

Econ Journal Watch Volume 6, Number 2 May 2009, pp 239-263

Editor's Note on Style: This article follows Professor Kennedy's British style in spelling and quotation marks. Italics are used to distinguish Adam Smith's words in the text, though not in block quotations.

Adam Smith and the Invisible Hand: From Metaphor to Myth¹

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ABSTRACT

It almost seems as if Adam Smith, who only intends to write an economic *Inquiry into the Nature and Causes of the Wealth of Nations*, is led by an invisible hand to promote and end which was not part of his intentions: the writing of a Gothic Novel.

-Stefan Andriopoulos (1999, 753)

References to an 'invisible hand' that link it to Adam Smith are ubiquitous in books and articles from scholarly and media sources. This is strange because Adam Smith did not credit the invisible hand metaphor with the importance that authors, from the mid-20th century onwards, give to it. In this paper I discuss what Adam Smith most probably meant by his use of the 'invisible hand' metaphor, which is quite different from what has become its modern meaning.

Among recent contributors, William Grampp (2000; cf Minowitz 2004) identified nine different meanings given to the invisible hand (ten, including his own, strange one) in modern literature. Warren Samuels has published an authoritative account and analysis of the way the invisible hand metaphor has been used by modern economists, and, therefore, I have not addressed the details of this almost wholly 20^{th} century phenomenon. Emma Rothschild gave a detailed exposition of the invisible hand and what Smith meant by it – a 'mildly ironic joke' in her considered view (Rothschild, 1994, 2001).

¹ This paper was originally presented to the 34th Annual Meeting of the History of Economics Society Annual Meeting, George Mason University, June, 2007, and The Journal of the History of Economic Thought, 40th Anniversary Conference, University of Edinburgh, 3 September 2008.

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I shall argue that Smith had no 'theory' of invisible hands and that he showed no inclination to treat it as anything more than an isolated, though well-known, 18thcentury literary metaphor. Significantly, and contrary to the assertions of the modern consensus, he gave the invisible hand no role in his theory of competitive markets in Books I and II of *Wealth of Nations*. Such roles given to it since the 1950s rely solely on assertions and interpolations by modern economists, which are not supported by Smith's texts.

The 'invisible hand' appears once in Smith's *History of Astronomy* (Smith 1980, 95) referring to pagan and heathen superstitions about the existence of the Roman god, Jupiter; once in *Moral Sentiments* (184-185) referring to feudal lords divvying up their produce among their retainers and tenants in roughly the same proportions as would be distributed if the land had been divided equally; and once in *Wealth of Nations* (456), referring to degrees of caution about the risks associated with distant trade with the British colonies in North America, which incentivised some, but not all, merchants to act circumspectly in their preference for domestic projects, thereby unintentionally benefiting the domestic economy. This is only three times in over a million words published in his surviving essays and books, written between c.1744 and 1790.

Yet, three leading economists lauded the invisible hand metaphor and gave it uncalled-for prestige in support of their own interpretations of appropriate economic policies. They described it variously as:

- "The profoundest observation of Smith" ... 'the system works behind the backs of the participants; the directing hand is invisible' (Arrow 1987, 71);
- 'surely the most important contribution [of] economic thought' (Arrow & Hahn 1971, 1);
- 'one of the great ideas of history and one of the most influential' (Tobin 1992, 117).
- 'The argument of Adam Smith (1776) that free markets lead to efficient outcomes, "as if by and invisible hand," has play a central role in these debate' (Stiglitz 2002, 460, 477; see also Stiglitz 2000, 1448, 1457).

Modern benign invisible hand explanations from the second half of the 20th century elevated the metaphor into 'principles', 'theories' and 'paradigms' of markets, which do not correspond to anything written by Smith and neither do they explain anything.

How did Smith's casual metaphor achieve such high status when neither he nor readers, up to the late 19th century, appear to have taken much notice of it? Nor was it mentioned by Governor T. Pownall (1776). The invisible hand was not mentioned by Dugald Stewart (1793), Thomas Malthus (1798), David Ricardo (1817), J. S. Mill (1849), Karl Marx *(*1887), or J. R. McCulloch (1863). The 'invisible-hand' paragraph was paraphrased by H. T. Buckle (1885 vol i, 218-219), but he ignored the metaphor. August Onken (1874) quoted the invisible hand without comment.

The metaphor of 'an invisible hand' had little if any significance for Smith,

and certainly was not his 'greatest idea' (Tobin 1992; cf Schneider 1979, 51) nor did the metaphor make 'theoretical social science itself possible' (Vaughn 1983, 997). Frederick Hayek, the original author of Karen Vaughn's ascription of the role of the invisible hand as the gateway to making social science possible, took Smith's 'borrowed' metaphor to be a first approximation of his themes of 'spontaneous order' (Hayek 1960). Murray Rothbard cites: Chuang-tzu (369-286 BC): "Good order results spontaneously when things are let alone" (Rothbard 1990).

Smith's identification of the processes associated with the unintended consequences of individual actions in such diverse phenomena as language, money, moral sentiments, exchange and markets (Otteson, 2001), across social experience, are usefully judged to be an early recognition of evolutionary 'emergent order.' This phrase is more helpful than spontaneous, or instantly generated, order because it takes many self-correcting trials over long periods for a workable order to emerge as an accepted norm, whereas 'spontaneous order' suggests sudden change (an outcome) rather than evolving many steps at a time, most of them in error (a process).

Complex systems like language and markets do not emerge suddenly or spontaneously and most certainly do not emerge by design; a long maturation period is required to bring them to term and great and persistent effort. Two people trying to communicate in the absence of a common language make many mistakes as they experiment with different combinations of gestures, grimaces and strings of word sounds to make even simple meanings mutually understood, and, as important, to make them understood by third parties; hominids striking stones to make meatcutters or axes would miss-strike and regularly break near-finished hand tools forcing them to start again, before they achieved proficiency and created workable tools replicable by others (Bradley and Edmonds 2005). Those who did not master the art lost the opportunity to improve their chances of surviving long enough to breed and bring children to maturity. Time, except for the individual, was not at a premium; the emergent order of successful stone-knapping technology lasted a million years. Long periods of individual experiments, including many dead-ends, and even longer periods of changeless low-level technologies right up to the 18th-century and beyond suggest the absence of an invisible hand operating on the far-slower time scales than the two examples given in Moral Sentiments and Wealth of Nations.

One of the problems with associating the concepts of spontaneous order and invisible hands is to conclude that the outcomes of individual actions are necessarily always, or mostly, benign. Robert Nozick identifies 16 examples of 'Invisible-hand explanations' (Nozick 1974: 20-21), covering evolutionary theory, ecology, race, religion, genetics, IQ, pricing, equilibria in markets, crime, trade, managerial incompetence, and economic theories, and not all of those he cited have benign outcomes.

Karen Vaughn, however, accepts correctly that 'one could easily imagine a spontaneous order in which people were led *as if* by an invisible hand to promote a perverse and unpleasant end' (emphasis added). She comments that 'the desirability of the order that emerges as the unintended consequences of human action depends ultimately on the kind of rules and institutions within which human beings act, and the real alternatives they face' (Vaughn 1983). Vaughn correctly undid the connection

between the existence and the goodness of an invisible hand, but her insight has not been picked up by many modern economists.

Parenthetically, in Smith's usage, the 'invisible hand' did not act 'as *if*' it led people; the metaphor in his two examples were definitely 'led by an invisible hand' (TMS, 184; WN, 456). The words, 'as if', would act as a softener of the stronger imperative, 'was led by', and change its character.

The invisible hand is thought of as Smith's metaphor, but he didn't invent it. Scholars report many early literary references to 'invisible hands' and I have drawn on their work for what follows (Rothschild 2001, 116-56; Force 2003, 69-71; Buchan 2006, 1; Andriopoulos 1999, 739n-758), showing substantial prior use of the metaphor before Smith and with whose work he was familiar (he had many of their books in his library) (Bonar 1966).

- Homer (*Iliad*, 720 BC): 'And from behind Zeus thrust him [Hector] on with exceeding mighty hand'. Smith had several copies in his library.
- Horace: *Fulminantis manus Jovis*' (The mighty hand of thundering Jove) Odes 3.3.6, 'which Smith knew well' (Force 2003, 70).
- Ovid of Caeneus at Troy: 'twisted and plied his invisible hand, inflicting wound within wound' (Bonar 1966, 125).
- Lactantius (c.250-325), De divinio praemio: early use of 'invisibilis'.
- Augustine (354-430): 'God's "hand" is his power, which moves visible things by invisible means' (Force 2003, 71).
- Shakespeare (1605): 'Thy Bloody and Invisible Hand' (Bonar 1966, 166).
- Glanvill (1661): 'nature work[ing] by an invisible hand in all things'; 'invisible intellectual agents' (Andriopoulos 1999, 739n-758).
- Voltaire (1718): 'Tremble, unfortunate King, an invisible hand suspends above your head'; and 'an invisible hand pushed away my presents'(Bonar 1966, 192).
- Daniel Defoe: 'A sudden Blow from an almost invisible Hand, blasted all my Happiness', in *Moll Flanders* (1722) (Buchan 2006, 2) 'it has all been brought to pass by an invisible hand' (*Colonel Jack*, 1723). (Force 2003, 71-2, & n 102).
- P. Burman (1734) trans.: Jupiter, invisible to humans, 'armed his hand with winds, rains, storms, thunder and whatever else belongs to this kind of things' (Bonar 1966, 38; Vivenza 2008).
- Nicolas Lenglet Dufesnoy (1735): an 'invisible hand' has sole power over 'what happens under our eyes' (Force 2003, 72).
- Charles Rollin (1661-1741): whom Pierre Force describes as 'very well known in English and Scottish Universities', said of the military successes of Israeli Kings 'the rapidity of their consequences ought to have enabled them to discern the invisible hand which conducted them' (Rollin 1730-8 1(L); Force 2003, 72).
- William Leechman (1755): 'the silent and unseen hand of an all wise Providence which over-rules all the events of human life, and all the resolutions of the human will' (Leechman 1755, xii; Bonar 1966, 92).

- Charles Bonnet (whom Smith befriended in Geneva in 1765) wrote of the economy of the animal: 'It is led towards its end by an invisible hand'. (Bonar, 1966, 32; Smith 1987, 181-2; Force 2003, 73).
- Jean-Baptiste Robinet (1761) (a translator of Hume): refers to fresh water as 'those basins of mineral water, prepared by an invisible hand' (Bonar 1931, 158).
- Walpole (1764): 'the door was clapped-to with violence by an invisible hand' (Andriopoulus 1999).
- Reeve (1778, 13-14): 'Presently after, he thought he was hurried away by an invisible hand, and led into a wild heath' (Andriopoulus 1999).

Smith's use of the invisible hand metaphor was hardly remarked upon (cf Ross 1998, xxxv) until assumptions about its role slipped into the mainstream almost unnoticed and unquestioned; it only became synonymous with his name from the mid-20th century onwards. Among the few scholars to question modern assertions of the significance of the metaphor, in addition to Warren Samuels (2008), were Karen Vaughn (1983, 997-9), Emma Rothschild (1994, 2001) and Sam Fleischacker (2004) (see also: Ingrao and Israel 1990; Evensky 1993; Nozick 1994; Parker 1995).

To discuss what Smith meant by his use of the metaphor of 'an invisible hand', note how he described the role of metaphors in his lectures on *Rhetoric* in 1763. While discussing Shakespeare's use of metaphors, he described them as a 'figure of speech' in which 'there must be an allusion betwixt one object and an other', and that a metaphor can have 'beauty' if it 'is so adapted that it gives due strength of expression to the object to be described and at the same time does this in a more striking and interesting manner' (Smith 1983, 29-32). A metaphor is representative; it does not have substance: it is not identical to its object.

The Invisible Hand in the History of Astronomy

Smith, in his *History of Astronomy* (Smith 1980), published posthumously in 1795, mentions the invisible hand. Jupiter was worshipped by Roman citizens and was represented by statues, paintings, pottery, and on coins, the latter showing a (visible) hand, which they believed fired thunderbolts at the enemies of Rome and, in later centuries, at enemies plotting sedition against the Emperor. For Rome's religious believers, the 'invisible hand' was not a metaphor at all; it was real, and had all the force and terrors of Hades (Vivenza 2008). This clearly separates the invisible hand of his *History of Astronomy* from his use of it as a metaphor in both *Moral Sentiments* and *Wealth of Nations*.

The modern editors of *History of Astronomy*, W. P. D. Wightman and J. C. Bryce, report that 'it has been fairly generally assumed that he at least laid the foundation of his *History of Astronomy* at Oxford; but from further internal evidence [a predicted return of a comet in 1758] it may be inferred that he did not finish it there' (Smith 1980, 7). Now, placing its origins in Oxford is interesting because it was in Oxford that Smith had a most unhappy time from 1740 to 1746 (Ross 1995, 60-80; Rae, 1977,

18-29; Kennedy 2005, 18-22). The turmoil in his spirit brought him low and, I suggest, no small part was played in these events by his studies in natural philosophy and by his research for *History of Astronomy*, as shown in his lightly disguised, mocking attacks on pagan and heathen religious attempts to explain the events of nature. Referring explicitly only to pagan '*pusillanimous superstition*', his underlying theme is that through the ages knowledge about nature's events that caught the attention of philosophers constantly pushed back the veil of ignorance emanating from religious beliefs in invisible beings.

His declaration that philosophy is 'one of those arts which address themselves to the imagination' and that his task was to 'trace it, from its first origin, up to the summit of perfection to which it is at present supposed to have arrived, and which it has equally been supposed to have arrived in almost all former times' (Smith 1980, 46; emphasis added). Smith thus declares his independence from those whose ideas did not go beyond what was preached on Sundays in every presbytery in Scotland.

Smith explains why mankind had 'little curiosity' in 'the first ages of society'. A 'savage, whose subsistence is precarious, whose life is everyday exposed to the rudest of dangers, has no inclination to amuse himself with searching out what, when discovered, seems to serve no other purpose than to render the theatre of nature a more connected spectacle to his imagination.' As those 'appearances terrify him, therefore, he is disposed to believe every thing about them which can render them still more the objects of his terror' (Smith 1980, 48); ignorance fosters paranoia.

Smith's explanations of the origins of pagan religions gives contextual force to his casual remark about 'the invisible hand of Jupiter,' with absolutely no pretence that he refers to anything other than what those people believed in their frightened and ignorant minds. He assumed his educated readers to understand it that way.

For it may be observed, that in all Polytheistic religions, among savages, as well as in the early ages of Heathen antiquity, it is the irregular events of nature only that are ascribed to the agency and power of their gods. Fire burns, and water refreshes; heavy bodies descend, and lighter substances fly upwards, by the necessity of their own nature; nor was the invisible hand of Jupiter ever apprehended to be employed in those matters. (Smith 1980, 49)

Smith wrote similarly in another early essay on the *History of Ancient Physics* (HAP) when speaking of the 'first ages of the world':

In the first ages of the world, the seeming incoherence of the appearances of nature, so confounded mankind, that they despaired of discovering in her operations any regular system. Their ignorance, and confusion of thought, necessarily gave birth to that pusillanimous superstition, which ascribes almost every unexpected event, to the arbitrary will of some designing, though invisible beings, who produced it for some private and particular purpose. (Smith 1980, 112-3) He moved from the singular 'invisible hand' to multiple 'invisible beings' and rooted them in '*pusillanimous superstition*'. Like natural science explains the rainbow without taking anything away from our admiration of its raw beauty, Smith analysed the 'connecting chain of intermediate events' that fills 'the interval betwixt them' in the 'ordinary course of things', and while the philosopher lost his 'wonder', he gained his 'admiration' of the 'beauty' of 'eclipses of the sun and moon', which once 'excited the terror and amazement of mankind, seem now no longer to be wonderful, since the connecting chain has been found out which joins them to the ordinary course of things' (Smith 1980, 43).

'Philosophy', he asserted 'is the science of the connecting principles of nature' (Smith 1980, 45) and like the artisan 'who has been for many years familiar with the consequences of all the operations of his art' and 'feels no such interval' between the 'connecting principles' of his trade, the philosopher is able, 'by representing the invisible chains' that 'introduce order into this chaos of jarring discordant appearances', to allay his 'tumult of the imaginations, and to restore it, when it surveys the great revolutions of the universe, [and in commerce: when it reveals 'so beautiful and so orderly a machine' (TMS, 186)] to that tone of tranquillity and composure, which is both agreeable in itself, and most suitable to its nature' (Smith 1980, 45-6).

Smith illustrates the pathway to Wonder without any allusions to metaphysical, spiritual, or godly forces at work, for example, in the 'motion of a small piece or iron along a plain table [which] is in itself no extraordinary object, yet the person who first saw it begin, without any visible impulse, in consequence of the motion of a loadstone some little distance from it, could not behold it without the most extreme Surprise; and when that momentary emotion was over, he would still wonder how it came to be enjoined to an event so little suspected it to have any connection². The two objects that seem to be unconnected or 'disjoined', and 'we feel a want of connected by a magnetic field—they 'seem no longer disjoined, and the imagination flows smoothly and easily along them' because 'upon the clear discovery of a connecting chain of intermediate events' the 'gap or interval betwixt them vanishes altogether' (Smith 1980, 40-42).

It is here, unmentioned by Smith, where the role of a metaphor, like the invisible hand, comes into play. Smith uses the hidden role of a loadstone to supplement his complete explanations of how seemingly disjointed things are connected for those readers who have not grasped their significance; the invisible hand is nothing more than a literary device to help them to understand what the philosophical explanation failed to do for them. But the metaphor is not an explanation!

Moral Sentiments and the Invisible Hand

In *Moral Sentiments* the 'invisible hand' metaphor, similarly, was a useful rhetorical literary support for his complete explanations of the 'connecting chain of events' that linked personal motivations to their unintended consequences.

In his singular reference to 'an invisible hand' in *Moral Sentiments*, Smith explains, significantly, the details of his example before he deploys the metaphor, i.e., his

explanation of a sequence of events was followed by the metaphor, and, therefore, the metaphor was not the object of his example; it merely supported it for those who did not understand it (not all of his intended readers were graduate philosophers; Smith aimed at a wider audience among an, albeit, educated minority). Savages and heathens who did not understand the science of nature relied on notions of 'invisible beings' to explain unusual phenomena. Some scholars, not accepting the sufficiency of his explanations or their context, focus on the metaphor and detect theology in Smith's language that purports to show that he was, if not a Christian, at least a Deist (Baumol 1991; Nicholls 1992, 217-236; Evensky 1993; Denis 2005; Wight 2007), and a believer in Divine Providence (Flew 1986, 160; Fitzgibbons 1995, 88-9).

Smith acknowledges that others before him recognised that utility was a 'principal' source of beauty, specifically citing David Hume's statement that the 'utility of any object...pleases the master [owner] by perpetually suggesting to him the pleasure or conveniency, which it is fitted to promote' (Smith 1976, 179). Smith agrees that beauty is closely bound with admiration for an artefact's 'fitness' for its purpose; the chapter title is: 'Of the beauty which the appearance of utility bestows upon all the productions of art, and of the extensive influence of this species of beauty' (TMS, 179). He observed that 'any production of art, should often be more valued, than the very end for which it is intended' (TMS, 179-80). He found it highly significant that people were more interested in 'the perfection of the machine that serves to attain' some end, than they were in the end itself, and after illustrating his meaning by examples of disorderly chairs and the buying of an expensive timepiece (TMS, 180), he returns to this theme when discussing the delusions of the rich landlord, and, interestingly, of public-spirited citizens who undertake public service to promote public welfare (a little noticed theme by many modern readers) (TMS, 185-7).

By 'art', Smith referred to the skill or knowledge of making any mechanical or manufactured item, or any useful piece of knowledge that serves a purpose, examples of which can be appreciated easily by consulting contemporary 18th-century encyclopaedias (Chambers 1728; Diderot and D'Alembert, 1751-77), or by noticing the popularity of societies during the Enlightenment for the study of 'arts', for example, the 'Edinburgh Society for Encouraging Arts, Sciences, Manufactures, and Agriculture in Scotland' founded in 1755 (Ross 1995).

Smith dramatises his theme with his parable of the tragedy of the 'poor man's son, whom heaven in its anger has visited with ambition', which causes him to devote himself 'for ever to the pursuit of wealth and greatness' and to sacrifice 'a real tranquillity that is at all times in his power'. The rich were admired not so much for their 'superior ease or pleasure which they are supposed to enjoy' as they were for their possession of 'numberless artificial and elegant contrivances for promoting this ease or pleasure'. He does not imagine that the rich 'are really happier than other people, but he imagines that they possess more means of happiness'. When the poor man's son reaches 'the last dregs of life', his body 'wasted with toil and diseases, his mind galled and ruffled by the memory of a thousand injuries and disappointments which he imagines he met with from the injustice of his enemies, or from the perfidy and ingratitude of his friends', he begins 'at last to find that wealth and greatness are mere trinkets of frivolous utility' (TMS, 181; Frey and Stutzer 2001).

He 'curses ambition' and 'vainly regrets' giving up 'foolishly' the 'ease and the indolence' of his youth for what he acquired in pursuit of happiness. He realises too that 'power

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and riches' are 'enormous and operose machines contrived to produce a few trifling conveniences to the body' and in his melancholic elaboration of this 'splenetic philosophy' he suffers 'sickness and low spirits'. However, in happier times 'of ease and prosperity', before low spirits sets in, his ambition and optimism is transformed into admiration of the beauty of 'the palaces and accommy of the great' because he believes that everything in them is 'adapted to promote their ease, to prevent their wants, to gratify their wishes, and to amuse and entertain their most frivolous desires' (TMS, 183). It is only later as a rich man that he realises that his happiness is ephemeral; lacking the satisfaction he strove for, and not worth the anxiety, fear and sorrow to which he was exposed while acquiring his riches. But, noted Smith, 'we rarely view it in this abstract and philosophical light' (TMS, 183). These contrasting perspectives run right through society, reaching all levels, affecting individuals in all strata of delusion.

Smith turns from these self-deceptions to the role that the striving in pursuit of such mirages means for society. For society's sake, he assures us, it is well that these 'deceptions' are widespread because 'this deception rouses and keeps in continual motion the industry of mankind':

It is this which first prompted them to cultivate the ground, to build houses, to found cities and commonwealths, and to invent and improve all the sciences and arts, which ennoble and embellish human life; which have entirely changed the whole face of the globe, have turned the rude forests into agreeable and fertile plains, and made the trackless and barren ocean a new fund of subsistence, and the great high road of communication to the different nations of the earth. The earth by these labours of mankind has been obliged to redouble her natural fertility, and to maintain a greater multitude of inhabitants. (TMS, 183-4)

From the perspective of the delusionary commitment of human energy to what are really ephemeral goals, Smith considers the affects of these delusions on the behaviours of a 'proud and unfeeling landlord', who views his extensive fields without a thought for the wants of his brethren. When looking at his fields and the harvest growing on them, he imagines that he 'consumes himself the whole harvest that grows upon them', but he 'will receive no more than that of the meanest peasant' because 'the capacity of his stomach bears no proportion to the immensity of his desires'.

In fact, the unfeeling landlord has no choice but to dispose of the surplus above his own, even extravagant, desires and his need to consider next season's planting, in some manner. If he doesn't distribute sufficient sustenance from the harvest to his tenant families, it rots in his fields or his barns, and the people who do the work, without food, would not last the winter to plant his crops in the Spring.

The landlords, therefore, can do no other, but distribute the subsistence among '*all the thousands whom they employ*', including to:

prepare 'in the nicest manner' that 'little which he himself makes use of';

- 'fit up the palace in which this little is to be consumed';
- *'provide and keep in order all the different baubles and trinkets'* employed 'in the *aconomy of greatness*';
- 'derive from his luxury and caprice, that share of the necessaries of life, which they would in vain have expected from his humanity or his justice' (TMS, 184).

The 'thousands whom they employ', namely the labourers, who toil in the landlord's fields for his wealth and for their own subsistence, are of particular interest to Smith's moral judgments. The landlord's 'natural selfishness and rapacity' serves his own 'conveniency' and the 'gratification' of this own 'vain and insatiable desires', but the necessary and absolutely inescapable costs of his living his delusions requires him to supply his employees' subsistence as well as provide the seed stock for next season.

Because the landlord does not labour, he must arrange for landless labourers to do that for him or rent fields to tenants who deliver the bulk of the seasonal produce to him in return for receiving annual subsistence shares for their families. Either way, the labourer's subsistence is maintained by the surplus produce of the land above the landlord's own generous consumption, net of next season's seed stock. This is stated clearly by Smith and cannot be regarded as exceptional; it is barely worthy of comment and certainly it is not miraculous.

Smith asserts famously: the landlords 'are led by an invisible hand to make nearly the same distribution of the necessaries of life, which would have been made, had the earth been divided into equal portions among its inhabitants, and thus without intending it, without knowing it, advance the interests of the society, and afford the means to the multiplication of the species' (TMS, 184-5).

Let's address Smith's assertion. Fitting the historical view to Smith's four ages' sequence (Smith 1978, 14-16), private property in land emerged 11,000-8,000 years ago as some humans left the age of hunting and gathering and entered the ages of shepherding and farming in parts of Europe (I sidestep historical variations of agriculture associated with the 'hydraulic' agricultural societies of Egypt, Babylon, India and China; Wittfogel 1981).

In those early ages after hunting, etc., private property was inextricably bound up with agriculture and grazing land. Open fields exposed to human traffic, wandering flocks, and free-range herds, proved too troublesome in practice (as the Biblical story of Cain, the farmer's, and Abel, the herder's, travails demonstrated; Genesis 25) and these inconveniences were eliminated eventually by the gradual creation of communal and private property and its emergence as the mainstay of civilisation. The universal experience is that without the emergence of property (personal, family, tribal, nations, or states) human societies remained in a state of nature.

In theory, property is not incompatible with equal portions of the land distributed among aspirant farmers. Equality of land distribution was enshrined in early Roman agrarian law but, noted Smith, subsequent (very human) events undid its prospects because the 'course of human affairs, by marriage, by succession, and by alienation, necessarily deranged this original equal division, and frequently threw the lands, which had been allotted for the maintenance of many different families into the possession of a single person', and this law 'mas either neglected and evaded, and the inequality of fortunes went on continually increasing' (WN,

556-57).

Private property in land and animals happened in conditions associated with low-density populations living in large 'open' territories, into which aspirant farmers could move freely up to the capacity of the available land, and up to their capacity to work it and to overcome the objections of any current inhabitants. Equality of land distribution limits population growth to the capacity of the settled territory to be divided into equal shares of about 'three hundred and fifty English acres' (WN, 557). Beyond that capacity, too many individuals seeking equal shares of viable plots would have insufficient land for maintaining equal distribution, without further conquests, possibly displacing resident populations, net of those assimilated, killed or sold into slavery; solutions associated with Roman imperialism and the early Chinese, Mongolian empires, and the ancient Babylonian and Egyptian kingdoms.

In all events, agriculture and herding eventually increased annual subsistence output above that obtainable from hunting and gathering, and with sufficient subsistence, populations increased as infant mortality fell and life-spans increased (Renfrew 1972, 27-30; Tandy 2001, 34). Minimal subsistence, related to the sustainable reproduction of the population, sets the base below which it cannot drop without impacting negatively on population. Property in land was viable if it raised total output of subsistence and it would need to have risen above earlier levels if populations were to continue growing, keeping per capita consumption roughly constant (as appears to have happened). Population was affected by plagues, warfare, and social practices (infanticide and age-related culls), and the amount of total subsistence diverted by the elites to the erection of stone buildings, temples, walls, roads, and other appurtenances of 'civilisations', which together limited population growth to the 'Malthusian trap' of the available subsistence (Clark 2007).

For agriculture to be associated with sustainable rising population levels, per capita consumption had at least to match subsistence levels eventually, even if it remained below the per capita consumption of smaller hunting populations (Diamond 1987, 64-66). Therefore, Smith's assertion that private landlords divided their produce *'very nearly the same'* as *'would have been made had the earth been divided into equal portions'* is neither surprising, nor significant. As generations came and went, some minimal level of per capita subsistence, sufficient at least to sustain population reproduction, were experienced for millennia, independent of supposed invisible hand explanations. This minimal constraint is an inescapable requirement of any society, except those in terminal decline. The self-deception that reconciled *'proud and unfeeling'* landlords to (albeit non-egalitarian) shares of their surplus with their retainers, serfs and tenants can and did operate within a wide range of relative subsistence, from deep privation for labourers' families to mild prosperity, as seasonal bounties and dearth allowed.

The landlord, in my view, was not 'led by an invisible hand', ghostly or divine, in a mysterious or miraculous sense that there was an actual entity driving him to act in the manner that he did; he was led, inexorably, to keep the 'operose machines' of the mode of subsistence working, for unless he sustained the subsistence of labourers who toiled for him on his farms and the subsistence of his armed retainers who defended his property rights against rival rich, indigent poor, and foreign invaders

alike, all ambitions for his personal 'vain and insatiable desires' would come to nought, as it would for all who preceded him.

As the whole is the sum of its parts, any policy of neglecting the minimal subsistence of the parts, in due course, would terminate the landlord's 'greatness and riches'. The delusion driving him would have evaporated in failure.

Smith's original principle explained how utility was less important as a driver than its '*beauty*' — a hovel and a palace provided shelter from the elements, but the beauty of the fitness for purpose of the palace drew aspirants from their beds early each morning to strive to acquire the means to acquire such beauty by either working hard or by ensuring that others worked hard for them.

The invisible hand metaphor, as a 'figure of speech', does precisely its job, as Smith intended, by drawing the image of an 'an allusion betwixt one object and an other', the object being the self-deception of the landlord and the 'beauty' of the metaphor that 'is so adapted that it gives due strength of expression to the object to be described and at the same time does this in a more striking and interesting manner' (Smith 1985, 29). And Smith's prime candidate for undertaking this in a 'striking and interesting manner' was the well-known and oft-used 18th-century contemporary literary metaphor of an invisible hand, which has come, incorrectly, though probably now irreversibly, a name tag for post-1950s' (not Adam Smith's) versions of economics, mainly from exponents of the paradigm of the near mystical, invisible force allegedly at work in modern capitalist markets.

But metaphors are representative, not real; they exist only as the imaginary image of what they allude to. They do not define it (Smith 1985, 30-1). Modern economists have projected onto a venerable literary metaphor a significance well beyond anything implied by Adam Smith, who, they allege, was the originator of their modern version of the metaphor. Among the first to do so was Paul Samuelson (see also: Lange 1946), who wrote in the first edition (1948) of his famous and influential textbook, *Economics*, that Adam Smith, 'the canny Scot':

was so thrilled by the recognition of an order in the economic system that he proclaimed the mystical principle of "the invisible hand": that each individual in pursuing only his own selfish good was led, as if by an invisible hand, to achieve the best good of all, so that any interference with free competition by government was almost certain to be injurious. This unguarded conclusion has done almost as much harm as good in the past century and a half, especially since too often it is all that some of our leading citizens remember, 30 years later, of their college course in economics (Samuelson 1948, 36).

But the 'canny Scot' said no such thing.

Smith did not proclaim 'the mystical principle of "the invisible hand" '. He was so reticent about the metaphor that he mentioned it only once in *Wealth of Nations*, more than halfway through his book, buried in a chapter about how some, but not all, cautious merchants preferred the 'home trade' to 'foreign trade' in pursuit of their 'own security'. Smith never proclaimed in favour of 'selfishness', nor did he describe the actions of merchants as 'selfish'; he always recognised 'self-interest', which he never confused with 'selfishness', an attribute of Bernard Mandeville's philosophy (Mandeville 1988), which Smith regarded as 'licentious' (TMS, 306-14). Smith never regarded nor stated that '*any interference with free competition by government was almost certain to be injurious*'; he identified the circumstances where specific government policies of Mercantile Political Economy, since the 16th century, were inimical to 'progress towards opulence' and he identified which of these policies should be abandoned. Smith didn't think much good came from sovereigns and legislators telling merchants what to do — he didn't think they were up to the task. In fact, Smith showed that the main 'interference' with 'free competition' came from the 'merchants and manufactures' themselves, for legislators, and those who influenced them, to legalise or award monopolies and trade protection which were against the public interest in general and the interests of consumers in particular.

If Samuelson had read *Moral Sentiments* and *Wealth of Nations* for himself through its many editions and translations well into the 1970s, instead of recalling what he was taught at Chicago by his tutors and then passing on the same error to hundreds of thousands of readers of *Economics*, many of whom became tutors themselves, the current epidemic of misleading ideas about invisible hands may have become containable.

The Invisible Hand in Wealth of Nations

In Book IV of WN, Smith wrote scathing criticisms of Mercantile Political Economy as practised since the 16th century. The British colonies in North America were subject to a British monopoly of trade in both their imports and exports, under the Navigation Acts, which were enforced by the Royal Navy and by customs officers at every British seaport at home and abroad. This drew domestic British capital into the carrying trade and colonial investment, in search of higher monopoly profits than would otherwise have been the case if other European countries and the colonies had been allowed to trade. Book IV of *Wealth of Nations* is a withering criticism of the trade distortions caused by monopolising colonial trade and fighting wars to protect that trade, at significant cost to the British economy and to the development of home prosperity.

Privileges encourage those industries that enjoy them, which thereby draw a greater share of labour and stock than would be the case in their absence. These distortions of the '*natural balance of an industry*' may not be justified and may reduce the employment of capital elsewhere in the economy by causing a below normal rate of capital accumulation. (WN, 453)

The principles he advanced were: 'The general industry of society can never exceed what the capital of the society can employ', and 'the number of those that can be continually employed by all the members of society, must bear a certain proportion to the whole capital of that society, and

never can exceed that proportion.' He added that: 'No regulation of commerce can increase the quantity of industry in any society beyond what its capital can maintain' and that 'it can only divert part of it into a direction into which it might not otherwise have gone; and it is by no means certain that this artificial direction is likely to be more advantageous to the society than that into which it would have gone in of its own accord' (WN, 453).

Domestic protection and prohibitions boost domestic production of certain items, which inevitably divert capital and employment away from unprotected to protected sectors. The reduced, or eliminated, competition from imports reduces the pressure of price competition on domestic suppliers, and consumers lose out from higher domestic prices. These net gains and losses distort capital allocation across society. Smith was critical of such mercantile distortions as they existed in the colonial monopoly and its associated domestic tariffs and protection.

The reality, discussed passionately in Book IV of *Wealth of Nations*, was that Britain was not a free-trade economy; the government had pursued policies since the 16th century, summed as 'jealousy of trade' supported and enforced by monopoly practices. Even in these difficult circumstances, he demonstrated that the natural inclinations of people led them to mitigate the misguided policies of mercantile governments. When the natural inclinations of individuals are considered, they *continually exert*' themselves to find the most advantageous employment for their capital, and he shows that in exerting themselves in this manner they may unintentionally prefer what is most advantageous for society (WN 454).

When every individual exerts himself to find that employment of his capital which is most advantageous for himself, the sum of individual personal endeavours drives society to the most advantageous employment of its capital. Smith believed this was best achieved by leaving people to find out which employment suits them best, i.e., individuals are the best judge of their self-interests and do not need central direction. But it does not follow that because they know what is best for themselves that the outcome is always the best for society.

Smith gave an example of where the behaviour of some, but not all, merchants was, coincidently, best for society. People have different perceptions, aptitudes, and inclinations with respect to their security. Some, but not all, prefer investment opportunities as 'near home as possible', with the proviso that they can obtain the ordinary, or not a great deal less than the ordinary, profits from stock. Some wholesale merchants preferred their capital '*under [their] own immediate view and command*' and therefore they preferred the home trade to the foreign trade for consumption, and both to the carrying trade. Their behaviour was influenced by the increased risks of trading over longer distances for longer durations before their capital plus any profits was returned. To avoid the greater risks of distant trade across the North Atlantic, some of them might accept lower domestic profits if they felt their capital was safer and would be replaced sooner.

Thus, upon equal or nearly equal profits, every wholesale merchant naturally prefers the home-trade to the foreign trade of consumption, and the foreign trade of consumption to the carrying trade. In the home-trade his capital is never so long out of his sight as it frequently is in the foreign trade of consumption. He can know better the character and situation of the persons whom he trusts, and if he should happen to be deceived, he knows better the laws of the country from which he must seek redress. (WN, 454)

This is as clear a statement of a merchant's caution as you could get in a single paragraph. Also, merchants' consideration of the effect of a delayed turnover of their capital was not a trivial one, especially for smaller merchants (WN, 603).

In the circumstances of Britain's protected monopolies in the colonial trade, Smith asserts, some merchants will trade abroad and others will prefer to trade domestically. Also it is often overlooked here that while Smith refers in what follows to 'every individual who employs his capital in support of domestick industry' (WN, 455), for the reasons given above of their insecurity, he is not referring to 'every individual' in the UK; he is in fact referring only to those individual merchants who invest domestically in preference to investing in the riskier Atlantic trade:

As every individual, therefore, endeavours as much as he can both to employ his capital in the support of domestick industry, and so direct that industry that its produce may be of the greatest value; every individual necessarily labours to render the annual revenue of society as great as he can. (WN, 456)

Only after stating this logical and unexceptional outcome from his assumptions, based on the mercantile political economy operating at the time, does he introduce the now famous metaphor to underline the consequential imperatives of natural caution among some merchants:

He generally, indeed, neither intends to promote the publick interest, nor knows how much he is promoting it. By preferring the support of domestick to that of foreign industry, he intends only his own security; and by directing that industry in such a manner as its produce may be of the greatest value, he intends only his own gain, and he is in this, as in many other cases, led by an invisible hand to promote an end which was no part of his intention. (WN, 456)

But Smith had already fully explained the reasons for the merchant's cautiousness *before* introducing the metaphor of 'an invisible hand', which purports to lead him to do what he did anyway in the stated circumstances. In Smith's corpus, the instance of the invisible-hand metaphor is only a 'relatively small point' (Fleischacker 2004, 139). And this is the proper role of a metaphor; it presents the 'complex' mechanics of the arithmetical connection between individual actions and aggregate outcomes, driven by caution and insecurity, into an understandable and 'beautiful' allusion for

those of his readers not alert to the validity of his initial explanation. In confirmation of this assertion, most modern economists who quote this paragraph, ignore the critical phrase, 'he intends only his own security', and thereby lose the link between the merchant's behaviour and the outcome. If senior and accomplished academic economists miss this vital clue today, is it any wonder that Adam Smith slipped in a popular literary metaphor to assist his much less sophisticated readers to understand his critique of Mercantile Political Economy?

Alternatively therefore, should we interpret Smith to suggest that an individual's motivations from 'his own security' are too weak to affect and direct his behaviour, and that he needs, to coin a phrase, a helping hand? Surely not! Needing a helping hand makes redundant his initial explanation of the merchant's caution to avoid losing sight of his capital in the manifest uncertainties of 'the foreign trade of consumption'.

So, how does 'an invisible hand' induce the behaviour that a person's insecurity induces anyway? It does nothing! To believe otherwise, implies an unknown and complex ('invisible') element to human motivation, akin to credulous beliefs that Jupiter's invisible hand and invisible beings determined human fortunes, for good or ill, which he mocked in his *History of Astronomy* and from which Emma Rothschild roots her interesting conclusion that Smith continued to mock those merchants whose credulity led them to require an invisible hand when clearly they did not. If it was an 'ironic joke', most modern economists didn't get it.

The metaphor of an invisible hand is just a metaphor and modern wonder over its meaning is, well, meaningless. This conclusion is underlined in the next paragraph where Smith famously (because much quoted) warns that statesman 'who should attempt to direct private people in what manner they ought to employ their capitals, would not only load himself with a most unnecessary attention, but assume an authority which could safely be trusted, not only to no single person, but to no council or senate whatever, and which would nowhere be so dangerous as in the hands of a man who had the folly and presumption enough to fancy himself fit to exercise if (WN, 456).

If statesmen, etc., cannot be trusted (as, indeed, Smith believed they could not) in the allocation role, then leaving individuals to allocate their own capitals, because they are the best judges of their circumstances, makes sense, more so than the false conclusion that Smith introduced an unnecessary and redundant metaphysical entity, supposedly, of a disembodied and invisible, even godly, hand to explain what he had already explained clearly in the preceding paragraphs.

The metaphor was not meant by Smith (the educator) to be taken literally; it was only for expository purposes for those readers (including statesmen and those who influenced them) who were unable to grasp the connecting chain between a motivation arising from caution against risks abroad and the eminently available remedy of their investing locally.

What does the metaphor add to what we know about economic processes and have known since the 18th-century, and not just from Adam Smith? Smith's purpose was to persuade statesmen, legislators, and those who influence them, of the benefits of leaving merchants and manufacturers to arrange their own affairs according to their interests (within the limits of commutative justice), his allusion to the illusion of an invisible hand reads better for those who found the link between a merchant's caution in matters of his 'own security' and unintentional social benefit too difficult to grasp or, more important perhaps, needed help to explain the connection to others whom they wished to influence in order to carry forward Smith's critique of existing regulatory interventions, but who would not necessarily repeat his arguments in detail. Political economy was not (arguably still isn't) an everyday subject of literate discourse in and around the British or any other legislature (Rothschild 2001, 125-6; Smith 1987, 286).

Benign Order?

Because individuals undertake various possible actions in response to their motivations and their regard for their self-interests as they interpret them, we can only know afterwards, and not beforehand, if and whether the summation of their actions leads to benign consequences. Where are the invisible hands when the actions of individuals have malign outcomes for society (e.g., the tragedy of the commons)? Whatever the answer, the possibility, and the incidence in *Wealth of Nations* of malign outcomes, compromises the metaphor's alleged benign imperative. Smith gives over 60 instances in *Wealth of Nations* in Books I and II of the malign consequences of self-interested actions.³

Smith was not party to the idea that self-interested actions were necessarily always socially benign; his was not a generalised explanation of all unintended consequences, but a partial one and it acts 'in this, as in many other cases', selectively (WN, 456). It was not a universal benign rule for markets, which would have required Smith to have written: 'in this, as in all *other*, or *most* other, cases', and for him to have used the invisible hand metaphor in Books I and II of *Wealth of Nations* where he discusses market processes; instead, he did not mention 'an invisible hand' at all. In contrast to Smith, the (neglected) Finnish political economist, Anders Chydenius, who published *The National Gain* in 1765 (Chydenius 1931), was less reserved than Adam Smith about an absolute and direct connection between individuals seeking their own gain and the consequential public (national) gain.

Indeed, as Fleischacker points out:

If he had wanted to proclaim that an invisible hand always guides individual economic decisions toward the good of society, we would expect the proclamation at the opening of the book, as part of his grounding theory of economic activity. The theory Smith gives us there does support the claim that individuals generally promote the social good in their economic behaviour without intending to do so, but there is no

³ WN, 40; 43; 51-2; 77; 78; 79; 80; 84; 89; 90; 91; 95; 96; 106; 111-12; 115; 116; 124; 125; 126; 135; 136; 137; 139;140; 141;142; 143; 144; 145; 146; 151; 152; 153;154; 156; 157; 158; 160; 163; 171; 174; 266-7; 285; 302-03; 304-05; 308; 310-17; 321; 323-24; 326; 339-42; 344; 346.

hint that this holds in all cases, much less that it is guaranteed to hold by either empirical or metaphysical laws. (Fleischacker 2004, 139)

Human behaviours in situations where markets operate less than competitively in aggregate, can and do result in sub-optimal outcomes, such as from the imposition of monopolies, protectionism, and conspiracies to restrict supplies, to which we can add, pollution and indifference to spill-over externalities, and tragedies of the commons. Whether, in the mathematical theory of perfectly competitive conditions in general equilibrium, the 'many other' qualifier becomes 'all other cases' is beside the point; these conditions do not exist outside the constructs of the theory, from which humans are absent.

There are paragraphs in *Wealth of Nations* relevant to the invisible hand debate which do not mention anything about 'an invisible hand', including some that refer directly to similar instances in which the metaphor was used by Smith in Book IV. Its absence in these instances confirms that his use of an invisible hand was as a mere literary metaphor to help elucidate a particularly difficult explanation and not evidence of a new theory and, certainly not, a new explanation (Macfie 1967, 81; cf Schneider 1979, 53). Because of the importance of this debate, I quote an important instance of the absence of the invisible hand metaphor, where it may be thought to have had particular relevance, though Smith makes no mention of it:

The mercantile stock of every country, it has been shewn in the second book, naturally seeks, if one may say so, the employment most advantageous to that country. If it is employed in the carrying trade, the country to which it belongs becomes the emporium of the goods of all countries whose trade that stock carries on. But the owner of that stock necessarily wishes to dispose of as great a part of those goods as he can at home. He thereby saves himself the trouble, risk, and expence, of exportation, and he will upon that account be glad to sell them at home, not only for a much smaller price, but with somewhat a smaller profit than he might expect to make by sending them abroad. He naturally, therefore, endeavours as much as he can to turn his carrying trade into a foreign trade of consumption. If his stock again is employed in a foreign trade of consumption, he will, for the same reason, be glad to dispose of at home as great a part as he can of the home goods, which he collects in order to export to some foreign market, and he will thus endeavour, as much as he can, to turn his foreign trade of consumption into a home trade. The mercantile stock of every country naturally courts in this manner the near, and shuns the distant employment; naturally courts the employment in which the returns are frequent, and shuns that in which they are distant and slow; naturally courts the employment in which it can maintain the greatest quantity of productive labour in the country to which it belongs, or in which its owner resides, and shuns that in which it can maintain there

the smallest quantity. It naturally courts the employment which in ordinary cases is most advantageous, and shuns that which in ordinary cases is least advantageous to that country. (WN, 628-9)

Smith used the word, 'naturally', five times in this paragraph, indicating the driving force of these processes affecting the decisions and the behaviours of merchants without reference to 'invisible hands', which is a clear demonstration, should one be needed, that he did not need a metaphor to describe what people did naturally.

Smith continues in this vein because distant trade is 'as necessary for the welfare of the society as a near one'. How then does it occur 'naturally' that some stock should be withdrawn from advantageous employment locally to distant locations where it is less advantageous? The answer is fully explained in the model from Book II, namely the higher profits obtainable in distant trade (scarcer capital is employed in distant than local trade, raising the market rate of profit above its natural rate), which motivates some, but not all, individuals to overcome their natural caution.

It is thus that the private interests and passions of individuals naturally dispose them to turn their stock towards employments which in ordinary cases are most advantageous to the society. But if from this natural preference they should turn too much of it towards those employments, the fall of profit in them and the rise of it in all others immediately dispose them to alter this faulty distribution. Without any intervention of law, therefore, the private interests and passions of men naturally lead them to divide and distribute the stock of every society, among all the different employments carried on it, as nearly as possible in the proportion which is most agreeable to the interests of the whole society. (WN, 630)

He makes no mention of the intervention of 'an invisible hand' because there is no need for anything remotely mystical to be said about market processes with their profit signals and incentives. The natural workings of markets are fully sufficient to explain what happens and did not need 'invisible hands' for his arguments. Clearly, 'invisible hands' for Adam Smith had nothing to do with markets, contrary to the assertions of modern economists.

How is it then that Smith can be said to have believed that people worked under the benign influence of 'an invisible hand' when they were led to do precisely what he clearly showed they did on their own unaided account from natural forces within market relationships and processes?

In the two cases in which the metaphor was deployed, as an afterthought following his full and explicit explanation of the circumstances, what does 'an invisible hand' add to the clarity of the self-deception of landlords and the caution of merchants? Rich landlords and merchants did not need to be 'led by an invisible hand' to prefer what they did from their existing knowledge of their circumstances

and the natural operations of their incentives and their natural caution. And Smith reminds us of the consequences for consumers and society generally when the self-interests of merchants are let loose on the wider public interest: merchants demand and proselytise gullible legislators for 'high duties' and 'absolute prohibitions' against the exports of foreign countries (WN, 452). It is in their self-interests to do so, but it was not necessarily in the interests of consumers.

He is even more critical of the clash of interests in Book I:

The interest of the dealers, however, in any particular branch of trade or manufactures, is always in some respects different from, and even opposite to, that of the publick. To widen the market and to narrow the competition, is always the interest of the dealers. To widen the market may frequently be agreeable enough to the interest of the publick; but to narrow the competition must always be against it, and can serve only to enable the dealers, by raising their profits above what they naturally would be, to levy, for their own benefit, an absurd tax upon the rest of their fellow-citizens. The proposal of any new law or regulation of commerce which comes from this order, ought always to be listened to with great precaution, and ought never to be adopted till after having been long and carefully examined, not only with the most scrupulous, but with the most suspicious attention. It comes from an order of men, whose interest is never exactly the same with that of the publick, who have generally an interest to deceive and even to oppress the publick, and who accordingly have, upon many occasions, both deceived and oppressed it. (WN, 267)

The invisible-hand metaphor added nothing to what Smith, the analyst, and his attentive readers, knew. It was a device which he only used once in each of his books to keep the attention of his other readers who did not follow his analysis. Understanding the explanation of the processes behind these cases is more important than the metaphor. In Book II, Smith the educator explains why at times he goes into pedestrian detail, in this case over the complexities of banking practices. In his analysis he suggests 'so violent a metaphor' as 'a sort of waggon-way through the air' (WN, 321), when discussing the 'judicious operations of banking'.

Smith had to make convincing cases for as wide a readership as possible, otherwise his '*clear and distinct confutation*' (Smith 1985, 164) of Sir James Steuart's mercantile policies (Steuart 1767) would have been compromised, and with it his '*very violent attack upon the whole commercial system of Great Britain*' blunted (Smith 1985, 249-53).

Smith showed, in the case discussed in *Wealth of Nations*, whatever their state of ignorance of or indifference to the public good, that individuals acted in their own best interests as they saw them in their circumstances, and subject to their personal degrees of caution, they tried to maximise their returns from their capital and labour, and in doing so, they contributed towards maximising the annual revenues of society

(the whole is the sum of its parts). The 'logic' and the arithmetic were faultless, yet doubts must linger about their inevitability.

If a metaphor – 'a waggon-way through the air' or 'an invisible hand' – helped some readers to understand his main points, then so be it; Smith the educator spent his adult life persuading students, colleagues, legislators, influencers and readers, to change the commercial system of Great Britain, and he drew on his command of composition and style from his natural talents to make the best case for the change as possible.

But modern economists took an isolated metaphor, used rarely by Adam Smith, and in his name invented a wholly misleading belief of how commercial markets function and how people in them necessarily and unintentionally work for public benefit, independent of the consequences of their actions. And they introduced a selfcontradictory concept into economics, described as an 'invisible hand explanation', yet it does not explain anything close to the explanatory value offered by economics as a science, even where Smith left it. If anything, it obfuscates everything to which it is applied.

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