

**An Early National Innovation System:
The Case of Antonio Serra's 1613 *Breve Trattato***

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Abstract

Based on the economics of Joseph Schumpeter, National Innovation Systems have since the early 1990's emerged as a holistic and socioculturally embedded alternative approach to explaining economic growth. The idea that systemic relationships exist between different sectors of the economy that influence the production and implementation of new knowledge, and thus economic development is, however, much older than current research indicates. We will argue the Neapolitan mercantilist Antonio Serra coherently presented the kernel of a national innovation system already in his 1613 *Breve trattato*, including two of its key elements increasing returns and synergies. The problems of establishing the institutions conducive to economic growth faced by mercantilists at the end of the Renaissance are shared today by policy-makers in the developing world, and it can therefore prove to be fruitful, if not necessary, to explore the historical roots of this early innovation system approach. Indeed, Serra's work has been brought back to light on several occasions in the past centuries, each time as a source of guidance in an era of economic turmoil: first on the eve of Italian unification, then at the dawn of German industrialization. Following the failure of the Cancun meetings in 2003 to reach a trade agreement between North and South, such turmoil is over us again as it becomes increasingly clear that the reigning economic dogma has failed to deliver on its political promises. We argue that, in the economic profession's inevitable search for new means and methods, Serra's message is again relevant.

Introduction – Mercantilism as a National System of Innovation

It has frequently been noted that static, barter-centred mainstream economics, as a collection of theoretical variants orbiting the neoclassical paradigm, is presently under siege

by a wider, more dynamic and socially embedded alternative that focuses on production and innovation as mechanisms of economic growth (Broda 1996: 235; Magnusson and Ottosson 1997: 1-9; North 2001: 491). As a subset of the neo-Schumpeterian alternative, the innovation system approach—broadly conceived as the existence of institutional synergies fuelling innovative activity and economic growth—has become widely diffused in the past few years, recently, with the Globelics network meeting in Rio de Janeiro late 2003, also entering seriously into the discourse on Third World development. With its insistence on the social and institutional embeddedness of the learning economy (Lundvall 1992; Ernst and Lundvall 2004), it seems to appeal to the dissatisfied without alienating representatives of orthodoxy. Since Christopher Freeman and later Bengt-Åke Lundvall's (Lundvall 1992) and Richard Nelson's (Nelson 1993) rendering of the concept of National Innovation Systems in the early nineties this methodology has gradually been integrated into the policies of the OECD, the European Commission, and UNCTAD (Lundvall et al. 2002: 214). One of the greatest challenges facing the theory today, however, is that much of the work done on national systems of innovation is post facto, in the sense that most research is done on systems that are already mature, already diversified and successful (Lundvall et al. 2002: 226). Theories and concepts that work wonders in countries with an industrial tradition dating back centuries, may, however, become much less productive—if not downright destructive—in the context of developing countries unless filtered through a historical lens. Identifying the necessary conditions for the successful implementation of innovation systems in impoverished nations is a project distinct from understanding how to stimulate long-industrialized economies.

It is therefore important to focus not only on the present and future of mature national innovation systems, but also on their past; to identify the mandatory passage points inherent to this approach and their historical origins in terms of both theory and practice. What, in other words, did theorists in the industrialized world write about national systems of innovation as

such phenomena could first be observed? The history of national innovation systems has already been traced back to the work of Friedrich List (Lundvall 1992: 16; Freeman and Soete 1997: 295-299), but its intellectual roots reach much deeper into the history of economic thought. It is clear that List [1789-1846] and Wilhelm Roscher [1817-1894], the person who put increasing returns back in the economists' toolbox, both relied on a much older tradition of political economy for many of the more synergistic aspects of their theories. Both List and Roscher quoted and referred to a certain Antonio Serra, a Neapolitan Mercantilist whom Schumpeter claims was "the first to compose a scientific treatise... on Economic Principles and Policy" (Schumpeter 1954: 195), as an authority when arguing that Germany should follow England's path to industrialization (List 1841; Roscher 1881: 191). The purpose of this paper is to outline Antonio Serra's theory of uneven economic development in the context of a national innovation systems approach to shed light on current policy concerns in the developing world. This also means putting Serra's theory in its own historical context.

Serra's work belongs to the Mercantilist tradition of economic literature. 'Mercantilist' is a term commonly used today to cover all economic theory and practice between the Scholastics and Adam Smith [1723-1790], and is—in modern textbooks—a decidedly derogatory term describing "bad economists" who, if one were to take the verdict of mainstream economics seriously, confused the hoarding of gold with the augmentation of national wealth: the so-called *Midas Fallacy* (Perrotta 1991).¹ When Adam Smith wrote his *Wealth of Nations* in 1776, however, modern nation states had been created, the Renaissance and Enlightenment had brought their huge innovations and inventions, the institutions of modern capitalism had gradually been established, and the first Industrial Revolution was in full swing. From the perspective of modern textbooks, then, all this was believed to have been created by "bad" economists pursuing "bad policies," bullionist economists who had

¹ The Midas Fallacy is in fact part of a collective delusion shared by many that, in the words of Foucault, economics "sprang up in Western thought, fully armed and already full of danger, at the time of Ricardo and J-B. Say" (Foucault 2002: 181).

supposedly made the fundamental mistake of confusing gold with real wealth. In reality Mercantilism, while in many ways a theoretical hydra (Magnusson 1999), provided the theoretical impetus for the creation of the early modern state, and in many cases presented the same systemic rendering of the economy as our contemporary innovation system approach. Many institutions that can be taken for granted in the industrialized world today, however, had to be constructed from scratch in the 1500's to 1700's. The developing world, lacking these institutions, thus faces many of the same challenges that Europe had to overcome in the early modern period. It is noteworthy that the important theoretical work tended not to come from the leading nations, like Venice or the Dutch Republic. Theory seems to have originated in the attempts of people in the periphery, Naples in Serra's case, to understand and copy the fortuitous conditions that caused the wealth of some cities, and the urban, maritime and manufacturing bias of this wealth accumulation. An even earlier theory to the same effect, but with much less analytical acumen is found in France during the late 1500's (Laffemas 1597).

Only those intimately familiar with the historiography of economic analysis will know that Antonio Serra was involved in a debate very similar to that separates economists also today. Where his rival Marc' Antonio de Santis, to whose work Serra's *Breve trattato* was a response, sought to improve the Neapolitan economy manipulating monetary and fiscal variables, Serra insisted that the unfavourable monetary and fiscal situation of Naples merely reflected underlying factors in the real economy, factors that could be influenced and developed through governmental interventions in the real, as opposed to the monetary, economy. These two conflicting ways of structuring the economic sphere—one focusing on monetary variables and the other on knowledge and production—came into conflict across Europe in the early seventeenth century, the most polemical expressions of this debate occurring within a few years of each other in London and Naples. The similarities between these two disputations have been pointed out in passing several times in twentieth century, but

the Neapolitan version of the conflict has received much less scholarly attention (Seligman 1920: ix, Schumpeter 1954: 355; Rosselli 2000). This pan-European phenomenon thus found its most renowned manifestation in the English mercantilist debates between Edward Misselden [1608?-1654] and Gerard de Malynes [1586-1641] in the early 1620's (Misselden 1622 & 1623, Malynes 1622), even though the analytically much superior equivalent unfolded in Naples a decade earlier. The theoretical contributions of Antonio Serra [fl. 1613] and Marc'Antonio de Santis [fl. 1605], arguing the relative positions of Misselden and Malynes respectively, have seldom been discussed at any length, and Serra's *Breve trattato*, while often mentioned in passing in historical surveys of economic thought, thus remains largely unanalyzed in the historiography of economics.

Historically, it is interesting to note that economists who have resurrected Serra consciously have taken an interventionist stance in the methodological debate, arguing that the necessary institutional preconditions for economic growth could only be implemented by a strong state (Custodi 1803: xvii; List 1841). Innovation system theorists today often call for many of the same things (Ernst and Lundvall 2004), but mercantilism in general and Serra in particular have not yet been re-evaluated in terms of this alternative, broader, more nuanced conception of the interface between state and economy. We will argue that Serra's theories remain relevant for the innovation system approach, particularly as regards key factors that get the virtuous circles of economic development started. Serra was, in particular, the first economist to systematically introduce two mechanisms that are at the core of the process of economic development: *increasing returns* and *cumulative causations*.

Antonio Serra and his Historical Context.

Very few facts concerning Antonio Serra and his life are available to us, but enough is left to make a rough sketch of the life and times of this unfortunate and sometimes maligned

economist. Antonio Serra was a doctor of law imprisoned, possibly on charges of counterfeiting, by the Spanish Viceroyalty of Naples during the monetary crisis and economic depression that marked the birth of the seventeenth century (Custodi 1803; Schefold 1994; Granata 1998). The economic crisis was not a localized phenomenon, but rather the reflection of a deeper, multilateral reconstruction of the European social and economic spheres (Gould 1955: 121-133; Wallerstein 1979; Kindleberger 1991: 149-175). The age of exploration had made many institutions antiquated, and the center of commercial gravity in Europe shifted slowly from south to north as traders and explorers commercialized the Baltic and Atlantic seaways (Schmoller 1967; Hinton 1959: 12-24; Finkelstein 2000). The counterreformation only contributed to the economic decay in the Italian peninsula (Reinert & Daastøl 1997). Based on these changes, it is not surprising that the various sciences experienced a concomitant revolution in reaction to an expanding world in flux (Ryan 1981: 519-538; Bouwsma 2000: 67-85).

We shall indeed argue that a necessary precondition for what Foucault named the ‘epistemologization of economics’, the birth of economics as a science, was the formation of the possibility of progress, of a never-ending frontier of increasing knowledge and increasing wealth. Whereas economics had existed in practice for millennia, it only emerged in coherent theory following the “general intellectual ferment” resulting from the cosmological revolution at the end of the sixteenth century (Kuhn 1957: 1-7). This new conception of an infinitely expanding cosmos in flux (e.g., in Bruno 1584) was, one could argue, the dynamic precondition for the mercantilist reinterpretation of the economic sphere: economic activities suddenly were empowered with the ability to propagate wealth on an aggregate level. Whereas Aristotle and the Scholastics resisted economic initiatives on the grounds that they inevitably exacerbated social inequality through diverging incomes (Finkelstein 2000: 89), the mercantilists realized the economy could be directed towards increasing the material welfare

of the entire population: enlightened statecraft could increase the *common good*. Mercantilist literature can thus not be properly understood without reference to their cosmological context: the understanding of an expanding cosmos brought an end to the economy as a zero-sum game. Both cosmos and the economy ceased being static and incapable of growth. At the same time a religious reinterpretation meant that *innovation* was no longer a term of heresy. In 1278 Roger Bacon was arrested in Oxford for “suspicious innovations,” when Francis Bacon wrote his *Essay on Innovation* around 1605 innovation was something to be actively sought for in order to improve the lot of mankind (Reinert and Daastøl 1997). The zero-sum game *Weltanschauung* slowly disappeared and the learning economy was born.

The overriding economic question of Serra’s day was why all the gold and silver that flowed into Spain from the Americas rapidly flowed out of an increasingly impoverished Spain and ended up creating unprecedented wealth elsewhere, particularly in Venice and in the Dutch Republic. To Serra the explanation of this phenomenon was to be found in the study of the real economy, not in the study of monetary phenomena. To him, the key to this mystery was that different economic sectors were subject to different economic laws; manufacturing was subject to increasing returns as production expanded, and agriculture was not. Serra explained the underlying causes in the *Realökonomie* that determined the flow of gold in and out of nations. *To Serra, a deficit of gold was but a symptom of other ills that could only be explained in the realm of production.* As Schumpeter says about Serra’s work: “Essentially the treatise is about the factors on which depend the abundance not of money but of *commodities*—natural resources, quality of the people, the development of industry and trade, the efficiency of government—the implication being that if the economic process as a whole functions properly, the monetary element will take care of itself and not require any specific therapy” an argument recently revived by Alessandro Roncaglia’s excellent survey of the history of economic thought (Schumpeter 1954: p 195; Roncaglia 2001: 52).

As part of this epistemic shift of the late Renaissance, Antonio Serra sought to uncover the mechanisms of economic growth, and, in doing so, produced the earliest known systematic treatise on political economy. Serra's theories can only be described as *avant-garde*; his insights are in many ways both valid and neglected even today, and may indeed help explain the mechanisms of uneven economic development: why some countries become richer while others become poorer in an era of globalization. Serra was the first economist to explore and establish the *rules* and *principles* governing economic expansion, and by observing and categorizing his material surroundings, Serra was able to illuminate the root causes of national wealth creation in terms of the synergies between different sectors of the economy. He was, in other words, not only the creator of the first model in the history of economic thought, he also created a theory of uneven growth and was the first exponent of what we today call a national system of innovation.

Antonio Serra in the Historiography of Economic Analysis

Serra's *Breve trattato*, while certainly being one of the more impressive analytical achievements in the history of economic thought, especially given the circumstances of its writing, was not well received by his contemporaries. After presenting his work in an audience with the Spanish Viceroy in Naples, Serra was ridiculed and thrown back into jail where, as far as we know, he ended his days (Anonymous 1846: 520). The Kingdom of Naples continued to treat the symptoms of the outflow of gold and silver rather than its causes, and for a long period joined the rest of Italy in the periphery of the world system. After this, Serra and his work remained shrouded in darkness for more than a century. It was seemingly a pure coincidence that the Tuscan mathematician Bartolomeo Intieri [1678-1757] rediscovered the *Breve trattato* while stationed as administrator of the Medici estates in Naples in the middle of the eighteenth century. Intieri is best remembered for having founded

the chair of political economy at the University of Naples, the first of its kind anywhere outside Germany and Sweden/Finland. The chair of political economy was given to the influential economist Antonio Genovesi² in 1754 and Intieri gave him the only known copy of Serra's *Breve trattato* as an inaugural gift. Genovesi later donated this book to Ferdinando Galiani, the ardent anti-physiocrat, who was the first author to write on Serra. Galiani gave the book to his student and fellow economist Giuseppe Palmieri [1721-1793], who gave it to the Neapolitan nationalist Francesco Salfi, a friend of Baron Pietro Custodi (Custodi 1803: xxviii). Custodi honored Serra's memory by including it as the first tract in his 50-volume collection of pre-nineteenth century Italian economic thought (Custodi 1803: xxviii; Ziersch 1905: 29). It is through this 1803 edition that Friedrich List and Wilhelm Roscher were so heavily influenced by Serra's work. The single known copy of the *Breve trattato* at the time thus passed, like a "proverbial lamp of life and learning"—a "*lampada di vita*"—through the hands of the greatest Italian economists of the time (Croce 1970: 151).³

This first known copy of Serra's tract was finally donated to the *Biblioteca Ambrosiana* in Milan, and eight more copies of the original seem to have been discovered. Several editions have appeared in Italian, but apart from a translation of a few pages in Arthur Eli Monroe's 1930 *Early Economic Thought* (Monroe 1930), the *Breve trattato* has not been available for an international audience. 390 years after its first publication, however, this might be in the process of change. The first complete translation of Serra's 1613 treatise, into Portuguese, was published in Curitiba, Brazil in 2002 (Serra 2002). It was predated by an article in a Brazilian student journal, *Oikos* (Padula 2002), and, given the pertinence of its message, one can hope that a critical mass of interest for Serra's work soon will be reached and an English translation published.

² A few years later, Genovesi's brother Pietro translated the 1695 work of John Cary, a Bristol merchant, on the trade of England into three Italian volumes. Cary was the English mercantilist who most strongly emphasised the role of technological change in economic growth.

³ If one accepts Schumpeter's verdict of the standing of Italian political economy at the time, this means that these men were also the world's greatest economists during this period (Schumpeter 1954: 176-177).

In addition to the translation problem the full title of Serra's work, *A Brief Treatise on the Causes that can make Gold and Silver plentiful in Kingdoms where there are no Mines*, has been an obstacle to Serra's recognition in the historiography of economics (Perrotta 1988: 12-13). Judging from the title alone, the treatise may mistakenly be seen as an example of the *Midas Fallacy* of the stereotypical mercantilist, i.e. the above mentioned idea, born in Adam Smith's *Wealth of Nations*, that mercantilists confused wealth with gold. Friedrich List indeed accuses Jean Baptiste Say [1767-1832] and John R. McCulloch [1789-1864] of judging Serra only on the basis of the title of his work (List 1841: 456, 460), and the same could be said for Lionel Robbins in the twentieth century (Robbins 1998: 49). While it is true that the title of Serra's work seems indicative of a bullionist orientation, we will argue that this may be explained in light of Serra's broader attempt to ingratiate himself with the Spanish viceroy.

The *Breve trattato* did, however, have many messages, and the work has thus led parallel, yet intertwined lives. The colonial context of its writing, as well as the unhappy fate of Serra himself, made him an icon of patriotism for Neapolitan writers prior to the Italian Unification. Francesco Salfi's 1802 eulogy for Antonio Serra, while appearing in the bibliographies of most scholarship pertaining to Serra, must be read in this light. It is a lengthy, pathos-filled ode to Italian genius under Spanish oppression, and much like Serra himself, it is deeply embedded in the context of its writing. Salfi wrote approvingly of Pietro Verri, Cesare Beccaria, and the entire pre-*Risorgimento* movement of Italian economic nationalism. Being part of the cenacle of intellectual forerunners of those who redefined the concept of *italianità* on the eve of unification, Salfi himself proposed an Italian federation already in 1821 (Salfi 1997: 145; Arpaia 2002: 192-214). His use of the *Breve trattato* betrays a nationalist agenda by its emphasis on the *italianità* of Serra's achievements, and there are few efforts to approach the *Breve trattato* from angles of analysis or history. Again, however, Serra's treatise is also of interest for the history of national innovation systems. The

colonial legacy of the Third World remains one of the most insurmountable obstacles facing development economics. Serra's *Breve trattato*, written when Naples was a Spanish Viceroyalty, faced the very same obstacle and points to a way out. Serra's way out is essentially the same that was recommended by List and successfully followed in the 19th century by the United States and the European nations that industrialised after England.

We must keep in mind that the core of European colonial policy was to prohibit the establishment of manufacturing – i.e. increasing return activities – in the colonies, such activities being reserved for the Mother Country. Serra's insistence on the role of manufacturing in creating economic welfare is therefore a denunciation of colonial policies of all ages, including that of today's neo-colonialism. Serra shares a deep concern about the uneven relationships of production between nations with 20th Century economists, with Cardoso's dependency theory and the national innovation systems approach alike (Kay and Gwynne 2000). Custodi presented Serra as “animated by the purest patriotic love,” and indeed brought the *Breve trattato* forward in a conscious attempt to provide “zealots of the public good” the necessary analytical tools to catch up with England and France (Custodi 1803: xi-xvii).

The Anatomy of the *Breve Trattato*

The *Breve trattato* was formulaically dedicated to the Viceroy of Naples, the “Illustrious and Excellent” Pietro Fernandez de Castro, Count of Lemos [1587-1622], and is consistent in its praise of Catholic doctrine and authorities (Serra 1803: 3; Sumberg 1991: 370). Serra's work is furthermore not at all “brief” in comparison with contemporary economic tracts, and the bullion mentioned in the title is never considered more than a consequence of underlying economic mechanisms. The wording of the title—a brief pamphlet on how to acquire gold in

nations with no mines—thus seemingly reflects clever marketing more than it reflects the actual content of the *Breve trattato*. Indeed, we find Serra framing the entire work in Spanish and Catholic admiration when he concludes the treatise by commending the pontificate of Clement VIII [1536-1605] for its sensible policies (Serra 1803: 173-176). Serra thus ironically encloses what is basically an anti-colonial argument for Neapolitan economic independence in veneration of the very forces he resists.

Summoning a literary topos of his time, Serra begins the *Breve Trattato* by rhetorically asking what the causes of wonder are.⁴ He quickly concludes that they are great ignorance and great intellect, and dedicates his work to the propagation of the latter in matters of national finance. Serra does not wish to discuss politics, as he doubts he can do better than the ancients. The same applies to justice and jurisprudence, for which he relies on Roman Law. He instead wishes to write on a third aspect of statecraft—the economic part on which “nobody, ancient or modern,” had written with “doctrinal method before” (Serra 15-16; Schefold 1994: 14). Serra argues that “experience is master of things, to which even the most powerful reason yields.”⁵ Like in the later German tradition, Serra clearly defines economics as an *Erfahrungswissenschaft*, a science based on experience rather than on a priori assumptions. This reasoning also echoes the work of his English contemporary and creator of the modern concept of innovation, Francis Bacon [1561-1626] (Reinert & Daastøl 1997). Very much in the spirit of Bacon’s *New Atlantis*, Serra also summons the vision of a ‘never-ending frontier of knowledge’ when he complains that “there are still people who think everything they do not understand is impossible even though many such things, including ancient and modern discoveries, are now discussed that had once too been thought impossible by everyone” (177).

⁴ Interestingly, Adam Smith’s first work, on astronomy, starts with the same question (Smith 1811: 55).

⁵ Serra, Antonio, *Breve trattato*. p. 60. In Italian: “Essendoci l’esperienza maestra delle cose, alla quale cede ogni potentissima ragione.”

The *Breve trattato* itself is divided into three main parts. The first of these, and the most interesting from a purely analytical standpoint, is devoted to the mechanisms of economic growth on a generalized level and concludes with a discursive comparison between Venice and Naples meant to illuminate the power of his arguments by showing the consequences of following the right and the wrong policies respectively. The second part is a lengthy refutation of his opponent de Santis' arguments, and the third consists of Serra's own advice on how to make Naples abound with gold and silver. He concludes the work with a detailed index of uncommon quality given the period in which it was written. It has, though, been noted that Serra's grammatical structure is awkward by seventeenth century standards. We will, however, agree with Rodolfo Benini, who contends that this reflects Serra's poor familiarity with the written vernacular. Indeed, the grammatical structure of the work is consistently Latinate, rather than Italian (Benini 1892: 225).

Unlike most economic tracts predating the twentieth century, Serra's *Breve trattato* is peculiar in its generally pacifist nature. A similar extolling of peaceful trade would have to await Montesquieu's 1748 *L'Esprit de Lois*, and even after this cornerstone of the Enlightenment Project praised the "sweetness of commerce" for "breaking the back of barbarism in Europe," economics never entirely discarded its violent tenor (Montesquieu 1748 book xxi, chapter 20). It is here interesting to note that Serra shared this pacifist orientation with Friedrich List, whose 1841 work is purposefully critical of Adam Smith's praise of war (Smith 1976: ii, 456). Serra's pacifism could conceivably have resulted from his attempt to get at the underlying mechanisms of economic growth, which was a project quite removed from the search for a short-term fiscal surplus characterizing some mercantilist tracts. It does, however, securely place Serra on the modern side of the epistemic shift we discussed earlier, since the *Breve trattato* no longer operates within the boundaries of a zero-

sum cosmology. Far from extolling the virtues of piracy and conquest, Serra is interested in the ways of *producing* wealth rather than merely redistributing it.

Serra's Methodology

“Having considered many of Italy’s cities,” Serra tells us that he has “tried to investigate, in the faint light provided by [his] miniscule intellect... the causes that make gold and silver flow in Kingdoms without mines” (4-5). The goal of his endeavour, he argues, is to “arrive at the intrinsic of truth” relating to the “common good of the Kingdom” (6-6). Serra’s *vision*, to use Schumpeter’s terminology, clearly establishes him in what Werner Sombart calls the *activistic-idealistic* tradition of economics, rather than the *passivistic-materialistic* tradition of today’s mainstream. We find Serra concluding his chapter on governmental policy by criticizing those who might find fault with him for his method, claiming instead to consciously adopt a relativist methodology in contrast to those “preferring the certainty of the thing to the nobility of the subject,” (39) thus in a sense foreshadowing Amartya Sen’s statement that “most economists would rather be accurately wrong than approximately right.” It was the end result, rather than the method of achieving it, that Serra wanted to focus on, and echoes from Machiavelli to the German Historical School resound when he argues “Science does not by itself have a universal method of understanding the truth,” as its “subject changes across time and space” (12).

De Santis, Serra claimed, was simply attacking the symptoms rather than the causes of an underlying economic illness that had to be cured before the economic crisis could be ameliorated: “There can not be a cure, while the cause [of the illness] is still present” says Serra.⁶ He is crystal clear in his conviction that while others were attacking the symptoms of

⁶ Serra, Antonio, *Breve trattato*. p. 135.

Naples' poverty in the sphere of finance and monetary policy, he himself is explaining the causes of it in the real world of production. Serra's model simplified the economy by identifying a series of interrelated causes that produced a serendipitous clustering of economic progress. The most important cause in Serra's model was, however, always that of governance—a qualitative concept that he explicitly established as a mediator between theory and practice, between the governing effort and the various levels of abstraction. It is exactly “this cycling in and out, this continual changing of focus and perspective” which, according to Tony Lawson, is “the only way of gaining an understanding of society and economy” (Lawson 1997: 236). This indeed defines the core of the approach of the German Historical School to economics. The *Breve trattato* provided guidelines for questions of economic policy, but could not provide any detailed quantitative analysis of economic events. Many modern models, on the other hand, have, based on the *a priori* acceptance of certain assumptions ranging from the scarcity postulate to the “rational” calculation of marginal utilities, come to handle quantitative changes in aggregate models with great zeal and, to use a term from the period, perfected panurgy. The qualitative dimensions of human effort, however, have become much harder to analyze within the framework of modern models.⁷ The dangers inherent to such an approach were already quite clear to Antonio Serra when he wrote his *Breve trattato* in 1613, but it has, until the recent advent of alternative approaches like the innovation system, been consciously or unconsciously forgotten in the attempt of economics to become more like the natural sciences (20; Mirowski 1989; Weintraub 2002).

Serra's Causes of Economic Growth

There are, according to Serra, two main categories of factors affecting the economic development of a nation: the *natural* and the *accidental*. Both are essentially ways of creating

⁷ For a discussion of this, see Drechsler (2004).

a “surplus,” either through the bounty of nature or the toil of man. Of these, the *accidental* factors are further subdivided into subsets of *particular* and *common* causes of wealth. Particular factors, Serra argues, “may occur in only one kingdom and no others,” whereas “common factors may appear in all kingdoms alike.” (21) The *particular* causes are contextual and consist of the twin factors of agricultural abundance and geography. The *common* causes, on the other hand, are results abstract ideas that can come to fruition and improve the state of affairs in any nation, constituting the most important causes of the wealth of nations; they are “*the quantity of industry*,” “*the quality of the population*,” “*the extension of trading operations*,” and “*the regulations of the sovereign*.” Serra was quite certain that his modelling of the economic sphere included all pertinent causes of wealth, arguing “other causes besides the ones mentioned do not exist, as they are either subordinated or consequential to the ones mentioned” (39).

A synoptic model of the treatise indeed conveys a coherence of thought and an apparatus of thinking about economic matters that seems to contradict Michel Foucault’s statement that economics, while present in the realms of positivity at the beginning of the seventeenth century, did not breach the threshold of epistemologization until the advent of Locke and Cantillon (Foucault 2002: 207). Serra’s *Breve trattato* was far ahead of its time in the sophistication of its structure and argument when compared to the works of his contemporaries. In the words of Walter Ziersch, “Serra stands on the ground of reality, and we cannot find any assertions in his work that are not based on facts” (Ziersch 1905: 66). One should therefore not be surprised to find that Schumpeter argued the text was the earliest scientific treatise on economic principles and policy.

The *natural* causes, while alluded to in the full title of Serra’s work, receive brief coverage, as they were of little relevance to his own context. Serra argues that “the *natural* class comprises only one situation: when there are mines of gold and silver in a country” (20).

Italy was, however, generally lacking in mineral wealth, and the Tuscan silver mines operated by the Medici Grand Dukes were the only exceptions identified by Serra (20; Morelli 1976). The core of this part of the *Breve trattato* therefore deals with the various *accidental* causes of wealth.

Of these *accidental* causes, Serra first discusses the subgroup of the *particulars*. These, according to Serra, are causes of wealth that are unique to certain kingdoms and impossible to manipulate through policy. The first such factor, the abundance of agricultural surplus, might seem surprising at first, but can arguably be explained by the context of Serra's writing. Apart from the agrarian revolution in northern Europe in the sixth to the ninth centuries, agricultural technology remained largely unchanged from Roman times to the advent of agronomic theory in Britain on the eve of the industrial revolution (White 1964: 40; Duby 1974: 189). Efforts to increase agricultural surplus were therefore aimed at the expansion of tillage to less productive plots of land rather than at the refinement of technique, a typical example of the decreasing returns to scale discussed among Serra's *common* causes of national wealth (Benigno 1989: 80). The fertility of the soil and the serendipity of the climate were the principal indicators of agricultural production, and agricultural surplus could therefore, at the time, be considered immutable by human intervention. More than 160 years later, Adam Smith—seeing progress as the result of the division of labour—asks himself why there are so few possibilities for the division of labour in agriculture (Smith 1976: i, 9).

Serra's second *particular* cause is easier to accept from today's perspective, in that it reflects the location of a nation compared to surrounding countries. Serra presents this cause as being "a potent occasion, almost a cause, for extensive trading in a kingdom" (22). While any country could theoretically become a nexus of international trade, geographical location would in practice be a crucial factor. Although there existed a long trajectory of thought relating to the fortuitous location of cities in western history from Xenophon's *Poroi* [ca. 352

B.C.] (Xenophon 1984) and the *Panathenaicus* of Aelius Aristides [second century A.D.] to Leonardo Bruni's *Laudatio Florentinae urbis* [ca 1403-1404] (Bruni 1978) and Giovanni Botero's *Ragion di stato* [1590], Serra was the first writer to theorize about the economic advantages conveyed by geographic location in relation to other economic factors. The *Breve trattato* thus also marked the birth of economic geography, the torpid subfield of economics that Paul Krugman recently sought to revive.⁸ With the next important development in economic geography, Johann Heinrich Gottlob von Justi [1717-1771] and later Johan Heinrich von Thünen [1783-1850] were to place Serra's increasing-returns-based urban area at the center of their concentric circles of national space⁹.

Serra's four classes of common causes—the *quantity of industry*, the *quality of the population*, the *existence of extensive trade*, and the *fortuitous regulations of the sovereign*—work dynamically and in synergetic conjunction. As a whole, they are the factors behind economic growth, since “the combination of them in any place, though it raises nothing in excess of its own needs and must procure everything from abroad, and though the place has no mines of gold or silver, these will surely make it abound in these metals” (23). Serra here alludes to the concept that German economists used to refer to as *Strukturzusammenhänge* in economics—the organic synergy of factors in relations of cumulative causation at the core of the innovation system approach, i.e. the idea that various independent factors cumulatively influence each other and the end results organically. Serra completes his analysis of this important theorem in his discussion of “the great trade.” While their interaction was vital, the *common* causes had differing degrees of importance to Serra, the most essential one being the “quantity of manufacturing industry.”

⁸ While economic geography has been generally dismissed by economists, it is being kept alive at the fringes of the profession. Recent work in economic sociology has revitalized it somewhat. See Krugman (1990, 1991, 1995), Saxenian (1994).

⁹ See E. Reinert (forthcoming) for a discussion of this.

Serra on Manufacturing Industry and Increasing Returns

Industry, Serra argues, “ought not only to be placed at the head of the *common* ones, but in many respects should be rated higher than the particular factor of surplus produce” on the grounds that it is only dependent on the labour of man, rather than on geographic and climatic influences (23-24). Serra follows Giovanni Botero’s lead in differentiating work in the agricultural and manufacturing sectors (Botero 1590: 217-222), but qualifies the distinction further by grounding the differences between these two sectors in the theories of increasing and diminishing returns to scale—whether unit production costs would rise or fall if a nation chooses to specialize in any particular activity. While Serra alluded to diminishing returns in agriculture earlier in the text when discussing the *particular* factors, he now turns his full analytical acumen to producing the first coherent statement of the effect of increasing returns. Manufactures, Serra argued, are unique because total costs decrease with increasing volumes of production:

“There can be multiplications in manufactures which lead to a multiplication of profits, something which does not happen in agriculture as one cannot multiply it. Nobody, for example, having a territory upon which only a hundred *tomola* of wheat can be sown, will be able to have a hundred and fifty sown; but among the manufactures, it is just the other way, since they may be multiplied not only two-fold but two hundred-fold, and with proportionately less expense.” (24)

Furthermore, Serra recognized, as Botero had, that the possibilities of specialization and of making profits were higher in manufactures than in agriculture; “in most cases more profit is made from industry than from agricultural produce,” Serra argues, because of the “infinite number” of potential trades (25-26). To put this statement in a modern language: Serra sees the multiplication of the division of labour in industries where a large market share—in form of ‘niches’—can be achieved through increasing returns and resulting lower unit costs of

production, linking this to a potential for higher profits and higher national welfare. Serra's distinction between increasing and decreasing return activities was thus implicitly built on the theory of the division of labour as it dates back to Xenophon. To this is added a synergy argument in Serra: the greater the division of labour, the richer the city. Smith's famous statement, more than 150 years later, that 'the division of labour is limited by the size of the market' is merely a pale shadow of Serra's insight, where the real cause – increasing returns – has disappeared completely. This 'systemic increasing returns', which is already pointed to by Xenophon, is the core argument behind the mercantilist policy of increasing the population of cities and nations.

The possibility of increasing returns was, throughout the entire mercantilist and Cameralist traditions, seen in connection with the increased opportunity for division of labour in manufactures, and therefore highly activity-specific. As opposed to agriculture and mining, where one factor of production was determined by God's creation (in land or ore), in manufacturing all factors of production would be available in constant or increasing returns to scale as production expanded. The 'cult of manufacturing' was an important part of economic policy for centuries, but only rarely, and only in the 19th century, does the theoretical explanation as to *why* this policy is beneficial reach Serra's level of sophistication.

It should be noted that the 1776 publication of Adam Smith's *Wealth of Nations* marked a shift in the way economic activities were conceptualized. Smith's effort to formalize the science led him to simplify the varieties of labour and therefore exclude the different effects caused by increasing and diminishing returns to scale. The concepts of *production* and *exchange*, for example, intersect in Adam Smith because they both represent time spent in activities classified as "economic." While both indeed can be reduced to "time" at a certain level of abstraction, many important distinctions are lost in the process. The economic historian Biernacki argues that "an emblematic contradiction between form and

content runs through the *Wealth of Nations*: the argument makes labour the font of all value, preparatory to sale, whereas the language of analysis treats the labour activity—production—as itself a vending transaction” (Biernacki 1995: 252). Indeed, we find Smith declaring that “labour was the first price, the original purchase of money that was paid for all things. It was not by gold or silver, but by labour, that all the wealth of the world was originally purchased.” Biernacki further perceptively argues that Smith equates, or even confuses, “the original process of production – the creation of a good through the labor activity – with the socially organized way of acquiring goods through monetary exchange.”

In Smithian economics production and exchange become one through the nexus of labour; the various investments of time in economic pursuits—in trade or manufacture—become unified in the overriding concept of labour-time, in the abstract, metric unit of economic activity. “No wonder Smith’s usage makes no distinction between *commerce* and *industry*. He assimilates the process of production to that of exchange” (Smith 1976: i, 35; Biernacki 1995: 252-254). Smith’s list of required factors for “putting industry into motion” are indeed indicative of this: one needs “materials to work upon, tools to work with, and the wages or recompence for the sake of which the work is done” (Smith 1976: i, 313). Where, one could ask, is the knowledge, tacit or otherwise, that makes the industrial undertaking possible? This development continued in the work of David Ricardo [1772-1823], who we all agree “more than any other single individual set the tone of modern economic theory” (Arrow 2000: 172). Ricardo indeed argued “the value of a commodity... depends on the relative quantity of labour which is necessary for its production, and not on the greater or lesser compensation which is paid for that labour.” The qualitative differences between goods are thus mere reflections of the qualitative disparity present at their production; *knowledge* and *innovation* lose all meaning in a system where technological progress merely reduces a good’s exchange value in terms of embodied labour (Biernacki 245-246). With this

theory the core importance of Man as inventor and producer almost automatically goes over board, establishing an economic theory based on barter and trade where the built-in result is a world of economic harmony and of factor-price equalisation.

If one is to operate on the abstraction level in the works of Smith, Ricardo, and Samuelson's trade theory, where production and exchange melt into the elusive concept of "labour time," one loses an entire axis of value, namely the measurement of *qualitative difference among economic activities* (Reinert 1999). The natural consequence of these standard assumptions of neoclassical economics is that prices of the factors of production—capital and labour—will tend to equalize under a system of free trade (Samuelson & Stolper, 1948 & 1949, Samuelson 1953). It can be argued that this theorem is the very foundation of today's world economic system, and it has its roots in Adam Smith's equation of economic activities. We argue that by going back to seeing the world through the lenses of Antonio Serra, we can find the reasons why present globalisation produces such different results in different countries.

The birth of neo-classical economics in the late nineteenth century dealt the theory of increasing returns its *coup de grace*. Its death can, in fact, be traced across the first nine editions of Alfred Marshall's *Principles of Economics*. Paul Krugman once observed that "economics tends... to follow the line of least mathematical resistance" (Krugman 1991: 6), and Marshall, by many considered the founder of neoclassical economics, and particularly his followers, were unable to resist this tendency. The nations dominating both the most successful innovation systems of the world and those activities most subject to increasing returns emptied economic theory both of innovation and of increasing returns – thus removing the main cause of their own success from economic theory – first England and subsequently the United States. This was the theoretical trickery that made possible what Friedrich List referred to as 'kicking away the ladder', making it impossible for nations that wished to

follow their paths to economic success. Princeton economist Jacob Viner had the dubious honour of finally dismissing increasing returns from the corpus of economic theory on the grounds that it was incompatible with competitive equilibrium theory—i.e. the theory of perpetually clearing markets on the assumption of perfect information (Viner 1937: 475-482). Viner, following in Adam Smith's footsteps, is also responsible for excising the concept of Mercantilism from polite economic conversation. The same economist thus dismissed Mercantilism and increasing returns, for the same reason, one may argue. The activity-specific economic protectionism so characteristic of mercantilist theory and policy—from 17th century England to 19th century United States and 20th century Japan and Korea—was thus sacrificed on the altar of simple mathematical rendering. Yet the casualties of this modelling endeavour were the factors and mechanisms that made Mercantilism so historically successful in creating prototypes of national innovation systems in the first place.

Serra on Population Theory

The “quality of the population,” again a term used by Botero (1590), was the second most important aspect of Serra's economic engine; a country would be rich if its people were “by nature industrious, or diligent and prone to inventions, and on the watch for opportunities to apply their industry and build up trade not only in their own country but in others” (27) It should be noted in this context that *industry* signified diligence and assiduousness. The word only gained its modern meaning in the nineteenth century, when it lost the qualitative dimensions it originally had (Sewell 1980: 143). Of the Italian cities, Serra asserted that the inhabitants of Genoa, Florence, and Venice were renowned for their industriousness. The Genovese get the highest score here, above the Venetians. Individual economic agents, under

the auspicious supervision of the state, were, as we shall see in Serra's chapter on government policy, an integral cause of economic growth

Following the 1798 publication of Thomas Malthus' [1766-1834] *Principles of Population*) a large population was generally considered a hindrance to development, though earlier economic theorists held the opposite view. This, we will argue, was not the result of their analytical ignorance, as the "Malthusian Principle" itself was well-known centuries before Malthus: "Divested of nonessentials," Schumpeter wrote, "the 'Malthusian' Principle of Population sprang fully developed from the brain of Botero in 1589¹⁰" (Schumpeter 1954: 254-255). The *virtus generativa* was stronger than the *virtus nutritiva*, Giovanni Botero argued, and a population would therefore always grow to a limit of subsistence manipulated by negative and positive checks such as moral restraint and pestilence (Botero 1590: 222-226). Italy even had her own pessimist Malthusian economist pre-dating Malthus, Giammaria Ortes [1713-1790].

Given Serra's material context, his conclusion regarding population should not seem surprising. He was incarcerated in one of the most populous cities in the world, and was still surrounded by famine, poverty, and suffering (Marino 1982: 226). Sheer numbers of citizens were obviously not sufficient to guarantee economic prosperity, and Serra thus qualified the reigning thoughts on population by emphasising the role of quality in human effort—a cornerstone of the humanist, *activistic-idealistic* tradition in which he wrote.

'Great Trade' and the Theory of Cumulative Causation

The third most important factor of economic growth was that of "great trade." By this Serra did not mean only skimming profits from long-distance trade, but also the import of raw materials, to which great value was added through manufacturing, and the subsequent export

¹⁰ We quote the 1590 edition.

of the finished product. Venice, Serra observed, had amassed great wealth for centuries by being the nexus of world trade, for “all the commodities which come from Asia into Europe pass through Venice, and from there are distributed into other parts; while commodities which go from Europe into Asia are likewise shipped from there.” Naples, however, suffered from an inauspicious location “at the tip of the arm of Italy, where nobody found it convenient to trade” (32-33).

The importation of raw materials for later export of manufactured goods was one of the kernels of early modern state building as it was defined by the German Historical School and by modern structuralists and dependency theorists. Export-led growth through import-substituting industrialization has indeed been the basis of almost every single successful industrialization policy from Solonic Athens to the Asian Tigers, a mandatory passage point of sorts on the road to the free market (Sombart 1902: ii, 55-56; E. Reinert 1999, Kay and Gwynne 2000: 52; Chang 2002). This theory was based on the view that the amount of labour invested in a good had to be maximized in the case of exports and minimized in that of imports. Raw materials were to be imported, refined, and exported as finished goods and the process of adding value to a product was thus to be performed by domestic, rather than foreign labour. In this way the increasing return activities were maximised at home, while the diminishing return activities were concentrated abroad, as in the later colonial systems. Underlying this view was the clear understanding that human resources were far from being fully utilized. Cosimo Perrotta has argued, in our view correctly, that Mercantilism at its core was state-building through import-substituting industrialization (Perrotta 1988), and Serra’s work appears to be the earliest theoretical explanation as to why this system is so successful. Employment and wealth were simultaneously created by this policy, and the importation of foreign human capital was a natural progression of the dictum. Serra thus argued that the Viceroy should go out of his way to open Naples to the international flow of expertise by

emulating contemporary Venetian policies. Christopher Freeman has argued this international exchange of knowledge to be one of the “essential features of current work on national systems of innovation” (Freeman and Soete 1997: 297).

Venice was, however, a special case due to her extremely fortuitous location, as the *particular* cause of geography amplified the *common* cause of great trade. And this is where Serra discusses one of his second great innovations in the history of economic analysis—the idea of *cumulative causation*:

“The number of manufactures also benefits the city; a factor which brings a great many people there, not only because of the manufactureres themselves (in which case the effect would be attributed to them), but also as a result of **the concurrence of these two factors together, because one gives strength to the other**, the great concourse due to commerce and due to the geographical situation being increased by the manufactures, and the manufactures being increased by the great concourse due to commerce, while commerce is made greater by the same concourse of people” (32)

Serra here gives the first description of cumulative causation in the history of economic analysis, or the *virtuous circle* of the innovation system approach (Lundvall 1992: 2). Although systemic effects were important in mercantilist analysis, it would be more than three centuries before another economist, Nobel Laureate Gunnar Myrdal, unknowingly resurrected Serra’s idea and made it famous again (Myrdal 1956, 1957). Thorstein Veblen explicitly assumed the existence of cumulative causations as a precondition for his theory of evolutionary economic development, and the concept is today an integral part of path-dependency in evolutionary and institutional economics (Veblen 1898). The theory is, as noted, based on the organic interdependency of factors, and is crucial in the explanation of uneven international economic development. Venice grew powerful, in Serra’s eyes, because she had managed to create a serendipitous cluster of industry, innovation, trade, and people—an effect he very explicitly, again using a clear cumulative causation, argued was the result of good governance (48). Enforcing each other, these factors together set Venice on a very

different trajectory from the one on which Naples found itself. Naples would not be able to solve her economic problems without creating a productive structure similar to that of Venice.

Government Policy

The *Breve trattato* is, in the final analysis, a policy pamphlet seeking to propagate what Serra, echoing the humanist tradition in which he writes, calls the *common good* (36). Fundamentally a relativist, Serra argues for the abandonment of all absolute principles in the formulation of legislation. Paraphrasing Thomas Aquinas, Serra warns sovereigns against oversimplifying the economy, arguing instead that the ruler should “consider carefully not one thing but many,” since “the same cause generally produces different effects with respect to different subjects as the sun hardens clay and softens wax, and a light whistle rouses dogs and quiets horses” (35). These “infinite considerations” of the state, as well as the “possible inconveniences resulting from its implemented provisions,” meant good statesmen were rare. Echoing the humanist tradition of the Italian Renaissance, Serra argued the only contingent constant of this shifting sea was the “will of man” (25), what Nietzsche later was to refer to as the *Geist- und Willens-Kapital* of the economy. Government policy is in the end the most potent of all causes because it, being purely based on “will,” can encourage the development of other causes:

When this factor is found in perfection in any kingdom, there is no doubt that it will be the most potent agent of all in making it abound in gold and silver, since it may be called the efficient cause, more important than all other factors; for it can produce these, as well as an infinite number of other opportunities, keep them in good condition, remove impediments, and in other ways bring about the same result, not only in countries where there is a good situation with respect to these factors, or where they exist, but also in countries where there is no such situation and none of these factors (36-37).

One can thus argue that Serra’s conception of economic growth was based on the government’s conscious manipulation of differences in contexts ranging from geography to

the differing potential for innovations in various economic activities; high in manufacturing and low in agriculture (this point having been strongly made already by Giovanni Botero in 1590, a famous work which had reached many editions¹¹ before Serra wrote, and with which he most probably was familiar).

Sophisticated Mercantilism approached the problem of increasing national wealth from the standpoint of a state supporting individual initiative, rather than of unilateral state intervention. Unless the sheer size of the industry made it suffer from barriers that were too high for entry by individual actors in the economy—in which case Mercantilism adopted the approach of modern state capitalism—the state was seen as a guiding force, rather than an actual owner (see, in the tradition of Serra, Costantini 1742: 103-104). Following Eli Heckscher, Jürgen Habermas argued that the economic dimension of the modern public sphere could only have developed under the auspicious supervision of a guiding central authority. The collective achievement of society rested on the communal laurels of individual agents (Heckscher 1934; Habermas 1965: 34-35), and Reinhold C. Mueller’s verdict of the Venetian economic miracle in the Renaissance seems to validate Serra’s analysis: “The single aspect that characterizes Venetian history and historiography is the dominant role of the state in the life of the city and the symbiosis between public and private sectors of the economy, between public and private interests” (Mueller 1997: 576.)

Unlike the “invisible hand” of Bernard de Mandeville [1670-1733] and Adam Smith, this tradition stressed the importance of the state taking an active role in the establishment of institutions and legislations conducive to economic development (Mandeville 1714; Smith 1976: i, 477). England’s penetration of the world’s markets in the sixteenth and seventeenth centuries could never have occurred without the careful superintendence of royal charters granting certain privileges to entrepreneurs in specific sectors of the economy, but the after-

¹¹ And even an English translation, *On the Greatness of Cities*, published in London in 1607.

the-fact nature of Mandeville's and Smith's writing enabled them to take a number of productive institutions for granted (Appleby 1978: 101-102; Hintze 1975: 428). The innovation systems approach thus follows a long and venerable tradition when it argues "the public sector plays a major role when it comes to supplement the self-organizing forces of the private sphere" (Lundvall et al. 2002: 222).

Epilogue

Throughout the five hundred years of political support for industries yielding increasing returns, it is noticeable that – with the exception of the first movers Venice and the Dutch Republic – virtually no nation has ever taken the step from poverty to wealth without passing through a temporary stage of nurturing and protecting such increasing return activities.¹² Serra seems to have established an 'iron law of economic development'. This is, however, not reflected today in the policy recommendations of the Washington Consensus. In terms of economic welfare, the de-industrialization of parts of the Third World in the past decades has been devastating and quite the opposite of what Serra would have recommended (Reinert 2003 & 2004).

In our era of globalization, it should therefore not come as a surprise that neo-mercantilist methods have been resurrected by Third-World economists to inspire economic growth (Kay and Gwynne 2002). Mercantilism was partly directed at establishing the institutional foundation of capitalism, and was on a certain level a very necessary consolidation of disparate factors that affected the economy. Geography, history, institutions, learning, technology, law, and economics—in effect the whole society in which economics is embedded—were seen as relevant to economic theory and policy on a level impossible to comprehend within the framework of orthodox economic reductionism. Adam Smith left out

¹² The Dutch Republic did not systematically start protecting her manufacturing industries until 1725, after the decline had started, in response to the success of the tariffs in England and France. .

the synergies, linkages, innovations, and differences between increasing and decreasing return activities in the economic system. On the macro level we thus lost the dynamic systemic effects that today are called a National Innovation System.

In the early 1980's Paul Krugman had grasped the factor increasing returns and essentially reformulated mercantilist trade theory in his "New Trade Theory" (Krugman 1990). Most models assumed symmetrical trade based on increasing returns both in importables and exportables, creating an argument for generalized free trade with which also the mercantilists would have agreed. Some of his models, however, recreated the increasing/diminishing returns asymmetry of Serra's model between Venice and Naples, and that characterizes colonial trade. Again, as with Viner's exclusion of increasing returns because it did not fit the equilibrium model, mainstream has apparently succeeded in eliminating relevance in defense of ideological and mathematical purity: Jagdish Bhagwati now triumphantly declares that Krugman's "youthful surrender to irrational exuberance" in increasing/diminishing return models is over because "the invisible hand may be frail, but the visible hand is crippled" (Bhagwati 2002: 22, 31). In other words, although faced with the resurrected theories of Antonio Serra, the economics profession of the early 1990's collectively decided not to trust governments to do what governments had done as part of a normal course of affairs continuously, and largely very successfully, from the Renaissance until the reconstruction of post-World War II Europe lasting until the 1960's. In this way science and ideology blend in an unhealthy fashion.

Partly as a response to this, the fortress of *passivist-materialist* mainstream economics now finds itself under siege by institutionalists, neo-Schumpeterian evolutionists, sociologists and historians alike. United only in their heterodox opposition to mainstream doctrine, they have so far failed to overcome the academic inertia inhibiting real and sustained economic growth in most of the Third World. Things might, however, be changing as the damage done

by mainstream economics in the Third World periphery becomes more evident. About the time of the fall of the Berlin Wall, The Commission on Graduate Education in Economics of the American Economic Association expressed concern about the state of affairs in economics. Fearing, like Serra did, that methodological rigidity had pushed the goal of analysis to the wayside, they warned that “graduate programs may be turning out a generation with too many *idiot savants* skilled in technique but innocent of real economic issues” (Krueger 1991: 1044-1045).

It is now clear that the process of globalisation—as managed by the Washington Institutions—was carried out by economists fitting this description very well. Their innocence in real economic issues has cost huge economic suffering in the more than 60 nations who have seen their national product and real wages fall, in some cases dramatically, during the last ten years. Until now, Mercantilism, representing the type of policy that created Europe’s nation-states and the industrial revolution, has not been rethought in light of this neo-plural economic perspective. As long as we remain prisoners of the *Midas Fallacy* created by Adam Smith—that European civilisation and nation-states were products of ‘bad social science’—we will not be able to solve the pressing problems of the Third World. The essential ingredients of Serra’s national innovation system—a diversified economy with a comparative advantage in increasing return activities, without which the cumulative causations of wealth will not start, and an enlightened government policy—will hopefully contribute to a more holistic, historically grounded, and economically successful alternative to mainstream dogma. We have attempted to build a coherent theoretical alternative to standard textbook economics, incorporating Serra’s vision, albeit at a lower level of abstraction than mainstream economics, at www.othercanon.org

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