between Hangzhou and Beijing (1800 km). By creating dense populations in areas along transportation routes, construction of these arteries was made economically more worthwhile. This strategy also opened up marginal areas for development, the early railroad development of the United States being a prime example of such strategy. The purpose of the huge investments in infrastructure was in some ways similar to the purpose of the city-states itself: the realization of 'systemic increasing returns', an idea which is already very evident in Xenophon's *Cyropedia* (§ 8.2.5, in Xenophon 2001) and in his *Poroi* (Zincke 1753). This

observed 'systemic increasing returns' to the size of a city was the basis for the pro-population stance of cameralists and mercantilists.

List (1985, p. 131) notes the importance of infrastructure for greater communication between citizens. Much like the Internet today, this increased direct communication made political control of the individual more difficult, and therefore created greater political freedom and by extension increased creativity and innovation. Only in densely populated areas could a critical mass of public opinion acquire enough strength to develop into democracy and generally promote political and human rights. At the same time, the expansion of markets through improved communication allowed for greater economies of scale, greater diversification and production for niche markets, and greater production for a monetary – as opposed to a barter – market. Economies of scale allowed for improved technology and made it possible for a higher percentage of the population to engage in new activities, again contributing to diversity, division of labour and economies of scale in a positive feedback circle. The mercantilists' promotion of manufacturing also intended to emulate these positive effects of the city modelled as a huge productive machine, the factory.

A major problem with promotion of infrastructure is how to initiate and finance it. The core factors of the Renaissance policy – knowledge, innovation and infrastructure – all have the character of public goods: concentrated costs for the investor and widely dispersed benefits for society. As is well known, this results in a systematic underinvestment if left to an unregulated market. This outcome is suboptimal from a public point of view, although perfectly rational from the individual investor's point of view. The public, including the individual investors, therefore needs a coordinator, such as a municipality, a regional authority (for example, German Länder or the states in the United States), the nation or an international body (for example, the EU or the UN), to initiate and direct credit to these sectors that produce public goods. The credit directing may be done more directly through a central planning agency, such as GOSPLAN in the former USSR, or more indirectly by ordering banks to offer favourable conditions to industrialists investing in these sectors, as in the French dirigisme system up to the reign of de Gaulle. Another solution is to have many of these public goods produced under the umbrella of national defence, as in the United States where defence spending was used to finance the interstate highways (the national system of interstate and defence highways was financed 90 per cent by the Federal Government) and where military basic research that has led to innovations as diverse as the ballpoint pen (by the US airforce during the Second World War), burglar alarms (the Vietnam War), advanced cellular telephone communication (the 'Star Wars' programme) and the Internet.



From the school of the state mercantilist Colbert, then Napoleon, St Simon and the Grandes Ecoles system came the dirigist system with 'qualitative bank control' in various softer and harder versions (Wiles 1977, p. 215). Wiles further writes (p. 322): 'We remark here again the flexibility, speed and secrecy of such arrangements, compared with the constitutional obstacles to continual changes in taxes by the government, let alone a command economy.' There is a strong tradition of using this kind of policy among nations when endeavouring to catch up, in France, the United States, Japan and Germany. There are several ways to solve this problem of credit directing in practice. They all call for cooperation among authorities, industrialists and bankers; among people, knowledge of the physical production process and of the credit system. Such collaboration and consequent public encroachment into what is otherwise today seen as the sphere of the private market is of course against mainstream economics, but the present national innovation system of the United States is replete with institutions of this sort. The website of the US Small Business Administration <http://www.sba.gov> reveals that this institution alone channels loans of more than \$58 billion of federal funds to US businesses. This government institution assisted more than one million private US companies during 2002, a most visible US government hand. On the US state level a large number of tax incentives to manufacturing companies that are 'small' (by US standards) complements this policy. The problem, however, is that the conditionalities of the Washington Institution prevent these excellent US policies from being copied by poor nations.

Traditionally this way of thinking is accompanied by policy measures ensuring sufficient effective demand – or purchasing power – for the new production capacities thus created. The nineteenth-century US 'High Wage Strategy' was an efficient such strategy, as was the 'Fordist' wage regime, lasting until about 1970, whereby production wages were increased at the same pace as productivity increases in the manufacturing sector. This would prevent depressions due to 'overproduction', 'underconsumption' or 'oversaving'. This idea is also expressed in the 'circular flow' of J.M. Keynes or the 'ecocirc' of Ragnar Frisch. In this system increasing the standards of living of the majority of the population is not only a moral imperative, it becomes an economic necessity in order to keep the economy growing. Once the virtuous circle of increased productivity/increased real wages starts operating, increasing the real wages of the common man becomes a necessary economic policy if the system is to be perpetuated.

The leading historian and theoretician of economics in Germany in the middle of the nineteenth century was Wilhelm Roscher, whose *Principles*, book IV, is devoted to consumption. As Roscher noted, financial investments are a kind of sterile storage until channelled into consumption. This

may disturb the peaceful balance and equilibrium in the perfect model of the classical school. One of Roscher's chapters has the telling heading, 'Necessity of the Proper Simultaneous Development of Production and Consumption'. After a discussion of the two areas, he writes, 'Hence, one of the most essential conditions of a prosperous national economy is that the development of consumption should keep equal pace with that of production, and supply with demand.' In a footnote he declares:

The necessity of an equilibrium between production and consumption was pretty clear to many of the older political economists. . . . *The moderns have frequently inequitably neglected the doctrine of consumption.* Thus it appears to be a very characteristic fact that in Adam Smith's great book . . . one might think that products were not made for the sake of man but for their own sake. But on the other hand there came a strong reaction . . . And so according to Carey, *Principles*, ch. 35, § 6, *the real difficulty does not lie in production but in finding a purchaser for the products.* But he overlooks the fact here that only the possessor of other products can appear as a purchaser. From another side, most socialists think almost exclusively of the wants of men, and scarcely consider it worth their while to pay any attention to the means of satisfying them. (Roscher 1882, book VI, Chapter 1, §CCXV; emphasis added)

The core motive of Friedrich List and the American protectionists was to promote production in order to elevate wages and consumption, thereby increasing the tax base and production of public goods, and then to promote more production and consumption in a virtuous circle.

Part of this development plan must therefore also have a strategy on how to increase consumption and avoid market crises. On such crises, Roscher (1882, §CCXV) writes:

The growth of a nation's economy depends on this: that consumption should always be, so to speak, one step in advance of production. . . . Now, the politico-economic disease which is produced by the lagging behind of consumption, and by the supply being much in advance of the demand, is called a commercial [market] crisis.

He continues (§CCXVI), 'Most theorists deny the possibility of a general glut, although many practitioners stubbornly maintain it.' In the next paragraph (§CCXVII) Roscher continues:

All these allegations are undoubtedly true, in so far as the whole world is considered one great economic system, and the aggregate of all goods, including the medium of circulation, is borne in mind. The consolation which might otherwise lie herein is made indeed to some extent unrealizable by these conditions. It must not be forgotten in practice that men are actuated by other motives than that of consuming as much as possible. . . .

There are, everywhere, certain consumption-customs corresponding with the distribution of the national income. Every great and sudden change in the latter is therefore wont to produce a great glut of the market. [Footnote: If all the rich were suddenly to become misers . . . a multitude of former consumers, having no employment, would be obliged to discontinue their demand. Over-production would be greater yet if a great and general improvement in the industrial arts or in the art of agriculture has gone before.] (Roscher 1882, §CCXVII)

The last point about general improvement in the industrial arts is reminiscent of the recent technological revolution and the consequent financial crisis (Perez in this volume). It should be noted that in this perspective the loss of purchasing power of national salaries and wages as documented in the case studies of Peru and Mongolia in this volume, to the order of around 50 per cent, constitute an enormous setback in the development process. Under the present economic policies there are no signs why this process should be reversed again.

The circulation problem therefore concerns not only directing credit to production but, according to Roscher, even more to channelling purchasing power to consumers in order to create a demand for this production. This brings our discussion into the age-old problem of the regulation of the financial sector as a servant of production and consumption. Such a regulation of the financial sector is found as far back as in Ancient Sumeria and in early Judaism, where sporadic debt forgiveness was an important institution. These were the Jubilee years, a financial institution that we find mentioned several times in the Bible. The famous Rosetta Stone, which made possible the deciphering of hieroglyphics, commemorates such a debt cancellation by Ptolemy V in 196 BC (Rostovtzeff 1941, II, p. 713). At one point the accumulated debt burden could cripple investment in productive activities, thereby undermining not only the ability to feed a population, but also the ability to pay interest. This in turn would cripple production. Not only would the financial community fail in directing credit to productive purposes, it would also gradually become the owner of empires and people. For this reason, authors such as Marx have seen the financial community as the great culprit of derailed development, quite opposite to the positive catalyst it might have been and actually has been in some instances, such as in early industrialist Germany and Japan.

This is clearly most relevant for the Third World debt problem today. If history is to be a guide, the vicious circles of debt and poverty can only be broken by creating a virtuous circle of production in the Third World, not by debt forgiveness alone.

## 5. CANONICAL BATTLES: THE HEAD-ON CONFRONTATIONS

Occasionally the two canons meet head-on in what we have labelled canonical *Methodenstreite*. Next we describe six of these *Methodenstreite*.

### 5.1 Canonical *Methodenstreit* 1: De Santis versus Serra (1605 and 1613) and Misselden versus Malynes (1622–23).

Today's mainstream economics was born only in the eighteenth century with Bernhard Mandeville and Adam Smith. There were, however, important earlier skirmishes between the school of barter and the school of production. An early debate is the one in Naples in the early seventeenth century between Marc'Antonio de Santis and Antonio Serra (Schumpeter 1954, p. 344; Doléjal 1921). The battle-lines between exchange and production are clearer in the debate between de Santis and Serra, but the 'English' debate between Gerard de Malynes (1622, 1623) and Edward Misselden (1622, 1623) is better represented in the historiography of economics (Seligman 1920). The latter debate is also more personal and 'acrimonious, even abusive', where 'ink was shed like water'<sup>29</sup> (the authors swore to each other in ten languages, Misselden mocking Malynes for not knowing the eleventh one). Malynes represents a static theory rooted in barter and Misselden represents a theory centred around learning and production. Both Misselden and Malynes were Flemish, working in London.

In the history of economic thought, the debate between Misselden and Malynes is normally interpreted as being about exchange controls and the balance of trade.<sup>30</sup> However, by going back to the sources, one finds that Misselden's main line of attack is against Malynes's 'mechanical' view of man (see Mirowski 2002 for a parallel to neoclassical economics). According to Misselden, Malynes has left out man's 'art' and 'soul'. He (Misselden 1623, p. 8) quotes Malynes's reduction of trade to three elements, 'namely, Commodities, Money, and Exchange'. Objecting to this definition, Misselden writes: 'It is against Art to dispute with a man that denyeth the *Principles* of Art'. Misselden scorns Malynes for not seeing the difference between a heap of stones and logs and a house – because man's productive powers and his soul, which produce the house, have been left out. A similar criticism can be made of neoclassical economics.

Misselden represents the acute Renaissance awareness of the enormous territory to be covered between mankind's present poverty and ignorance on the one hand and its enormous potential on the other. This released enthusiasm and energy. The situation recalls Keynes's frustration with the suboptimal situation of the world during the Great Depression. We shall attempt

to show that to the Renaissance philosophers and economists and to Keynes, the formula needed to 'free' society from its suboptimal position was what Keynes (1930, vol. 2, p. 102) called 'Salvation through Knowledge'. The parallel with the Third World today should be clear.

In the late eighteenth century a new type of economic theory came into being, focusing on the 'natural harmony' of nature. Malynes, and later Bernard de Mandeville (also a Dutchman), were the predecessors of this view. This theoretical development culminated with Adam Smith's *Wealth of Nations*, published in 1776 when the English had caught up with and forged ahead of the Dutch. Mandeville is best known for his work *Fable of the Bees* (1714, but an early version in 1705). An early parallel is that Malynes in 1655 published *The Commonwealth of Bees*. The use of bees in a harvesting economy as a metaphor for a human economy leaves out the role of creativity, novelty and intelligence. Even today, a fundamental and unresolved problem of standard economic theory is how to deal with knowledge and novelty.

This 'harvest economy' was central also to the French physiocrats: physiocracy, that is the rule of nature. As we shall see, the anti-physiocrats were defending the Renaissance tradition. In physiocracy all economic activities other than agriculture were seen as sterile. Within today's evolutionary economics we find the same schism: part of the evolutionary school tends to substitute 'biology envy' for 'physics envy', leaving out the creative dimension of man. Today Adam Smith's 'invisible hand' finds its equivalent in Paul Krugman's (1996, p. 99) view of the economy as a self-organizing system: 'Global weather is a self-organising system; so surely, is the global economy'. The implications are clear: Man is at the mercy of an irrational destiny we cannot influence, particularly not on a collective level.

In his *Theory of Moral Sentiments* Adam Smith makes it clear that tampering with destiny is not man's business:

The care of the universal happiness of all rational and sensible beings, is the business of God and not of man. . . . Nature has directed us to the greater part of these [means to bring happiness about] by original and immediate instincts . . . [which] prompts us to apply those means for their own sake, and without any consideration of their tendency to those beneficent ends which the great Director of Nature intended to produce them.<sup>31</sup>

The parallel with Krugman's weather metaphor is obvious. Albert Hirschman's 1991 book *The Rhetoric of Reaction* traces the history of this theoretical school.

In our view, both Smith and Krugman fit the tradition of moral hedonism, exemplified in this quotation from Jeremy Bentham (1780, p. 11):

Nature has placed Man under two sovereign masters, pain and pleasure. It is for them alone to point out what we ought to do, as well as determine what we shall not do. . . . [E]very effort we make to throw off our subjugation, will serve but to demonstrate and confirm it. In words a man may pretend to abjure their empire: but in reality he will remain subject to it all the while. The principle of utility – the greatest happiness or greatest felicity principle – recognises this subjugation, and assumes it for the foundation. . . . Systems which attempt to question it deal . . . in caprice instead of reason, in darkness instead of light.

Typically, proponents of the barter-centred mechanical theories of wealth appear in well-consolidated and wealthy nations where the problems of creating the institutions of a civilizing state have long been forgotten. At the time of the Misselden–Malynes controversy, Holland was the leading nation and England and France were attempting to catch up. Many leading businessmen in England were at the time Dutch, and the same is true of many ‘English’ economists. We have already mentioned Misselden and Malynes. Jacob Vanderlint, an early ‘English’ free trader, was also a Dutchman working in London. Nicolas Barbon, another English free trader, was born in England but educated in Leiden (see Raffel 1905). In the tradition that local free traders were in reality citizens of the ‘empire’ of the day, the main German nineteenth century free trader in Germany was John Prince-Smith, an Englishman (Prince-Smith 1874).

The shift of emphasis in economics from human creativity (Botero, Serra, Misselden) to ‘natural harmony’ and barter (Malynes, Smith) was a true paradigm shift in Thomas Kuhn’s sense. It must be admitted however that in Adam Smith’s England the use of some of the incentives of Renaissance economics to produce knowledge had degenerated. Patents had been established starting in the late fifteenth century in order to promote what we have labelled dynamic and knowledge-producing rent-seeking or Schumpeterian Mercantilism (Reinert 1999). In Adam Smith’s England this system in many cases had degenerated into static rent-seeking. Patents were no longer used to promote new knowledge; monopoly patents were sold by the King in order to raise money. As was previously argued by Pieter de la Court in the case of the Netherlands (de la Court 1662), free trade and the reduction of restrictions were necessary in Adam Smith’s England to reduce production costs in order for the nation to remain internationally competitive.

Whereas the optimistic theory of the Renaissance focused on the limitless potential of ‘man the producer’, the new economic theory came to focus on ‘man the trader and consumer’. The two theories were steeped in very different realities: the old one in man’s ability to create and produce, and the new one in a world of barter, based on the mechanics of the ‘natural order’. The old theory was dynamic and organic, centred around ‘thought’

and 'becoming'; the new theory was mechanical and static, centred around 'matter' and 'being'. In the old theory the market played the role of servant to active human beings who knew where they were going; in the new theory the market acquired many of the characteristics of 'providence', as the manifestation of the natural order (see Viner 1972). Sombart (1928, p. 919) fittingly calls the Renaissance economics activist–idealistic, and the mainstream economics from Adam Smith onward passivist–materialistic.

It is important to understand why such a paradigmatic shift at any historical moment may be in the interest of the leading nation, but detrimental to the laggard nations. Having created a strong nation-state and established itself in the most dynamic economic activities of the day, the hegemonic state can take the existence of such an efficient state and of its own technological capabilities for granted, and at that point – as did England and the United States in sequence – elevate the market to a goal in itself. A theory which assumes away the importance of technology and knowledge is not harmful to a nation which possesses the most knowledge and the most advanced technology, only to the laggard nations. Assuming away the existence of diminishing returns is not harmful to the nation that dominates the industries with the highest degrees of increasing returns, only to the nations specialized in activities dominated by the law of diminishing returns. Typically, the leading nations – England and the United States again in the same sequence – have produced economic theories that are void of any context.

Whereas Renaissance economics sees no limits to progress – it truly envisions 'a never-ending frontier of human knowledge' – in Adam Smith's system, which followed Malynes's, nations reach a stationary state where they can advance no further, when that 'full compliment of riches which the nature of its soil and climate . . . allowed it to require' had been reached (Smith 1976, p. 106). It is only here that we see the practical consequences of Smith's sharing the same assumptions as part of today's ecology movement: no new knowledge enters the system. The only logical consequence of a theory that does not allow for the production of new knowledge is either a stationary state (as with Smith and Ricardo) or an ecological disaster (as with Malthus). This disaster can be predicted by simple extrapolations; however, each level of knowledge carries its own level of 'sustainability'. Knowledge and institutions are the conspicuously and 'actively absent' factors in Adam Smith's system; that is, he not only ignores these factors but actively argues that they have no relevance.<sup>32</sup>

Whereas Renaissance economics focuses on production, neoclassical economics focuses on barter and exchange. Leibniz sees the origin of barter as being in production, and quotes Aristotle: 'Nam Maercaturis transfertantum, Manufactura gignit' (Trade can carry only as much as the factories

produce). To Leibniz, the poverty of the artisans was an important argument for the establishment of an active state: ‘After all, is not the entire purpose of Society to release the artisan from his misery? The farmer is not in need, since he is sure of his bread, and the merchant has more than enough’ (Leibniz 1992, p. 54).

## **5.2 Canonical *Methodenstreit* 2: Antiphysiocarcy versus Physiocracy and Adam Smith (ca 1770–1830)**

The second *Methodenstreit* between the knowledge-based Other Canon and the predecessor of today’s standard economic theory starts in the 1770s with the rise of the physiocratic school in France. It may be said that the physiocratic school in some sense was a reaction to the excesses of Colbertism. But it can also be said that it was the reaction of the landowners against Colbert’s policy of systematically diverting resources from agriculture to manufacturing: The physiocrats continued the animalistic view of Man ‘. . . sometimes they regard man as a browsing animal, concerned only with his nourishment, the maximum production of the fruit of the earth as his social ideal’ (Higgs 1897, p. 107–8).

The antiphysiocarc movement has received little attention in the history of economic thought. These authors, however, represented the true continuation of Renaissance economics. Interestingly, two of the main opponents of physiocracy in France were clergymen: Abbé Mably and Abbé Galiani, the Neapolitan envoy to the Court of Paris.<sup>33</sup> Galiani was to take a position which in many ways foreshadowed the position of the historical school in late nineteenth-century *Methodenstreit*: ‘Abstract principles are no good for commercial policy. Corn laws which are good in one time or place may be bad in another . . . The statesmen who admired Colbert should not imitate him, but ask himself, “What would Colbert do if he were here now?”’ (Higgs 1897, p. 117). This criticism of a very abstract and context-free theory was similar to Richard Jones’s reaction in 1820 against Ricardo’s writings. Reverend Jones was the father of the English Historical School of economics, which became very influential during the latter half of the nineteenth century.

One of the main opponents of the physiocratic school in France was Forbonnais, who refused to admit that trade and industry are sterile.<sup>34</sup> Forbonnais believed that the main agent creating wealth is man, not nature: without human agency the land is doomed to absolute or relative stability. The anti-physiocracy movement was strong in France, Italy and Germany, but perhaps the most ardent antiphysiocrats were found in Germany. Under the heading ‘Antiphysiokraten’, Humpert’s bibliography of the German cameralist school lists 25 works published between 1771 and 1832



(Humpert 1937, pp. 1031–2). The best-known of these is Johann Friedrich von Pfeiffer's *Der Antiphysiokrat* (1780).

### 5.3 Canonical *Methodenstreit* 3: The American System versus the British System (Nineteenth-Century United States)

The US opposition to English classical economic theory started with Benjamin Franklin and continued with US Secretary Alexander Hamilton's report on industrial policy to the House of Representatives in 1791. This *Methodenstreit* on the policy level lasted through the 1930s, although on the theoretical level English classical economics was to be increasingly taught at the Ivy League universities in the late nineteenth century. At one point Cornell University offered parallel courses in the two traditions. Important economists in this tradition included, as already mentioned, Daniel Raymond, Matthew and Henry Carey, John Rae and E. Peshine Smith. The last great economists of this tradition were Richard Ely and Simon Patten, who had both studied in Germany.

On the policy level, the nations industrializing in the nineteenth century were to take up the example that England had set – and later abandoned when it had achieved world hegemony. The great industrial nations in their pre-take-off period shared a core theme of the activity-specific nature of growth (see Reinert 1996b). Economic growth could only be achieved by including in the nation's portfolio of industrial activities activities with the following characteristics: (1) fast technological change, (2) a rapid growth in output ((1)+(2) representing what is normally called Verdoorn's Law), and (3) subject to increasing returns to scale. This theme can be followed in economic writings from the 1500s in Italy, England and France, and a little later in the German cameralists. It is introduced to the United States through Alexander Hamilton and his favourite economist, the English mercantilist Malachy Postlethwayt,<sup>35</sup> and from Friedrich List's involuntary exile in the United States it is reinforced again in the Germany of the Zollverein. In Meiji Japan, the *doitsugaku* school, which favoured the German model, became the most influential for the building of society, at least until 1945 (Yagi 1989, p. 29). The Japanese took over the autarkic views that dominated the German historical school. As we have already commented, in Japan after 1883 'a stream of German teachers of political economy and related disciplines continually flowed in' (Sugiyama and Mizuta 1988, p. 32).

Through the centuries, one common thread of successful long-distance catching up has been a shared distrust of free trade until the nation is firmly established in what was seen to be the 'right' economic activities – the specific activities which increased the nation's 'productive powers'. Through

dynamic imperfect competition (Schumpeter's 'historical increasing returns', see Schumpeter 1954 and Reinert 1980) in these specific activities, real wages could be raised: first in the 'engine' industry and subsequently spreading through the whole national labour market. In the US tradition, adding skill to the labourer was the logical way of increasing his value (his wage). This tradition survived in the United States up to and including the economists who were taught by Ely's and Patten's generation. We would argue that in nineteenth-century US economic policy, the general view was that some economic activities were better than others. Differences in wage levels, both nationally and between nations, are to a large extent a result of varying degrees of imperfect competition, caused by both static and dynamic factors. The factors at work have long been identified both by businessmen and in industrial economics, and they are correlated. These factors were for many years discussed under the heading of 'industrialism'.

Figure 1.3 plots the 'quality' of economic activities at any given time on a scale from white (perfect competition) to black (monopoly). The whole system is constantly moving as new types of knowledge enter on top and, with varying speed, fall toward perfect information and perfect competition as they mature. We would claim that the gestalt expressed in Figure 1.3 corresponds to the nineteenth-century US view of why some nations were wealthier than others and why nations had to reach the top of the quality index before free trade would be beneficial to them. At the bottom of this hierarchy sit the world's most efficient producers of baseballs – in Haiti – making US\$0.30 per hour. This type of production has not been mechanized anywhere. Higher up sit the world's most efficient producers of golf balls – in a mechanized production – making US\$12 per hour. We maintain that no nation of any size has ever reached a high level of national welfare without going through a period of this kind of thinking, perhaps with the possible exclusion of tiny city-states. This was the vision of the *realökonomisch*-oriented mercantilist school. In the English literature Charles King's very influential 1721 volumes clearly express this thinking.

Figure 1.3 unites the economic factors that prevent factor-price equalization from ever taking place in the world economy. Within one nation – within the same labour market – the same forces are at work, but the dispersion in the wage level becomes much less pronounced. Within a nation several factors unite to create a tendency toward larger equality in wages: mobility of labour, similar education and knowledge levels, pressure from labour unions, and the like. The wage level of the traditional service sector seems to be determined by the existence or lack of 'high-quality' activities in each nation. If none are present, real wages in the service sector are low. In this sector (which includes barbers, bus drivers, chambermaids and so

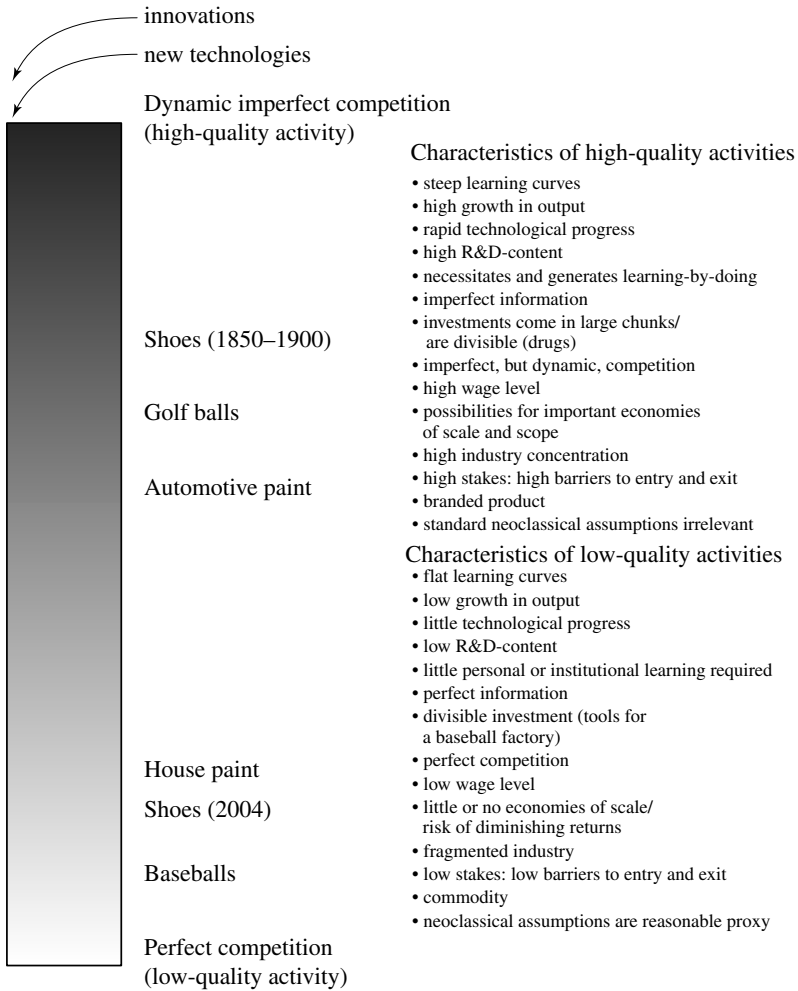


Figure 1.3 The Quality Index of economic activities

on), productivity levels all over the world tend to be very similar. Their real wages, however, are widely different. A barber or bus driver in Bolivia or Russia, although as efficient as those in the First World, earns real wages that are only a fraction of his Swiss or Norwegian counterparts.

The quality index of economic activities, in our opinion, answers the question of why the ‘invisible hand’ compensates workers of equal efficiency in the service sector so differently in different countries. We would claim that because of this mechanism, what to most people seems like a

globally 'efficient' market does not maximize world welfare. By distributing production of knowledge-intensive, high-quality products to all labour markets – not by distributing capital – the average standard of living throughout the world may be raised considerably. Our argument is very close to those of the German philosopher Leibniz and of early US economists, starting with Benjamin Franklin,<sup>36</sup> Alexander Hamilton, Mathew Carey and Daniel Raymond in the late eighteenth and early nineteenth centuries.

The pre-Mandevillean and pre-Smithian attitude towards colonialism are also worth noting. Since they knew that a nation without a manufacturing sector could not develop to any extent, pre-Smithian economists tended to acknowledge that colonialism was not in the interests of the colonies themselves. Manufacturing being a key to wealth, this is an obvious part of the logic of the mercantilist system. Johann Heinrich Gottlob von Justi (1717–71), for example, recognized that colonial trading arrangements 'always will be in danger as soon as the foreign people starts getting wiser' (quoted in Roscher 1874, p. 91). Adam Smith and David Ricardo represent a real watershed in economics, in that it is only with their barter-based, rather than production-based, economic theories that colonialism becomes morally defensible. Colonialism is only defensible within an economic theory where national wealth grows independently of what the nation produces.

#### **5.4 Canonical *Methodenstreit* 4: The Historical School versus the Classical and Neoclassical Schools and Marginalism (1848–1908)**

The resounding success of Ricardian economics and its extreme *laissez-faire* policies during the 1840s provoked a theoretical counter-movement following the political events of 1848. The international depression in 1873 further increased opposition to the classical economic tradition all over Europe. The stronghold of the opposition was in Germany, where the older historical school founded by Bruno Hildebrand (1848), Karl Knies and Wilhelm Roscher increasingly challenged both the theoretical foundations and practical conclusions of Ricardian economics. Later a new generation of historical economists led by Gustav Schmoller – the younger historical school – dominated German academic and practical economics for a long time. Schmoller was instrumental in the founding of the *Verein für Sozialpolitik* – the Association for Social Policy – which was to build the theory and practice of the welfare state, piece by piece, between 1872 and 1932.

In 1883 Carl Menger, the founder of the Austrian marginalist school, published *Untersuchungen über die Methode der Sozialwissenschaften und*

*der politischen Ökonomie insbesondere*. Menger dedicated his book to Wilhelm Roscher, the prominent German economist of the historical school. Menger closed the preface by praising recent German economics and hoping that his book would 'be regarded . . . as a friendly greeting from a collaborator in Austria'. Germany's reply was not friendly. Schmoller reviewed the *Untersuchungen* unfavourably in his *Jahrbuch*, and Menger responded in a small book titled *Errors of Historicism* in 1884.<sup>37</sup> Of all the *Methodenstreite* this, the most famous one, is paradoxically the least fundamental. Menger and Schmoller essentially shared the same critical attitude toward the mechanical and barter-based English theory. Their personalities and pride clashed, but compared to Ricardian economics the two are next of kin. This *Methodenstreit* created a debilitating civil war inside The Other Canon.

Schmoller wanted theory to be empirically founded, in opposition to the English classical tradition which founded theory on introspective assumptions and deduced far-reaching practical conclusions from these abstract structures. Schumpeter labelled this practice 'the Ricardian vice'. Today's standard explanation of this *Methodenstreit* generally fails to point out how similar the two men's criticism of Ricardian economics was. The New Palgrave describes the *Methodenstreit* as follows (Fusfeld 1987, p. 454):

[Schmoller] rejected Menger's deductive method for three chief reasons: its assumptions were unrealistic, its high degree of abstraction made it largely irrelevant to the real-world economy, and it was devoid of empirical content. The theory was therefore useless in studying the chief questions of importance to economists: how have the economic institutions of the modern world developed to their present state, and what are the laws and regularities that govern them? The proper method was induction of general principles from historical-empirical studies.

However, reading through Menger's *Errors of Historicism* (1884) with the perspective of what economics has become, it becomes clear how 'Other Canon' both Schmoller and Menger were.

The historical school was steeped in the German tradition of embracing *die Ganzheit* – the whole. This search for *die Ganzheit* forced the historical school to cross the boundaries into what in the English tradition were considered unrelated academic disciplines. In the German historical tradition, it would make no sense to exclude any information relevant to the question asked – whether from the realm of climatology, pedagogy or any other branch of human knowledge. In the German tradition, economics was a science that integrated all the others and the criterion for including a factor or not was simply that of relevance. However, it is not at all clear that Menger disagreed with this. Menger formulated a model of the economic

forces at work but, like Schumpeter later, he insisted that history was an 'indispensable' tool for the profession.

To Menger, the problem of the historical school was that it suffered from a kind of 'case-study syndrome': members of the school collected raw materials for a theory but failed to formalize their propositions on a higher level of abstraction. This is similar to Thorstein Veblen's view. However, this criticism is more appropriate to some members of the historical school than to others. It is crucial to define what is meant by 'theory'. The marginalist tradition came to seek 'pure theory', a formalist kind of theory that excluded from economics all the forces that in the Renaissance tradition were the driving forces of history and its auxiliary institutions: knowledge, creativity and morality. The criticism voiced by German economists at the time was similar to Misselden's accusations against Malynes: economics had become *entgeistet*, or void of human spirit. However, of all the marginalists, Menger was the closest to the historical school. As we shall discuss later, he both 'invented' marginalism and went far beyond it.

The criticism of the marginalists from the historical school was that the very source of wealth – human wit and will – had disappeared. The German ethical historical school, with its US followers such as Richard Ely and Simon Patten, followed the Renaissance tradition of seeing economics as a normative science, setting out to transform society for the benefit of the common weal. They considered morality to be rational and part of the *Ganzheit* of the economics profession. In contrast, in British empiricist philosophy and classical economics, morality was considered to be irrational and based on sympathy (feeling) in the tradition of David Hume and Adam Smith. Accordingly, to the English school morality was totally separated from science and therefore from economics.

### **5.5 Canonical *Methodenstreit* 5: The US Institutional School versus the Neoclassical School (Twentieth Century)**

Institutional economics presents a continuation of the US and German nineteenth-century economics tradition. Institutionalism – a term originally coined to describe the work of the Norwegian-American economist Thorstein Veblen (1857–1929) – continued the radical trend of the 'American System' in opposing the abstract structures of English theory.

The institutionalists were very critical of the established economic doctrine, but most of them did not seek to throw it out completely. Since their theory was *praxisnah* – empirical and close to the reality of practical problems – the institutionalists attracted the attention of policy-makers. Academically and in terms of influence, US institutionalism peaked in the troubled 1930s, and it may be argued that institutional policy-makers in the

early 1930s anticipated the Keynesian policy prescription without his elaborate theoretical framework.

Although institutionalism declined rapidly after the Second World War during McCarthyism, its influence on economic policy-making in Washington still lingers.<sup>38</sup> Today Paul Krugman complains, 'It is not just that economists have lost control of the discourse; the kinds of ideas that are offered in a standard economics textbook do not enter into that discourse at all' (quoted in Reder 1999, p. 6). To whom have the economists lost control? Krugman lists an alliance of 'policy makers, business leaders and influential intellectuals' (ibid.). These are the groups that today defend the common sense and pragmatism of institutional economics against the unmitigated rule of standard textbook economics. To the 'Ricardian vice' labelled by Schumpeter we may add the 'Krugmanian vice': the vice of possessing more relevant economic theories – such as new trade theory – but refusing to employ these principles in real-world economic policy.

### **5.6 The Coming Canonical *Methodenstreit* 6: The Other Canon versus Standard Textbook Economics and the Washington Consensus**

Though neoclassicism won the day in academia and in our economic policy toward the Second and Third Worlds, the eclectic pragmatism of The Other Canon and of the old institutional school lives on in policy-making in both America and Western Europe. A clear focus on policies promoting innovations is just one indication of this. In academia today, the proponents of this school are mostly scattered in business schools and departments of government and international affairs. As a result of the virtual eradication of Other Canon economists from departments of economics, the poor countries of the world are still treated to a virtually undiluted version of neoclassical economics as administered by the Washington institutions. The centuries-old common sense – the core of the reconstruction of Europe after the Second World War – that a nation is better off with an inefficient manufacturing sector than with no manufacturing sector at all, was lost in the market euphoria following the fall of the Berlin Wall.

Over the last 50 years of the twentieth century, the mechanical model of neoclassical economics slowly gained a near monopoly position (Mirowski 2002). In a similar way Ricardian economics slowly gained prominence starting in the 1820s and culminating with the free trade movements of the 1840s. However, the 1848 revolutions that affected most Continental European nations provided an important backlash for this kind of policy, and marked the end of uncritical practical application of Ricardian theory. Between the summits in Rio in 1992 and the summit in Johannesburg in

2002, 66 developing nations had become poorer (<http://www.johannesburgsummit.org>). In our view, today's increasing social problems and accompanying social protests are again caused by the uncritical application of the same Ricardian theory, now in the guise of immediate and absolute globalization of the poor world. Again a similar social reaction as that of 1848 is about to cause a similar backlash and standstill.

Enlightened economic policy, spearheaded by US and German economic theory and policy, and English social policy, slowly solved the 'social question', the most burning on the nineteenth-century European agenda. It is our conviction that the same kind of Other Canon economics without equilibrium is the only type of economics that can solve the social questions of today. In 1848, the United States and Germany had a healthy stock of Other Canon economists in their economics departments. This eased the search for policy solutions. Today's global village no longer holds such a diversity of approaches to economic policy, from which a search for solutions necessarily has to start. We are therefore more dependent than ever on using history, the only laboratory of economics, and the 'gene bank' provided by the writings of past Other Canon economists as our guides towards a world less dominated by poverty and misery.

## 6. INTERNATIONAL TRADE POLICY AND THE TWO CANONS

A culmination of the barter-based canon – from the height of neoclassical economics – is Paul Samuelson's (1948, 1949) proof that international trade, under the usual assumptions of neoclassical economics, will produce factor-price equalization. If all nations would only convert to free trade, the price of the factors of production – capital and labour – would be the same all over the world. In response to the communist utopian idea that every man should give according to ability and receive according to need came the even more powerful neoclassical utopian idea that under capitalist free trade, all wage earners of the world would be equally rich. This theory is the foundation upon which the present world economic order rests.

The contrainuitive conclusion that all wage-earners of the planet will be equally rich under free trade in our view shows the affiliation of neoclassical economics with the pedantic and circuitous reasonings of scholasticism. This danger is inherent when the language of communication is mathematics; as Wittgenstein writes: 'All mathematics is self-referential.' In its extreme form scholasticism also 'proves' things that contradict common sense and intuition. Friedrich List accused the English classical canon of 'scholasticism'. In this same spirit the Danish economist L.V. Birck (1926)



titled his article discussing the theories of Böhm-Bawerk ‘*Moderne Skolastik*’ (see Reinert 2000).

In the early nineteenth century, the immediate commonsense reply to Ricardian trade theory, such as the very influential writings of Daniel Raymond (1820) in the United States, was one intuitively appealing to the role played by knowledge, and the ability of each profession to absorb advanced knowledge. Pre-Ricardian common sense continued along this line of reasoning: if each lawyer in a nation has ten times the annual income of each person washing dishes, why should a nation of dishwashers be as rich as a nation of lawyers? Following Charles King (1721), it has been clear to *The Other Canon* that ‘symmetrical’ international trade – between nations at the same level of development – is beneficial to both nations, whereas ‘asymmetrical trade’ is beneficial only to the more advanced of the two trading partners. In our view – in the spirit of US and German nineteenth-century economics – symmetrical trade implies trade of goods at roughly the same level on the quality index in Figure 1.3, whereas asymmetrical trade implies trade of articles at very different positions on the quality index. Exceptions to this would be if a very large and dynamic nation or group of nations absorbed a smaller, poorer nation and upgraded its standard of living. Portugal in the EU might be a recent example of this, while Mexico’s development under NAFTA may serve as an example of the opposite effect.

Samuelson, like Ricardo, failed to specify factors that were central in the Renaissance canon: (1) knowledge in and of itself, and (2) the differing capacities of economic activity to absorb knowledge. A key argument by Daniel Raymond (1820) was that because different professions have different capacities to absorb capital profitably (human or other), different professions have different ‘windows of opportunity’ for creating welfare. One cannot profitably add as much human capital to the job of washing dishes as to the job of being a lawyer. For this reason economists would recommend to their children professions which require a university education, although by doing this they express what – at the level of a nation – they would describe as a mercantilist preference for one profession over another. Adam Smith, however, is very consistent on this point: all risks considered, it is safer to let your son become a shoemaker’s apprentice than to become a lawyer (see Reinert 1999 for a discussion).

A succinct version of the Renaissance view of the role of international trade in the creation of the common weal is found in James Stuart (1767, vol. 1, p. 336): ‘If the greater value of labour be imported, than exported, the country loses.’ This argument became the crusading slogan for US protectionists. The more advanced Renaissance economists also focused on this aspect, which Reinert (1980) calls the ‘labour-hour terms of trade’.

This was the important variable to watch if one was interested in increasing the welfare of the common man. As noted earlier, the world's most efficient producers of baseballs (which are hand-sewn) work in Haiti earning US\$0.30 per hour today, whereas the world's most efficient producers of golf balls (a mechanized production) in an industrialized country make at least \$12.00 per hour. In the mercantilist/Renaissance view, by exporting baseballs and importing golf balls, Haiti exchanges 40 hours of labour (in baseballs) for one hour of labour (in golf balls). Haiti and Honduras together have a very large share of the world market in baseballs. The key point to remember here is that both baseball producers and golf ball producers are in this example producing with state-of-the-art technology: whereas golf ball production is mechanized, all the capital of the United States has yet to mechanize the production of baseballs. This uneven advance of technical change makes it possible for a nation to be locked into a comparative advantage of being poor and ignorant. This possibility is ignored in today's economic theory, but was clearly perceived by the more sophisticated Renaissance mercantilists, who held the variables of skill and knowledge up front in their theoretical edifice.

Since the time of the *Methodenstreit* between Misselden and Malynes, free trade has consistently been a logical strategy of the leading technological and economic power. Protecting and building knowledge has been the pattern of nations that have caught up, and later overtaken, the leader. Only the Netherlands, having had a first-mover advantage, introduced protection at a later stage (around 1725) as a defensive measure against its neighbours who were catching up.

In our opinion it is evident that the core assumptions of standard economic theory may play a political role in protecting the vested interest of the leader against the laggards. To a nation that possesses unique technical knowledge, the assumption of 'perfect information' and 'perfect competition' is beneficial. Likewise, an assumption of constant returns to scale will benefit a nation that engages in mass production of manufactured goods, but will be very damaging to nations specializing in agriculture and extractive activities subject to diminishing returns. Therefore, in our opinion it is legitimate to talk about 'assumption-based' rents in economic theory. The rents accruing to the nation exchanging one hour of labour exporting golf balls for 40 hours of labour importing baseballs is such an 'assumption-based' rent. One may divide today's world into two groups of nations: those that at some point have been through a stage of Renaissance economics – the industrialized nations – and the others, the poor South, which continues to produce assumption-based rents for the industrialized North.

## 7. THE TWO CANONS IN PRESENT ECONOMICS: THEORY AND PRACTICAL POLICY

In the preliminary remarks to his *Principles of Economics*, John Stuart Mill (1987 [1848], p. 3) states:

It often happens that the universal belief of one age of mankind – a belief from which no one *was*, nor without any extraordinary effort of genius or courage, *could*, at that time be free – becomes to a subsequent age so palpable an absurdity, that the only difficulty is to imagine how such a thing can ever have appeared credible . . . It looks like one of the crude fancies of childhood, instantly corrected by a word from any grown person.

Today the strongest conclusion of standard economic theory is that of world factor-price equalization: if worldwide free trade is adopted, all wage earners of the world will be equally rich. In our view, this ‘law’ of factor-price equalization – on which our policy toward the Third World is based – qualifies as one of the beliefs which to a subsequent age will become a palpable absurdity. No doubt free trade is a cornerstone in world welfare among the rich nations. But the enormous gains from symmetrical free trade are not the static gains of Smith and Ricardo; they are the synergetic, dynamic and scale-based gains from trade to which *realökonomisch* mercantilists in the Renaissance tradition have long pointed, and which modern economists such as Paul David, W. Brian Arthur and, at times, Paul Krugman are rediscovering.

Occasionally other intuitive flashbacks from Renaissance economics appear in today’s formal theory. One important example is Robert E. Lucas’s (1988) article in which he argues, as in US nineteenth-century economics, that the potential to learn differs between economic activities. In his model, the nations that acquire most human capital also attract more physical capital, which will be applied more productively there. Because of this, increasing the world mobility of capital under a free trade regime will increase, not diminish, both international inequalities and international migratory pressure. We would argue that Lucas (who later won a Nobel Prize in economics) in this article has recreated a classical mercantilist argument for why vicious and virtuous circles dominate the world economy: because economic activities are qualitatively different, unrestricted free trade between nations of different stages of knowledge development will lead to significant loss of welfare for nations below a certain threshold of knowledge.

Lucas (1988, p. 8) writes, ‘The consequences for human welfare involved in questions like these are simply staggering: Once one starts to think about them, it is hard to think about anything else.’ One important problem in

today's standard economics is that any graduate student in the profession is able to produce a model that 'proves' any pet idea he might have. As long as the profession continues to confuse theory with science – as long as models are produced with only very limited, if any, testing in the real world – the science of economics will continue to produce models that can 'prove' anything. This gives politicians a virtual smörgåsbord of alternative theories, often contradictory, to choose from and to apply according to national preferences and vested interests. Lucas's 1988 model – which is really relevant for the problems of world poverty – disappears in a sea of other elegant but alas irrelevant models.

Three factors have, in our opinion, led to a near-disappearance of the Renaissance tradition in the post-Second World War era. Firstly, the Cold War created an enormous demand for economic and political arguments against the totalitarian threat to the West. The perfect markets of neoclassical theory provided an ideological defence line. Communism promised that everyone would receive according to his needs. Neoclassical economics returned with an even more powerful argument: under its system all wage earners of the world would become equally rich. Although the basis for the theory was there earlier, in our view it is not merely coincidence that the influence of neoclassical formality reached its height in the Cold War. Samuelson's 'proof' of factor-price equalization came during the Berlin blockade, and Milton Friedman's 1953 defence of the use of any assumptions so long as they worked came at the height of the McCarthy era. The Cold War needed Ricardo and Smith, and they did their duty (see Mirowski 2002 for the development of post-Second World War economics).

Secondly, the mechanization of the world picture which started with the Enlightenment will probably, with the benefit of hindsight, prove to have peaked during the same post-Second World War period. The choice of mathematics as the lingua franca of economics – and the way in which the profession was mathematized – contributed to the demise of Renaissance economics. Key variables in Renaissance economics are irreducible to mathematics (see Drechsler in this volume). Renaissance economics depends on a different form of understanding, the qualitative understanding that German philosophers call *verstehen*, as opposed to the quantitative *begreifen* which characterizes the hard sciences. Trying to bridge these two worlds was the impossible task that Schumpeter assigned himself (Reinert 2002). The creative processes underlying economic change proved impossible to reduce to linear mathematics based on nineteenth-century physics. Modern complexity theory, however, seems to be able to achieve what Schumpeter desired.

Thirdly, research and production for the Second World War produced a formidable knowledge base which fed the post-war innovation and produc-

tion boom. Once the Fordist technological paradigm had been set in motion, there was no demand for the Renaissance economics idea of human creativity as the primary engine of growth. Post-Second World War society was living off the stock of human creativity which, as so often before, had been set free in a war economy. Having learned from Keynes how to even out the ruffles of the business cycle, the economics profession was confident. Paraphrasing Krugman (1990, p. 4) economic research proceeded – undisturbed by the real world – down the path of least mathematical resistance. Unfortunately, the discovery of how to iron out the business cycle was mistaken for the philosopher’s stone for creating welfare. Keynesianism’s emphasis on financial and monetary aspects, though justified in the crisis of the 1930s, helped financial capitalism take the upper hand over production capitalism in the late 1990s, leading to a predictable collapse (Perez 2002).

In our opinion, these three factors reinforced each other in a most unfortunate spiral to virtually eliminate *The Other Canon* of economics. Economics was elevated to a level of abstraction where it became unscientific to be relevant.

Today, evolutionary economics is growing as an alternative to the standard, neoclassical-based economic theory. With the TEP Programme (Technology and Economy) of the Organisation for Economic Cooperation and Development (OECD) of the early 1990s, evolutionary economics gained prominence as a policy guide in the industrialized world. At its best, this evolutionary theory captures the essence of Renaissance economics. At its worst, it merely substitutes a mechanical economic understanding based on biology (‘biology envy’) for the standard canon’s mechanical economic understanding based on physics (‘physics envy’). Evolutionary economics needs to be moved along the axis from matter to mind, not only from physics to biology. Since the early 1990s Schumpeterian economics flourishes at the micro level, but very few attempts are made to evaluate the consequences of this kind of microeconomics at the macro level. Schumpeterian economics remains a thin icing on a thoroughly neoclassical cake, allowing the juggling of assumptions that we have criticized above.

Although the potential benefits from applying evolutionary and institutional theorizing would be much larger in the Third World than in the First World, this theory has not yet had any influence on the Third World policy of international institutions such as the International Monetary Fund and the World Bank. This is probably because the vast majority of World Bank economists, regardless of their nationality, are educated in economics departments of American and English universities, where evolutionary theory is not taught. In the same way that Renaissance knowledge was created outside the old university structure – in the scientific academies – in

most countries, Schumpeterian evolutionary economics is practised mostly outside university economics departments.

Economics as it is practiced in the economics departments is essentially no longer in demand in the OECD countries. These theories are too general and too abstract, and are perceived as being irrelevant to any practical purpose in the real world. Today, standard textbook theories in their pure form are applied in practical policy only in the Third World by IMF and World Bank economists who have virtually no experience in the economic policies of the wealthy nations. This is, in our view, an ethically disturbing case of selective use of economic theory, which has enormous implications for the welfare of poor countries. Although standard economics preaches the same medicine for all nations regardless of context, presently the world community is administering different medicines to the poor nations than to the wealthy nations. Perversely, however, Other Canon economics is practised in the developed nations but not contained in the prescriptions from the Washington institutions to the poor countries which need it the most. The need to resurrect Renaissance non-equilibrium economics – the Other Canon – for application in Eastern Europe and in the Third World is an urgent one.

## NOTES

1. Quotation from Arrow's foreword to Arthur 1994. Arrow uses this metaphor to describe the place of increasing returns in economic theory. Increasing returns has, explicitly or implicitly, been at the core of the economic analysis of the Renaissance canon ever since Antonio Serra described this phenomenon in 1613. Serra explicitly associated increasing returns with manufacturing industry.
2. Schumpeter 1954, p. 468.
3. Of which Schumpeter (1954, p. 175) writes: 'Its analytical merit is negligible, but all the greater was its success.'
4. In Germany, the main antiphysocrat was Johann Friedrich von Pfeiffer; in France, Gabriel Bonnot, Abbé de Mably, Accarias de Serrionne, Jacques Necker, François Veron de Forbonnais, Jean Graslin, Ferdinando Abbé Galiani – a Neapolitan envoy at the Court of Paris – and, most critical of them all, Simon-Nicolas-Henry Linguet. For a list of works by German antiphysocrats, see Humpert 1937, pp. 1031–32.
5. These synergetic effects are clearly described in Botero 1590 and even more so in Serra 1613. To Serra these 'virtuous circles' have their origins in the increasing returns found in the manufacturing sector, which are absent in agriculture. Machiavelli is also clear on this point: 'Il bene comune è quello che fa grandi le città.'
6. Eli Hecksher, quoted in Polanyi 1944, p. 278.
7. With the possible exception of small city-states, such as Hong Kong and San Marino.
8. Crowther 1960, p. 97.
9. List 1904, pp. 66–7.
10. These arguments are thoroughly discussed in Reinert 1999.
11. '[S]eine Begriffe "schweben" umher wie die unerlösten Seelen an den Ufern des Hades', Sombart 1928, p. 929.
12. For a discussion of this strategy, see Reinert 1994.

13. See Clément 1861–1872.
14. For a discussion of this concept, see Bijker et al. 1989.
15. See Morris 1957, p. 285.
16. 'Ich sage das auf die Gefahr hin, als Neo-Merkantilist abgestempelt und in das Raritätenkabinett unseres Faches übergeführt zu werden', Sombart 1928, p. 925.
17. Sugiyama and Mizuta 1988, p. 32.
18. The author's full name appears on the dissertation as Horace Greeley Hjalmar Schacht. Horace Greeley (1811–1872) was – like the important US protectionist E. Peshine Smith – a protégé of the US statesman William Seward, a secretary of state and one of the founders of the Republican Party. This party was the main proponent of 'Renaissance economics' in the United States at the time. Greeley founded the New York *Tribune* and was its editor for 31 years. One of the *Tribune's* European correspondents was Karl Marx, whose dispatches became classics of Marxian socialism.
19. 'Man kann aus den Menschen machen, was man will; die Art, mit der er regiert wird, entschliesst ihn zum Guten, oder zum Bösen', Pfeiffer 1777, p. 2.
20. This problem is discussed in Hart 1990.
21. Smith 1812, vol. 1, p. 320 (emphasis added).
22. Hufbauer et al. 1986, p. 1.
23. On E. Peshine Smith, see Hudson 1969. In the 1970s Hudson edited a series of reprints of the writings of nineteenth-century US economists.
24. Dühring, *Kritische Geschichte der Nationalökonomie* (1879), quoted in Sombart (1928), p. 913.
25. List 1959, p. 12. Our translation. This is part of List's foreword, which has been drastically reduced in the English edition.
26. Nye 1991, p. 23.
27. Roscher (1882, vol. 1, p. 189 § 58) refers to the works of Xenophon, Plato, Aristotle, Aquinas, Luther, Petty, Mandeville, Berkeley, Harris, Rousseau, Turgot, Diderot, Tucker and Beccaria.
28. List 1904, Chapters 1, 2 and 3; Wallerstein 1978, vol. 2, pp. 90–93.
29. Schumpeter (1954, pp. 344–5) discusses the controversy between the two men. See also their respective entries in the *New Palgrave*. In all cases these references are purely to the mechanics of money and exchange.
30. Buck 1942, p. 23.
31. Smith 1976a, p. 237. Interestingly, this appears in a book that is said to represent the diametric opposite of *Wealth of Nations*, the first based on altruism, the latter on self-love.
32. This point is discussed in Reinert 1996a.
33. A good description of Galiani and his unique standing in French society at the time is found in Pecchio 1849, pp. 80–86.
34. The antiphysiocrats are discussed in Weulersse 1910, vol. 2, pp. 256–682, and in Higgs 1897, pp. 102–22.
35. Excerpts from Postlethwayt's *Universal Dictionary of Trade and Commerce* were scattered through Hamilton's *Army Pay Book*; see Morris 1957, p. 285. Hamilton's views on the English classical economists was echoed in that of the Japanese 80 years later; see Tessa Morris-Suzuki 1989.
36. See particularly Franklin's comments printed as footnotes in Whatley 1774.
37. Menger 1884; see also Ritzel 1950.
38. Two informative books (Yonay 1998; Morgan and Rutherford 1998) trace the demise of institutional economics in the United States.

## REFERENCES

- Arthur, W. Brian (1994), *Increasing Returns and Path Dependency in the Economy*, Ann Arbor, MI: University of Michigan Press.
- Bentham, Jeremy (1780), *An Introduction to the Principles of Morals and Legislation*, London: University Paperback.
- Bijker, Wiebe, Thomas P. Hughes and Trevor Pinch (eds) (1989), *The Social Construction of Technological Systems*, Cambridge, MA: MIT Press.
- Birck, L.V. (1926), 'Moderne Scholastik: Eine kritische Darstellung der Böhm-Bawerkschen Theorie', *Weltwirtschaftliches Archiv*, **24** (2), 198–227.
- Botero, Giovanni (1590), *Delle Cause della Grandezza delle Città*, Rome: Vicenzio Pellagalo.
- Buchanan, James, and Yong J. Yoon (eds) (1994), *The Return to Increasing Returns*, Ann Arbor, MI: University of Michigan Press.
- Buck, Philip (1942), *The Politics of Mercantilism*, New York: Henry Holt.
- Carey, Henry Charles (1864), *Financial Crises: Their Causes and Effects*, Philadelphia, PA: Henry Carey Baird.
- Carey, Henry Charles (1967 [1851]), *Harmony of Interests: Agricultural, Manufacturing and Commercial*, New York: Augustus M. Kelley.
- Clément, Pierre (ed.) (1861–72), *Lettres, Instructions et Mémoires de Colbert*, Paris: Imprimerie Impériale/Imprimerie Nationale.
- Commons, John (1963 [1893]), *The Distribution of Wealth*, Fairfield, NJ: Kelley.
- Crowther, J.G. (1960), *Francis Bacon: The First Statesman of Science*, London: Cresset Press.
- Court, Pieter de la (1662), *Interest van Holland*, Amsterdam, German translations 1665 and 1668, English translations, London 1743 and 1746.
- Doléjal, Oscar (1921), *Le milieu politique et économique du Royaume de Naples au XVI et au début du XVII siècle. Les doctrines économiques de Marc'Antonio de Santis, d'un Anonyme Génois et d'Antonio Serra*, PhD Thesis, Université de Poitiers, Ligugé: E. Aubin.
- Freeman, Christopher (1992), *The Economics of Hope*, London: Pinter.
- Fusfeld, Daniel R. (1987), 'Methodenstreit', in *The New Palgrave Dictionary*, Macmillan: London.
- Hart, Neil (1990), 'Increasing returns and economic theory: Marshall's reconciliation problem', University of Western Sydney, Discussion Paper Series, no. E9004.
- Henderson, John (1994), *Piety and Charity in Late Medieval Florence*, Oxford: Clarendon.
- Higgs, Henry (1897), *The Physiocrats*, London: Macmillan.
- Hildebrand, Bruno (1848), *Die Nationalökonomie der Gegenwart und Zukunft*, Frankfurt: Literarische Anstalt.
- Hirschman, Albert O. (1991), *The Rhetoric of Reaction: Perversity, Futility, Jeopardy*, Cambridge, MA: Harvard University Press.
- Hornick, Philipp Wilhelm von (1684), *Österreich über alles wann es nur will*, no place (but Nürnberg), no publisher.
- Hudson, Michael (1969), 'E. Peshine Smith: A study in protectionist growth theory and American sectionalism', PhD diss., New York University; Ann Arbor, MI: University Microfilm.
- Hufbauer, Gary C., Diane T. Berliner and Kimberly A. Elliot (1986), *Trade Protection in the United States: 31 Case Studies*, Washington DC: Institute for International Economics.



- Humpert, Magdalene (1937), *Bibliographie der Kameralwissenschaften*, Cologne: Kurt Schroeder.
- Keynes, J.M. (1930), *A Treatise on Money*, 2 vols, London: Macmillan.
- King, Charles (1721), *The British Merchant: Or Commerce preserv'd*, 3 vols, London: John Darby.
- Krugman, Paul (1990), *Rethinking International Trade*, Cambridge, MA: MIT Press.
- Krugman, Paul (1996), *The Self-Organizing Economy*, Cambridge, MA: Blackwell.
- Kuhn, Thomas (1970), *The Structure of Scientific Revolutions*, Chicago, IL: University of Chicago Press.
- Laffemas, Barthélemy (1597), *Reiglement [sic] general pour dresser les manufactures en ce rayaume, et couper le cours des soye, & autres marchandises qui perdent & ruynent l'Estat: qui est le vray moyen de remettre la France en sa splendeur, & de faire gagner les pauvres . . .*, Paris: Claude de Monstr'oil and Jean Richter.
- Latini, Brunetto, Paul Barrette and Spurgeon W. Balwin (1993), *The Book of the Treasure = Li livres dou Tresor*, New York: Garland.
- Leibniz, Gottfried Wilhelm (1992 [1671]), 'Society and Economy', reprinted in *Fidelio*, 2 (1), 63–9.
- List, Friedrich (1904 [1841]), *The National System of Political Economy*, London: Longman.
- List, Friedrich (1959 [1841]), *Das Nationale System der politischen Oekonomie*, Basel: Kyklos.
- List, Friedrich (1985 [1937]), *Die Welt bewegt sich: Über die Auswirkungen der Dampfkraft und der neuen Transportmittel*, ed. Eugen Wendler, Göttingen: Vandenhoeck & Ruprecht.
- Lucas, Robert E. (1988), 'On the mechanics of economic development', *Journal of Monetary Economics*.
- Malynes, Gerard de (1622), *The Maintenance of Free Trade, according to the Three Essentiall Parts . . . Commodities, Moneys and Exchange of Moneys*, London: William Sheffard.
- Malynes, Gerard de (1623), *The Center of the Circle of Commerce, or, A Refutation of a Treatise . . . Lately Published by E. M.*, London: Nicholas Bourne.
- Marshall, Alfred (1890), *Principles of Economics*, London: Macmillan.
- Menger, Carl (1883/1963), *Problems of Economics and Sociology ( Untersuchungen über die Methode der Socialwissenschaften und der Politischen Ökonomie insbesondere)*, Urbana, IL: University of Illinois Press.
- Menger, Carl (1884), *Die Irrtümer des Historismus in der deutschen Nationalökonomie*, (Errors of Historicism), Vienna: Alfred Hölder.
- Mill, John Stuart (1987 [1848]), *Principles of Political Economy*, New York: Kelley.
- Mirowski, Philip (1994), 'Doing what comes naturally: Four metanarratives on what metaphors are for', in Philip Mirowski (ed.), *Natural Images in Economic Thought*, Cambridge: Cambridge University Press.
- Mirowski, Philip (2002), *Machine Dreams. Economics Becomes a Cyborg Science*, Cambridge: Cambridge University Press.
- Misselden, Edward (1622), *Free Trade and the Meanes to Make Trade Flourish*, London: Simon Waterson.
- Misselden, Edward (1623), *The Circle of Commerce or the Ballance of Trade*, London: Nicholas Bourne.
- Morgan, Mary S. and Malcolm Rutherford (eds) (1998), *From Interwar Pluralism to Postwar Neoclassicism*, annual supplement to *History of Political Economy*, 30.

- Morris, R.B. (1957), *Alexander Hamilton and the Founding of the Nation*, New York: Dial Press.
- Morris-Suzuki, Tessa (1989), *The History of Japanese Economic Thought*, London: Routledge.
- Nelson, Richard and Sidney Winter (1982), *An Evolutionary Theory of Economic Change*, Cambridge, MA: Harvard University Press.
- Nietzsche, Friedrich (2000), *Digitale Bibliothek Band 31: Nietzsche*, Berlin: Directmedia (CD-ROM)
- Nye, John Vincent (1991), 'The myth of free-trade Britain and fortress France: Tariffs and trade in the nineteenth century', *Journal of Economic History*, **51** (1), 23–46.
- Pecchio, Giuseppe (1849), *Storia della Economia Pubblica in Italia*, Lugano: Tipografia della Svizzera Italiana.
- Perez, Carlota (2002), *Technological Revolutions and the Mechanisms of Bubbles and Golden Ages*, Cheltenham: Edward Elgar.
- Perrotta, Cosimo (1988), *Produzione e Lavoro Produttivo nel Mercantilismo e nell'Illuminismo*, Galatina: Congedo Editore.
- Pfeiffer, J.F. von (1777), *Lehrbegrif sämtlicher oeconomischer und Cameralwissenschaften*, vol. 3, part 1, Mannheim: Schwan.
- Pfeiffer, J.F. von (1780), *Der Antiphysiokrat, oder umständliche Untersuchung des sogenannten physiokratischen Systems für eine allgemeine Freyheit und einzige Auflage auf den reinen Ertrag der Grundstücke*, Frankfurt am Main: Schäfer.
- Polanyi, Karl (1944), *The Great Transformation*, Boston, MA: Beacon Press.
- Popper, Karl (1997), *The Poverty of Historicism*, London: Routledge.
- Prince-Smith, John (1874), *Der Staat und der Volkshaushalt*, Berlin: Springer.
- Raffel, Friedrich (1905), *Englische Freihändler vor Adam Smith*, Tübingen: Laupp.
- Raymond, Daniel (1820), *Principles of Political Economy*, Baltimore, MD: Fielding Lucas.
- Reder, Melvin W. (1999), *Economics: The Culture of a Controversial Science*, Chicago, IL: University of Chicago Press.
- Reinert, Erik S. (1980), 'International trade and the economic mechanisms of underdevelopment', PhD diss., Cornell University; Ann Arbor, MI: University Microfilm.
- Reinert, Erik S. (1994), 'Catching-up from way behind: A third world perspective on first world history', in Jan Fagerberg, Bart Verspagen and Nick van Tunzelmann, *The Dynamics of Technology, Trade and Growth*, Aldershot, UK and Brookfield, US: Edward Elgar, pp. 168–97.
- Reinert, Erik S. (1996a), 'Diminishing Returns and Economic Sustainability: The dilemma of resource-based economies under a free trade regime', in Stein Hansen, Jan Hesselberg and Helge Hveem (eds), *International Trade Regulation, National Development Strategies and the Environment: Towards Sustainable Development?*, Oslo, Centre for Development and the Environment, University of Oslo, pp. 119–50.
- Reinert, Erik S. (1996b), 'The role of technology in the creation of rich and poor nations: Underdevelopment in a Schumpeterian system', in Derek H. Aldcroft and Ross Catterall (eds), *Rich Nations – Poor Nations. The Long Run Perspective*, Aldershot: Edward Elgar, 1996, pp. 161–88. Spanish translation (2002) 'El rol de la tecnología en la creación de países ricos y pobres: El subdesarrollo en un sistema Schumpeteriano', *Cuadernos*, **7** (12).
- Reinert, Erik S. (1998), 'Raw materials in the history of economic policy; or, Why

- List (the Protectionist) and Cobden (the Free Trader) both agreed on free trade in corn', in G. Cook (ed.), *The Economics and Politics of International Trade. Freedom and Trade: Volume II*, London: Routledge, pp. 275-300.
- Reinert, Erik S. (1999), 'The role of the state in economic growth', *Journal of Economic Studies*, **26** (4/5), 268–326. A shorter version published in Pier Angelo Toninelli (ed.) (2000), *The Rise and Fall of State-Owned Enterprises in the Western World*, Cambridge: Cambridge University Press.
- Reinert, Erik S. (2000), 'Full Circle: economics from scholasticism through innovation and back into mathematical scholasticism. Reflections around a 1769 price essay: "Why is it that economics so far has gained so few advantages from physics and mathematics?"', *Journal of Economic Studies*, **27** (4/5), 364–76.
- Reinert, Erik S. (2002) 'Schumpeter in the context of two canons of economic thought', *Industry and Innovation*, **6** (1), 23–39.
- Reinert, Erik S. and Arno M. Daastøl (1997), 'Exploring the genesis of economic innovations: the religious gestalt-switch and the duty to invent as preconditions for economic growth', *European Journal of Law and Economics*, **4** (2/3), 233–83 reprinted (1998) in *Christian Wolff. Gesammelte Werke, Materialien und Dokumente*, Hildesheim: Georg Olms Verlag, 1998.
- Ritzel, Gerhard (1950), *Schmoller versus Menger*, Frankfurt am Main: n.p.
- Roscher, Wilhelm (1874), *Geschichte der National-Oekonomie in Deutschland*, Munich: Oldenbourg.
- Roscher, Wilhelm (1882), *Principles of Political Economy*, Chicago, IL: Callaghan.
- Rostovtzeff, Mikhail (1941), *Social and Economic History of the Hellenistic World*, 3 vols, Oxford: Oxford University Press.
- Samuelson, Paul (1948), 'International trade and the equalisation of factor prices', *Economic Journal*, **58**, 163–84.
- Samuelson, Paul (1949), 'International factor-price equalisation once again', *Economic Journal*, **59**, 181–97.
- Schumpeter, Joseph A. (1954), *History of Economic Analysis*, New York: Oxford University Press.
- Seligman, Edwin A. (1920), *Curiosities of Early Economic Literature*, San Francisco, CA: John Henry Nash.
- Serra, Antonio (1613), *Breve trattato delle cause che possono far abbondare li regni d'oro e argento dove non sono miniere*, Naples: Lazzaro Scoriggio.
- Smith, Adam (1812 [1759]), 'The Theory of Moral Sentiments', in *Collected Works*, London: Cadell & Davies.
- Smith, Adam (1976 [1776]), *Wealth of Nations*, Chicago, IL: University of Chicago Press.
- Sombart, Werner (1928), *Der Moderne Kapitalismus*, vol. 2, *Das Europäische Wirtschaftsleben im Zeitalter des Frühkapitalismus*, Munich: Duncker & Humblot.
- Sombart, Werner (1930), *Die Drei Nationalökonomien*, Munich: Duncker & Humblot.
- Spann, Ottmar (1926), *Die Haupttheorien der Volkswirtschaftslehre*, Leipzig; Quelle & Meyer. US edition (1930): *The History of Economics*, New York: Norton.
- Stangeland, Charles Emil (1904), *Pre-Malthusian Doctrines of Population: A Study in the History of Economic Theory*, New York: Columbia University Press.
- Steuart, James (1767), *Principles of Political Economy*, London: Millar & Cadell.
- Sugiyama, C. and H. Mizuta (1988), *Enlightenment and Beyond: Political Economy Comes to Japan*, Tokyo: University of Tokyo Press.

- Viner, Jacob (1972), *The Role of Providence in the Social Order: An Essay in Intellectual History*, Philadelphia, PA: American Philosophical Society.
- Wallerstein, Immanuel (1978 [1974]), *Det moderne verdenssystem*, 2 vols, Oslo: Gyldendal.
- Weulersse, Georges (1910), *Le mouvement physiocratique en France*, Paris: Alcan.
- Whatley, G. (1774), *Principles of Trade. Freedom and Protection Are Its Best Support* [sic]: *Industry, the Only Means to Render Manufactures Cheap*, London: Brotherton and Sewell.
- Wiles, P.J.D. (1977), *Economic Institutions Compared*, Oxford: Basil Blackwell.
- Xenophon and Wayne Ambler (2001), *The Education of Cyrus*, *Agora Editions*. Ithaca, NY: Cornell University Press.
- Yagi, Kiichiro (1989), 'German model in the modernisation of Japan', *Kyoto University Economic Review*, **59** (1–2).
- Yat-Sen, Sun (1922), *The International Development of China*, New York: Putnam.
- Yonay, Yuval (1998), *The Struggle over the Soul of Economics*, Princeton, NJ: Princeton University Press.
- Zincke, Georg Heinrich (1753), *Xenophon's Buch von den Einkünften, oder, dessen Vorschläge, wie das bereiteste Vermögen grosser Herren und Staaten nach ächten Grund-sätzen des Finanz-Wesens zu vermehren*, Wolfenbüttel: Meissner.