



AN INTRODUCTION TO ECONOMICS AS A MORAL
SCIENCE

Independent Institute Working Paper #15

James E. Alvey

December 1999

AN INTRODUCTION TO ECONOMICS AS A MORAL SCIENCE

James E. Alvey¹

Keywords:

Moral science; history of economic thought; Adam Smith; Thomas Malthus; J.S. Mill; Alfred Marshall.

Abstract

Mainstream economists now consider their discipline to be a technical one that is free from ethical concerns. I argue that this view only arose in the twentieth century. In this paper I set out a brief history of economics as a moral science. First, I sketch the evolution of economics before Adam Smith, showing that it was generally (with the exception of the mercantilists) conceived of as a part of moral philosophy. Second, I present elements of the new interpretation of Smith, which show him as a developer of economics as a moral science. Third, I show that even after Smith, up to the beginning of the twentieth century, a number of leading economic theorists envisioned economics as a moral science, either in theory or in practice. Fourth, I sketch the decline of economics as a moral science. The key factor was

¹ The author is Lecturer in the Department of Applied and International Economics, Massey University, New Zealand. An earlier, shorter version of this article was published in 1999 as “A Short History of Economics as a Moral Science,” *Journal of Markets and Morality*, Vol. 2, No. 1, pp. 53-73. I wish to thank the editors of that journal, and the Center for Economic Personalism, for allowing me to use the material published there. I also want to thank Anthony Waterman, Alan Duhs, Rodney O’Donnell, Richard Kleer, and Athol Fitzgibbons for helpful suggestions with sources; and Gary Buurman and Nahoko Miyamoto for comments on the text. The usual caveats apply.

the emergence and influence of positivism. Overall, I show that the current view of the detachment of economics from morals is alien to much of the history of the discipline.

Economics grew out of moral philosophy and eventually became one of the moral sciences. At some point the mainstream of economics became detached from the moral sciences and then from morality itself. I will argue that this detachment from moral concerns is not part of the tradition of economics. It emerged only during the twentieth century.

There are two major reasons why economics has become detached from moral concerns. First, the natural sciences came to be seen as successful and the attempt was made to emulate that success in economics by applying the natural science methods, including mathematics, to economic phenomena (see Mirowski, 1989, p. 198). Second, the self-styled economic science came to adopt positivism, which ruled out moral issues from science itself (see Davis, 1991; Rothschild, 1993; Drakopoulos, 1997). These points will be demonstrated below.

It is a widely held view today among mainstream economists that economics is free from any ideological, theological, or moral philosophy. A commentator on the role of ethics in mainstream economics has stated:

The 'scientification' of economics ...has led to a separation of economics from its ethical roots. The 'mainstream economics' of the 20th century fully accepts this separation. Economic theory is seen as a positive science which has to analyse and to explain the mechanisms of economic processes. ... Important as ethical valuations ('ought'-statements) may be, they should not form part of the economist's research programme. (Rothschild, 1993, p. 16)

Similarly, a recent commentator on the role of positivism in economics commented this way:

Most economists today ...would agree that the claim of an economic theory free from values is essential in establishing the scientific nature of the discipline. A positive, value-free economics, in the sense of not relying on any particular set of value judgements or on any philosophical or psychological framework, is generally seen as ideal. This approach has crucially influenced important branches of economics such as microeconomic theory. (Drakopoulos, 1997, p. 286)

Many others have expressed similar assessments (see Young, 1997, p. 4; Galbraith, 1987, p. 124).

Modern economics stresses rational calculation, the baser material objectives, and scientific neutrality on moral issues. But these foci can easily shift to something else. For example, Yezer, Goldfarb, and Poppen state that “introductory microeconomics is based on assumptions of rationally selfish behavior” (1996, p. 178). Note that self-interest has slipped to “selfish behaviour.” But consider also what one of today’s leading microeconomists, David Kreps, has to say: “a sparse set of canonical hypotheses-- ...greed, rationality, and equilibrium—became the maintained hypotheses in almost all branches of [economics]” (1997, p. 59). Note that he has slipped from the “selfishness” of Yezer, Goldfarb, and Poppen to “greed.” The slip to the assumption of “greed” is frequently made by economists.

What is the moral effect of promulgating this view on the behaviour of economics students? Experiments have been conducted to see whether humans cooperate or attempt to “free ride”¹ in a range of situations. In one study it was found that people were generally cooperative or public spirited, except for a group of first-year graduate economics students: the latter were less cooperative, contributed much less to the group, and found the concept of fairness alien; the economics students were “much more likely to free ride” than any other group tested (Marwell and Ames, 1981, p. 306). On this same study, Hausman and

McPherson comment: “Learning economics, it seems, may make people more selfish” (1993, p. 674; see also Marwell and Ames, 1981, p. 309; Lux, 1990, pp. 198-9). More recently, Frank, Gilovich, and Regan found in their experiments that students of economics, unlike others, tended to act according to the model of rational self-interest to which they are exposed in economics; they concluded that “exposure to the [economists’] self-interest model does in fact encourage self-interested behavior” and that “differences in cooperativeness are caused in part by training in economics” (1993, pp. 159,170). This conclusion leads them to recommend that economists “stress a broader view of human motivation [than rational self-interest] in their teaching” (Frank, Gilovich, and Regan, 1993, pp. 170-1).² By producing selfish and uncooperative individuals one may think that there is empirical evidence for the actual detachment of economics from ethics.

The essay that follows shows the genesis of economics as a moral science and chronicles some of the developments in mainstream economics that metamorphosed the discipline to the point where moral concerns are now irrelevant. The first section presents a brief overview of the connection between economics and moral philosophy before Adam Smith. The second section presents some brief points about Adam Smith’s science of economics. The third section turns to the developments in economics from Smith’s time until the early 1900s. The fourth section sketches some major developments in economics during the twentieth century. The fifth section presents a summary of the argument.

a) Pre-Smithian Economics

Economic matters have been discussed throughout human history but the notion of an independent science of economics only arose relatively recently, perhaps since the middle of the eighteenth century. Until that time economics was generally discussed as a subordinate part of a broader study of political, moral, and theological matters.

Aristotle's treatment of economics is to be found in the *Nichomachean Ethics* and the *Politics*. In the Aristotelian tradition, economics is a part of a broader inquiry into ethics and politics. From about 1240 A.D., when Aristotle was rediscovered in Western Europe, the Scholastics used the *Nichomachean Ethics* as one of the leading textbooks and it was through this study of moral philosophy that Scholastic economics emerged: Scholastic economics was Aristotelian economics (Langholm, 1979, pp. 11-36). The Scholastics saw economics as a subordinate part of the broader theological/moral concerns (Gordon, 1975, p. 157). For example, the disputes over the legitimacy of usury were based on moral concerns (Gordon, 1975, pp. 187-243; Hamouda and Price, 1997).

Scholasticism remained influential in European universities for centuries. Even when it was replaced by more modern, natural law views (of Grotius and Pufendorf), the place of economics changed little. In the European universities in the 1700s economics was taught as part of moral philosophy (Canterbery, 1995, p. 42). The example that I know best is the lectures at the University of Glasgow of Francis Hutcheson, the teacher of Adam Smith. If we can judge from his *A Short Introduction to Moral Philosophy*, there were two parts to his lectures. The first part dealt with virtue. The second part, "the law of nature," had three units: private rights, economics, and politics (see Ross, 1995, p. 53). Economics was seen to operate within the "law of nature," or jurisprudence, which, in turn, operated within moral philosophy.

So far one group has been omitted from this history of the development of economic thought: the group of pamphleteers, later called mercantilists by Adam Smith (see *Wealth of Nations*³ Book IV), who operated from the fifteenth to the eighteenth centuries. They were usually active businessmen who wished to influence government policy. As is well-known, the goal of the mercantilists was to increase their own wealth, and the wealth of their country, through the extensive use of government intervention. The details of their theory (and

nationalistic trade policies) need not concern us;⁴ but “Mercantilism involved ... a marked break with the ethical attitudes and instructions of Aristotle and of Saint Thomas Aquinas and the Middle Ages in general” (Galbraith, 1987, p. 37). In this quotation Galbraith implicitly argues that the emergence of these writers marked the point where economics broke with the moral sciences. While mercantilists were influential in economic policy, it is not clear that they dominated thinking on economic matters within universities.

Economics had been conceived as a moral science and remained so in universities. Outside of universities, and to some extent inside, economics was moving away from that approach: it was “escaping” from the moral and ethical concerns of the past. The conventional view is summarised by Boulding in this way: “economics ... only became a science by escaping from the casuistry and moralizing of medieval thought” (1970, p. 117). Next I turn to Adam Smith in order to investigate the claim that he completed that “escape.”⁵

b) Smith's Moral Science of Economics

Most commentators⁶ on the history of economic thought claim that modern economics began with Adam Smith (whose major contributions were made between the late 1750s and 1790), even though the reason for their conclusion varies. Many see his *Wealth of Nations* as the foundational document because it was here that a separate science of economics began that explicitly broke from moral philosophy and theology.⁷ More precisely, during the twentieth century Smith has been interpreted by positivists who seek to find in his work what they themselves believe, and not surprisingly they find there a value-free science, which is based on the “fact” that humans behave in a rationally self-interested manner. That view has come under criticism recently. The proper interpretation of Smith's work is important because of its pivotal role in the history of the discipline of economics (see Duhs, 1998, pp. 1492-8). In this section I will attempt to support the newer view.

Smith was deeply affected by his exposure to Hutcheson and consequently--when he, in turn, became Professor of Moral Philosophy at Glasgow University--followed a similar pattern to that adopted by his teacher. As Smith's student John Millar explained, in Smith's course on moral philosophy there were four parts: natural theology, ethics (published as *The Theory of Moral Sentiments*, first edition 1759), justice (published posthumously from student notes⁸ as *Lectures on Jurisprudence*), and finally, "political regulations which are founded ... [upon] expediency, and which are calculated to increase the riches, the power, and the prosperity of the state" (and largely published as *The Wealth of Nations*, first edition 1776) (quoted in Meek, Raphael, and Stein, 1978, p. 3). For Smith, economics (or what he called political economy) was situated within this grand scheme of moral philosophy.⁹

A brief statement about Smith's first book, the *Theory of Moral Sentiments*, is required here. This book was published well before the more famous *Wealth of Nations* but I argue--contrary to the German commentators of the middle to late 1800s, who formulated *Das Adam Smith Problem*--that its doctrine is not supplanted by the later work, which deals with economic matters more directly. The first book sets out a moral system that provides both a general framework for the economic realm and insights into specific economic themes.

In the presentation of his system of morals Smith discusses a wide range of virtues (see Alvey, 1998b, pp. 6-8). This list includes the lower, commercial virtues of industry, frugality, prudence, vigilance, circumspection, temperance, constancy, and firmness (Smith, 1976a, pp. 54-6,167-8,189-90,242,304). In this context Smith speaks of the lower¹⁰ of two types of prudence: "the care of the health, ... fortune, ... rank and ... reputation of the individual" (1976a, p. 213; see also p. 189). This sounds like the type of rational calculation that is the focus of mainstream economics and the positivistic interpretation of Smith. But for Smith, prudence is not a "fact" or datum, it is one of the lower virtues within his broad moral system. The prudent man, Smith tells us, must sacrifice present pleasure for future pleasure

and Smith’s “impartial spectator”--the judge of moral sentiments--approves of the “self-command” required (1976a, p. 215). Even within the *Theory of Moral Sentiments*, capital accumulation--which is a central feature of Smith’s *Wealth of Nations* and which is analysed further below--is discussed and placed within a moral framework (1976a, p. 63).

Another virtue that Smith discusses in the *Theory of Moral Sentiments* is justice. His view of justice is restricted to commutative (not distributive) justice. This type of justice is not that demanding, hindering us “from hurting our neighbour,” but it is essential for the preservation of society (Smith, 1976a, p. 82; see also p. 86). Breaches of justice require punishment. The importance of justice for Smith’s economics will be discussed below.

Smith refers to many other virtues which are in the middle of the moral hierarchy, such as humanity (1976a, pp. 204-5). Finally, the peak of virtue for Smith is benevolence: “that to feel much for others and little for ourselves, that to restrain our selfish, and indulge our benevolent affections, constitutes the perfection of human nature” (1976a, p. 25). This fact should be particularly interesting to those graduate students of economics, discussed earlier in the essay, who were so influenced by the model of rational self-interest, or “greed,” as Kreps says.

Now let us turn to Smith’s *Wealth of Nations*.¹¹ While Smith’s view that economic growth “should be the normal state of society” separates him “from the debates of the earlier moralists” (who saw the stationary state as ideal), Smith did retain concern for morality within his economics (Young, 1997, p. 130; see also pp. 154, 164-5).¹²

Table 1: The Intellectual Framework of the *Wealth of Nations*

Virtue	Location in the <i>Wealth of Nations</i>	Economic manifestation
Justice	Books I and IV	Free Trade
Prudence	Books II and III	Capital Accumulation
Benevolence	Book V	No alienation

Source: Fitzgibbons, 1997, p. 98.

Consider the table above that lists some of the Smithian virtues and their economic manifestation within the *Wealth of Nations*. Smith saw his major policy task in the latter book as attacking the restrictive mercantilist system and promoting free trade (see 1976b, Bk IV). In 1780 Smith referred to his *Wealth of Nations* as “the *very violent attack* I had made upon the whole commercial system of Great Britain” in the service of his policy goal (1987, p. 251 emphasis added). That goal, free trade, means reciprocity or commutative justice. Smith is famous for his defence of freedom of trade internationally and domestically, but this does not reduce to the rule of unfettered self-interest: exchange occurs within the moral framework established in his first book. Smith summarizes his ideal “simple system of natural liberty” this way: “Every man, *as long as he does not violate the laws of justice* is left perfectly free to pursue his own interest in his own way” (1976b, p. 687 emphasis added). For a recent commentator, this “points clearly to a moral dimension in [Smith’s] economics” (Temple-Smith, 1997, p. 9; see also Fitzgibbons, 1995, p. 187).

Let us now turn to Smith’s view on economic development and growth. As mentioned earlier, Smith saw these themes as the core of economics: “the great objects of the political economy of every country, is to increase the riches and power of that country” (1976b, p. 372; see also p. 428). Economic growth, and thus Smith’s political economy, was itself intimately connected with morality; this is seen in both the moral *effects* and in the moral *prerequisites* of growth (see Young, 1997, pp. 164-5). I discuss each in turn.

First, people in “civilized and thriving nations ... even of the lowest and poorest order ... may enjoy a greater share of the necessities and conveniences of life than it is possible for any savage to acquire” (1976b, p. 10). This means that those living in “thriving nations,” are not reduced--like those living in other nations--to the level of abandoning their old and destroying their children (1976a, pp. 209-11; 1976b, pp. 10, 89-90; see also 1976b, pp. 96-

100; Alvey, 1988b). There are other moral effects of growth as well, such as the development of humanity, politeness (1976a, pp. 204-8) and industry (which will be discussed shortly). As a means to the end of Smith's political economy, capital accumulation must be promoted and, by doing so, it has moral effects; political economy serves a moral goal.

Second, I turn to the prerequisites for growth.¹³ There are two primary factors responsible for economic growth: the skill and dexterity with which labour is applied and "the proportion between the number of those who are employed in useful labour and those who are not so employed" (1976b, p. 10; see Kleer, 1992, pp. 128-30).¹⁴ The major influence on the second factor--the ratio between productive and unproductive labour in society, or the ratio between "capital" and "revenue" destined for immediate consumption--is the accumulation of capital, which, in turn, is strongly influenced by parsimony or frugality (1976b, pp. 330-7). Clearly relevant, therefore, is the lower type of prudence (associated with calculating self-command to better one's financial condition). "[T]he fundamental behavioural assumption of the economic theory of growth [frugality] turns out to be the same thing as the desire to cultivate the virtue of prudence" (Young, 1997, pp. 45-6; see also Smith, 1976a, p. 213). Prudence is a moral prerequisite for capital accumulation and hence economic growth.

In addition to being a *prerequisite* for growth, capital accumulation also has another indirect, beneficial *effect*. Unproductive labour (or employment in what we call the services sector) requires only spasmodic attention and so induces idleness:

[t]he idleness of the greater part of the people who are maintained by the expense of revenue, *corrupts*, it is probable, the industry of those who ought to be maintained by the employment of capital, and renders it less advantageous to employ a capital there than in other places. (1976b, p. 336 emphasis added)

Capital accumulation therefore improves economic growth by requiring a greater proportion of productive to unproductive labourers and reducing the “corruption” of productive labourers.¹⁵

As prudence, parsimony, and industry are all among the lower virtues, it is clear that various virtues are required to produce economic growth. In other words, Fitzgibbons’s table could be expanded to include other commercial virtues such as industry and frugality. Once again, Smith’s political economy, by aiming to promote economic growth, is inherently a moral enterprise.

In addition, we see in Smith an analyst who uses the moral framework to criticize the alienating workings of the commercial economy. Some of the strongest moral criticisms of existing society ever made are to be found in the *Wealth of Nations* (see Alvey, 1998a, pp. 1433-7); Smith’s economics is not apologia for the *status quo*. There is neither a sharp fact/value distinction of later economists who adopted positivism, nor a “divorce between economics and ethics” (Young, 1997, p. 5).

In Smith’s hands economics served a traditional purpose: his economics is a “moral science” in the truest sense (see Young, 1997, throughout).¹⁶ The struggle for Smith’s soul is crucial for many participants. If it can be shown that the positivistic, narrowly self-interested interpretation of Smith is false, the proponents of these views have to look elsewhere for support. In response, such proponents may claim that Smith was misguided but this would represent a considerable change from the prevailing strategy of eulogising him.

c) Classical and Early Neoclassical Views on Economics as a Moral Science

This section covers some of the major developments in economic thought from Smith’s time to the beginning of the twentieth century. During this period political economy gradually emerged as a profession with specialist clubs, professional associations, journals, and chairs

at universities. Along with this professionalization went a gradual narrowing in the scope of the discipline¹⁷ and political economy became economics. Part of the explanation for these changes lies in the claim that specialization would produce major gains in social thought. But at the same time, the view emerged that economics should do more than merely specialize; it should adopt the new methods of the natural sciences. The use of mathematics was seen as central to this endeavour. Finally, during the nineteenth century the potential for a break with the moral sciences emerged, when it became clear that the practitioners in the latter sciences were not adopting the methods of the physical sciences. In many cases the methods were found not to be suitable outside of the physical sciences (Keynes, 1973-89, vol. 8, pp. 92,349; vol. 10, p. 181 n.2, and p. 262). The distinction emerged between the methods used in the moral and the physical sciences, and economics aligned--to a varying degree over time--with the latter, in the period up to the twentieth century.

With this background in mind, let us now continue our chronology. The next leading figure in the discipline after Smith was the Reverend Thomas Malthus (whose main contributions were made between 1798 and 1834). He became “the first professional economist” (Heilbroner, 1992, p. 82) and the first professor of political economy in England. As one might expect from a Minister of religion, he saw economics as a moral science, and explicitly followed in the tradition of Smith. While he was the dominant figure in political economy for a period, he soon was challenged by the emergence of David Ricardo (whose economic contributions were made between 1810 and 1823). Ricardo’s *Principles of Political Economy and Taxation* (1817) created a huge impression, catapulting him to leadership of the British political economists.

Ricardo saw economics as a technical rather than a moral subject: “it is not the province of the Political Economist to advise:-- he is to tell you how to become rich, but he is not to advise you to prefer riches to indolence, or indolence to riches” (1951-73, vol. 2, p.

338). For Ricardo the subject was neutral between ends. Ricardo saw political economy as a narrow subject that used deductive logic to draw conclusions from a set of abstract and unrealistic assumptions (1951-73, vol. 8, p. 184; Sowell, 1974, pp. 120, 145-6). As he saw it in his *Principles*, “the principal problem of Political Economy” concerned the distribution of a *given* output between rent, profit, and wages (1951-73, vol. 1, p. 5 emphasis added; see also vol. 8, p. 278). This was a narrower focus for economics than Smith allowed. Ricardo implied that this sharper focus made political economy “a strict science like mathematics” (Ricardo, 1951-73, vol. 8, p. 331).¹⁸ Even though Ricardo used very little mathematics in his *Principles*, one commentator suggests that the Ricardian influence in economics produced a “methodological revolution,” moving the discipline away from the Smithian position (Hutchison, 1978, pp. 26-57). My provisional conclusion is that Ricardo did not see economics as a moral science (but see Ricardo, 1951-73, vol. 3, pp. 120-3; Hollander, 1979, pp. 484-7).

Malthus, despite the impact of Ricardo, continued along the path that he had been travelling. Contrary to Ricardo, but consistent with Smith, he saw “the causes of the wealth and poverty of nations” as “the grand object of all enquiries in Political Economy” (Malthus, letter to Ricardo, in Ricardo, 1951-73, vol. 7, p. 122). Ricardo’s notion of the discipline was “very confined” and would convert it “from a science that I [Malthus] have always considered as the most practically useful ..., into one which would merely serve to gratify curiosity” (Malthus, letter to Ricardo, in Ricardo, 1951-73, vol. 8, p. 286). In his *Principles of Political Economy* (1820) Malthus stated that “the science of political economy bears a nearer resemblance to the science[s] of morals and politics than to that of mathematics” (1986, vol. 5, p. 5; see also vol. 6, p. 345). In 1827, in his *Definitions in Political Economy*, apparently in reference to Ricardo and his followers, Malthus stated:

It has sometimes been said of political economy that it approaches to the strict science of mathematics. But I fear that it must be acknowledged, *particularly since the great deviations which have lately taken place from the definitions and doctrines of Adam Smith*, that it approaches more nearly to the sciences of morals and politics. (1986, vol. 8, p. 5 emphasis added)¹⁹

Did this methodological perspective affect the content of Malthus's economics? The moral approach was important in his analysis and policy prescriptions. In Malthus's political economy there was an "agrarian bias"²⁰ that suggested not only that the productivity of agriculture was greater than that of manufacturing but also that the agricultural life in the country was morally better than city life (Hollander, 1997, pp. 358-9; Winch, 1996, p. 266). Malthus refers to the "unwholesome manufactures" that prevail in the towns; towns are unhealthy and full of vice; in short, the "unwholesomeness of towns ... must be considered as a species of misery" (1986, vol. 1, pp. 38,41; see also vol. 1, pp. 66-7; vol. 3, pp. 442-3). Given these views, it matters a great deal whether agriculture or manufacturing is the leading sector in economic growth. In the latter case economic growth may conflict with the moral health of the lower classes. He argues that economic growth was "too dearly purchased" if it came at the cost of, amongst other things, "unhealthiness and immorality" (Malthus, 1986, vol. 3, pp. 430-1; see p. 396).²¹ The very reason why Malthus prescribes trade protectionism is his assessment of the economic, political *and moral* consequences of the economic growth he expected to follow from liberalizing agricultural trade.²² His protectionist stance, demonstrated in his views on the Corn Laws, came from his dynamic analysis of the process of economic growth (ruled out by Ricardo's analysis), incorporating the moral effects of this growth on the population. It is instructive that Ricardo condemned Malthus for introducing

these “moral effects” into the discussion of a technical issue (1951-73, vol 2, p. 338; see Winch, 1996, p. 336).

As we can see, Malthus’s view contrasted sharply with Ricardo’s (see Redman, 1997, pp. 300-1). This was an important battle in the history of economics as a moral science. Keynes viewed Malthus, but not Ricardo, as part of the “tradition of humane [or moral] science” (1973-89, vol. 10, p. 86; see also Fitzgibbons, 1988, pp. 135-6). Winch calls Malthus a “Christian moral scientist” (1996, p. 6 n.; see also pp. 23, 287; Waterman, 1998, pp. 295-6, 312).

After Ricardo and Malthus, John Stuart Mill (whose contributions were made from the 1820s until 1873) took over as the leading political economist. Unfortunately, he seems to contradict himself in various ways, making interpretation difficult: he appears to be more Ricardian in formal methodological statements than in practice (see Marshall, 1920, p. 637 n. 1).

What was Mill’s philosophy of science? Mill argued that the “Moral Sciences” are backward compared to the physical sciences but that this defect can be remedied “by applying to them the methods of Physical Science, duly extended and generalised” (1981-91, vol. 8, p. 833). His formal methodological view distinguished science (what is) from art (what ought to be): “Now, the imperative mood is characteristic of art, as distinguished from science. Whatever speaks in rules, or precepts, not in assertions respecting matters of fact, is art” (Mill, 1981-91, vol. 8, p. 943; see also vol. 4, p. 312). With regard to art he held to the Utilitarian goal of increasing the total happiness of mankind (Mill, 1981-91, vol. 8, p. 951).

Next, we turn to the consequences of Mill’s view of science for political economy. Most of his discussion refers to the science of political economy, which is a “separate science” albeit tied to moral philosophy (Mill, 1981-91, vol. 4, pp. 316-9; see Redman, 1997, p. 357). But Mill also refers to the art, or applied science, related to the theoretical science of

political economy: “the mere political economist, he who has studied no science but Political Economy, if he attempt to apply his science to practice will fail” (1981-91, vol. 4, p. 331).²³ A wider knowledge of other sciences was necessary in order to make public policy. According to Mill’s methodology, the political economist as a scientist is limited to scientific questions of “what is,” but throughout his *Principles of Political Economy* (first edition 1848) he reverts to the Smithian approach, repeatedly crossing the line between science and art (see Mill, 1981-91, vol. 8, p. 950; Coats, 1996, p. 84). Mill is not a positivist for various reasons: he did not hold that political economy is value-free; science and values are not radically distinct; social science and political economy help to improve man’s condition (see Redman, 1997, p. 349).

As a science, political economy is an abstract science of prediction and control, but--unlike the physical sciences--it is not exact; it “cannot be a science of positive predictions, but only of tendencies” (Mill, 1981-91, vol. 4, p. 322; vol. 8, p. 898; see Redman, 1997, pp. 334-9). Mill did see some use for mathematics in social science, as demonstrated by his use of some equations in his *Principles* (Mill, 1981-91, vol. 3, pp. 610-2; see also 1981-91, vol. 10, pp. 308-9). Nevertheless, the usage of mathematics had to be within strict bounds (Mill, 1981-91, vol. 7, pp. 620-1; vol. 8, pp. 707-10; vol. 12, p. 36; vol. 17, p. 1862; Hollander, 1985, vol. 2, pp. 936-44).

Further, Mill was the first to articulate the notion of an “economic man,” who is assumed in the science of political economy to be a wealth maximizer (1981-91, vol. 4, pp. 321-6). But the economic man is a deliberate simplification needed for the purpose of constructing a theory about human activity in the realm where the production of wealth is central. The construct is relevant “only with those parts of human conduct which have pecuniary advantage as their direct and principal object” (1981-91, vol. 4, p. 327; see pp. 322-7). The wealth maximization assumption is valid only within a certain domain.

We can now ask the final question, Did Mill's political economy serve a moral purpose? As we can see from the foregoing, the formal answer is no. But let us look at what Mill does in practice. At the beginning of a chapter on wages, in the *Principles*, Mill indicates that his political economy is relevant to the question: "How is the evil of low wages to be remedied?" (1981-91, vol. 2, p. 367). There are policies that can be recommended to overcome this social "evil." In Mill's discussion of the stationary state (where the return on capital was so low that no net capital could be accumulated) that lay at the end of history for commercial society, he recommended a policy to improve the outcome for the citizenry. While most economists (including Smith) had seen the stationary state as a dismal end to commercial society--because wages are driven down by population--Mill argued that this could be avoided by "a conscientious or prudential restraint on population" growth (Mill, 1981-91, vol. 3, p. 753; Smith, 1976b, pp. 89-91, 99; Alvey, 1998a, pp. 1431-3). In an unsigned review, he went so far as to claim that "political economists, as a class" had discovered "the road to happiness" and have "produced a plan by which a large addition may almost immediately be made to human happiness" (1981-91, vol. 5, pp. 758-9). Mill does present us with a moral science of economics. Nevertheless, his moral science (especially given his formal methodology) is probably not as deep as Smith's.

With the passing of Mill, classical economics came to a close. William Stanley Jevons (whose major contributions were made in the 1870s and early 1880s) was an important figure in the transition from classical political economy to modern economics. Jevons set out to overthrow, in a revolutionary fashion, the prevailing Milleian economics (1970, p. 260). Most of his criticisms referred to the labour theory of value associated with "Ricardo-Mill economics," but he also took a more dogmatic view than Mill on many methodological issues (Jevons, 1970, p. 71).

Jevons saw an extended analogy between economic science and the physical sciences. His was an attempt at a social physics: where the “physical sciences have their basis more or less obviously in the general principles of mechanics,” economics “must be pervaded by ... the tracing out of the mechanics of self-interest and utility” (1970, p. 50). A mechanical and mathematical approach to economics was the theme of his major work *The Theory of Political Economy* (first edition 1871). Methodologically it was a step away from Mill towards that of Ricardo (see Schabas, 1990, p. 138).

Great stress was placed by Jevons on the statistical base and on the improvement in the techniques of economists. The problems of economics could largely be overcome he thought, because the lack of a “perfect system of statistics ... is the only ... obstacle in the way of making economics an *exact science*”; once the statistics have been gathered, the generalization of laws from them “will render economics a science *as exact as many of the physical sciences*” (Jevons, 1970, pp. 84,175 emphasis added). The other requirement was great usage of mathematics. While the classical economists used very little mathematics,²⁴ Jevons insisted that “Economics, if it is to be a science at all, must be a mathematical science” and he helped to move the discipline in that direction (1970, p. 78). Galbraith comments upon the quotation above: “From a mathematical science moral values are obviously extruded” (1987, p. 125). This oversimplifies matters but there is, nonetheless, some foundation to Galbraith’s claim. A moral science seems harder to achieve once the emphasis is on mathematics, if only because technique comes to be the focus.

It is hardly surprising that Jevons felt that the discipline of political economy ought to be renamed economics, or economic science. In 1879 he argued for this change in the second edition of his *Theory* (1970, p. 48). The name change for the discipline eventually followed and has come to be almost universally accepted. This change helped to narrow the focus of

the discipline and in this instance Jevons was clearly aligned with Ricardo. Nevertheless, the effect of the name change on economist's concern for morals was probably minimal.

Two final points should be made about Jevons. First, he held a sharper fact/value distinction than Mill, Malthus, and Smith. Second, following Mill, he accepted the "Utilitarian theory of morals"; but Jevons employed his own version of it that amounted to a type of hedonism (Jevons, 1970, p. 91; Alvey, 1988a, p. 357).

Alfred Marshall (whose major contributions were made from the mid 1880s until the mid 1920s) took over as the leading economist but he opposed Jevons in many areas. The former has been called the first of the neoclassical economists and many have said that he was a grand synthesizer (see Alvey and Staveley, 1996, p. 356). Marshall is an interesting economist and his views on the nature of economics are complex, as we will show.

He supported Jevons's call for the adoption of a new name for the discipline. For Marshall, economics is a "separate science" with pure and applied aspects, "[a]nd it is better described by the term 'Economics' than by the term 'Political Economy'" (1920, pp. 32,36). It is not surprising, therefore, that his major contribution to the discipline was called *Principles of Economics*, rather than *Principles of Political Economy* as the classical economists called their works.

For Marshall, the name change was part of a wider battle, namely, the independence of economics from the Moral Sciences Tripos and History Tripos (tripos are similar to what we would call majors) at his university, Cambridge. Like Jevons, he argued that economics was actually more like the natural sciences: it "aspires to a place in this group of the [physical] sciences" (Marshall, 1920, p. 25). In his Inaugural Address as a professor at Cambridge, in 1885, Marshall began this long fight for independence, arguing that "what is most wanted now" in economics is "the power of keeping the head cool and clear in tracing and analysing the combined action of many causes"; this power usually comes from "a severe

course of work in the more advanced [natural] sciences” (Marshall, 1925a, p. 171; see Keynes, 1973-89, vol. 10, pp. 220-3). He implicitly calls for the scientifically trained to enter economics directly (as Jevons had)²⁵ but regrets that the suitable candidates would be dissuaded from doing so because of the “metaphysical studies” that they would be compelled to undertake in the Moral Tripos (Marshall, 1925a, p. 171). Eventually, in 1903, Marshall achieved his aim with “the establishment of a separate School and Tripos in Economics and associated branches of Political Science” (Keynes, 1973-89, vol. 10, p. 222).²⁶

The impression one gets from this story is that Marshall was a dogged opponent of economics as a moral science. It turns out to be more complex. Let us start again by investigating why Marshall thought that economics needed more independence. What were the purposes or functions of economics? The functions of economics are:

to collect, arrange and analyse economic facts, and to apply the knowledge, gained by observation and experience, in determining what are likely to be the immediate and ultimate effects of various causes; and ... [following Mill] the Laws of Economics are statements expressed in the indicative mood, and not ethical precepts in the imperative mood. (Marshall, 1920, p. v)

Sometimes Marshall says that the economist may give advice on practical matters but, by doing so, “he does not speak with the voice of science” (1925a, p. 165; see also 1961, p. 154). In other words, Marshall’s formal position, following Mill, was that economics was concerned with facts and not values, or policy. We will see shortly that this was not Marshall’s position in practice.

Like Jevons, Marshall held that the “field of work” of economics “gives rather greater opportunities for exact methods than any other branch” of social science; “economics [is] more exact than any other branch of social science” and thus a “training in mathematics is helpful” for the economist (Marshall, 1920, pp. 12, 644; see Staveley and Alvey, 1996, p.

375). Nevertheless, in “sciences that relate to man [such as economics] exactness is less attainable” than in the natural sciences (Marshall, 1920, p. 36). Economics deals with “man as he is” and “concerns itself chiefly with those motives which affect, most powerfully and most steadily, man’s conduct in the business part of his life” (Marshall, 1920, pp. 22,12). In this realm the business motives can be measured “with some approach to accuracy; and which therefore are *in some degree* amenable to treatment by scientific machinery” (Marshall, 1920, pp. 12-3 emphasis added).

Despite his enthusiasm for the natural sciences--and his own high level of competence in mathematics²⁷--Marshall had significant doubts about the use of the scientific machinery in economics and consequently relegated his diagrams and algebra to footnotes and appendices. In a letter to another economist he described his method of doing economics as follows:

- (1) Use mathematics as a shorthand language, rather than as an engine of inquiry.
 - (2) Keep to them till you have done.
 - (3) Translate into English.
 - (4) Then illustrate by examples that are important to real life.
 - (5) Burn the mathematics.
 - (6) If you can’t succeed in 4, burn 3. This last I did often.
- (Marshall, 1925b, p. 427; see also pp. 419-21, 427-9)²⁸

Marshall follows Mill both in the formal, narrow notion of the realm of “economic science,” and in the restricted scope of mathematics in the discipline.

The final issue is whether, in practice, Marshall’s economics served a moral purpose. The problem, as Marshall saw it, was that there was no sharp line between science and art (see 1920, p. 31 n.1 and 1961, vol. 2, pp. 153-4). After defining what constitutes economic science, he then enunciates another list of “practical issues which, though lying for the greater part outside the range of economic science, yet supply a chief motive in the background to the work of the economist” (1920, p. 34). The list is impressive, including:

How should we act so as to increase the good and diminish the evil of economic freedom, both in its ultimate results and in the course of its progress?... Taking for granted that a more equal distribution of wealth is to be desired, how far would this justify changes in the institutions of property, or limitations of free enterprise *even when they would be likely to diminish the aggregate of wealth?* (Marshall, 1920, p. 34 emphasis added)²⁹

Marshall does deal with these normative themes along the way in his *Principles*; as well as economic science, policy or art is discussed in this work (see 1920, pp. 660-1). Not being a positivist, Marshall felt able to refer, in his *Principles*, to the “kindly meant recklessness of the poor law,” which lowered “the moral and physical energy of Englishmen” (1920, p. 9; see also pp. 594-5). As Marshall’s economics supported free markets, and the overthrow of these laws, it promoted the increase of “moral and physical energy.” Finally, consider the moralizing of his Inaugural Address:

It will be my cherished ambition, my highest endeavour, to do what ... I may, to increase the number of those, whom Cambridge... sends out into the world with cool heads but *warm hearts*, willing to give some at least of their best powers to *grappling with the social suffering around them*. (Marshall, 1925a, p. 174 emphasis added)³⁰

In short, there is a moral tone that comes through in Marshall (see Keynes, 1973-89, vol. 10, pp. 200-1). My conclusion is that, for him, economics was a mathematical *and* moral science. This combination was, of course, ruled out by Galbraith. But in the hands of Marshall’s followers the diagrams and mathematics soon moved up from the notes to the text. In addition, as Marshall’s moral tone was not an integral part of understanding the principles of neoclassical economics, his ethical concerns were soon dropped.

In this section I have shown that there were major disputes between economic theorists about the nature of the economics discipline. The battles between Malthus and Ricardo, between Jevons and Mill, and between Marshall and Jevons, showed that the status of economics as a moral science was in flux. While there were shifts during the period, economics remained a moral science to some degree, at least until the twentieth century.

d) The Decline After Marshall of Economics as a Moral Science

In this section I wish to make a few brief remarks on the decline of economics as a moral science. A full treatment cannot be given because of spatial limitations.

Towards the end of the nineteenth century, even with Marshall's missionary leadership, the mainstream of the discipline came under considerable criticism from humanists over the apparent lack of ethics in economics. According to Coats, the economics of the day was widely held to epitomise man's inhumanity to man, and "the demand for a more humanistic approach to economic and social problems, one that took full account of ethical considerations ... was a recurrent theme in the literature of the period" (1996, p. 80; see Marshall, 1920, p. 39). The drift of economics away from a moral science was evident, and condemned, yet the impact of these attacks was minimal. How did this drift manifest itself during the twentieth century?

Let me begin with the fact/value distinction. The methodology of Mill and others, that defined what economic science does, was accepted more rigorously. Consequently, in practice, the moral concerns--which appear from time to time in various contexts and sub-disciplines--were removed piecemeal from economic texts. Positivism is a factor here. The positivistic methodological works of Robbins (1936) and Friedman (1953) did influence the profession. Robbins's approach to positive economics defined interpersonal comparisons of satisfaction as subjective and thus outside of the realm of economic science; this had a major

negative effect not merely on welfare economics, but--when aggregated--on the whole character of economics as a moral science (see Robbins, 1936; Davis, 1991, pp. 100-2). Where Smith taught that, at least some, preferences could be investigated and classified within the catalogue of virtues, these days preferences are said to be “given”; it is not legitimate to inquire into how these preferences are formed; and interpersonal comparison of preferences is disallowed (Boulding, 1970, p. 119). Not much of the Smithian legacy remains here. While economists still tend to skip over methodological issues, they are generally “loose-fitting positivists” (Solow, 1997, p. 50). The impression is given--especially in the first class or two of the introductory course in economics, when methodology is mentioned--that economics deals with facts and the means to the end given by others. Solow says that “between 1940 and 1990 ... economics became a self-consciously technical subject” (1997, p. 42). Hence, economists are properly conceived of as technicians. As technicians, however, they were incompetent. There was a slippage from the assumption of utility maximization, to wealth maximization, to selfish behaviour, and ultimately to the explicit adoption of “greed” as the operational microeconomic assumption (Kreps, 1997, p. 59). In addition, the radical Chicago economists tried to extend the economic model into the study of non-traditional areas (the very areas outlawed by Mill and others) such as the economics of crime, marriage, suicide, adoption, church attendance, and so on (see Duhs, 1998).

Second, there were significant changes in the role of mathematics in economics. The Jevonian view came to dominate. There has been a major rise in the use of mathematics in economics and, contrary to Marshall’s intention, it has become the “engine of inquiry” (1925b, p. 427); econometrics has emerged as an integral part of most Ph.D. dissertations in economics (Solow, 1997, pp. 40-7). The Nobel Prize winner, Frisch, was one of those who took up the statistical task given by Jevons. Frisch stated that:

The English mathematician and economist Stanley Jevons (1835-1882) dreamed of the day when he would be able to quantify at least some of the laws and regularities of economics. Today—since the break-through of econometrics—this is not a dream but a reality. (Frisch, 1981, pp. 2-3)

The claim of economics to be a mathematical (and natural) science is often associated with the development of econometrics. In addition, with regard to the capacity of economics “to make correct predictions,” Friedman stated that “positive economics is, or can be, an ‘objective’ science, in precisely the same sense as any of the physical sciences” (1953, p. 4). The balanced views of Mill and Marshall—on the role of mathematics, and the capacity for precise prediction, in economics—have been dropped. More importantly, a mathematical science of economics came to be seen as the logical *alternative* to a moral science of economics. Mathematics won the battle and has continued to win all of the skirmishes.

Third, and clearly related to the first point, was the changed view of the overarching goal of the discipline. The notion of economics serving a moral end has been ruled out by positivism. Positivism ruled out moral philosophy, including utilitarianism (which had been widely accepted in the discipline). Despite J.S. Mill’s warning about the danger of a “mere” economist—with no training outside of the narrow discipline of economics, as discussed in the last section—there was a rejection of a broad, interdisciplinary education of economists; at the same time, partly due to positivism, there was a considerable narrowing in the scope of the discipline itself. These, especially the latter, are evident in the curriculum of any economics department. New mathematically-based sub-disciplines of information economics and game theory have emerged, whereas economic history and the history of economic thought have been squeezed out (Barber, 1997, pp. 93-4,101; Kreps, 1997, pp. 68-9). These curriculum developments reflect the changes in what is seen within the profession as “essential” training. The decline of history of economic thought as a part of graduate economics education is

especially disturbing, as this is the one area where the notion of economics as a moral science is likely to be discussed. It is, therefore, hardly surprising that in modern neoclassical works one scarcely finds morality mentioned. In the rare case that it is, in the context of a discussion of externalities,³¹ no defence of morality is provided; it is just one of several ways to “internalize externalities” (Mankiw, 1998, p. 207). Once all the moral concerns of economics are stripped away, only rational calculation remains, which I indicated above is easily translated into “greed.”

Finally, in reading the great economists one gains a sense of their “feel” for the discipline. This intangible notion comes out partly in their approach to mathematics. According to Keynes, Jevons’s *Theory of Political Economy* was “simple, lucid, unfaltering, chiselled in stone where Marshall knits in wool” (1973-89, vol. 10, p. 131). A parallel can be drawn between Jevons’s work and the uncompromising approach of Ricardo. The softer touch is a sort of prerequisite to allow the entry of ethical considerations. If one brings this dimension into the evaluation, it appears to me that economists these days are more like Jevons and Ricardo than the moral economists like Smith, Malthus, Mill, and Marshall.

Despite the general, twentieth-century tendency of economists to reject economics as a moral science, there were a number of economists who sought to maintain it in the moral tradition. In the list I would include the well-known authors such as Keynes, Boulding, and Sen, and the little-known, recent writers such as Young and Temple-Smith. The contributions of these writers need to be addressed at length on another occasion.

In this section I have tried to show that during the twentieth century there was a further narrowing in the discipline (with the exception of the Chicago “imperialists”). There was also a strong methodological tendency towards positivism in the discipline. This continues to the present-day. Mathematics came to be used arrogantly. Further, moral issues were put on the margin, or--more usually--excluded.

e) Conclusion

After the introductory remarks, I set out in the first section a brief history of economics before Adam Smith, showing that it was generally (with the exception of the mercantilists) envisioned as a part of moral philosophy. In the second section I presented elements of the new interpretation of Smith, which show the latter as a developer of economics as a moral science. In the third section I showed that even after Smith, up to the beginning of the twentieth century, a number of leading economic theorists conceived of economics as a moral science, either in theory or in practice. In the fourth section I sketched the decline of economics as a moral science. The key factor was the emergence and influence of positivism. The current view of the detachment of economics from moral science, and morals in particular, is alien to much of the history of the discipline.

I agree with Amartya Sen, the surprising winner in 1998 of the Nobel Prize for Economics, who says that the nature of economics “has been substantially impoverished by the distance that has grown between economics and ethics” (1987, p. 7). Unlike the tradition since Marshall, Sen seems to think that economics can be a mathematical *and* a moral science. There is a case for the serious reconsideration of the way that economics is taught inside or outside of business schools. One way of restoring a place for ethics in the curriculum is to include a segment on Adam Smith’s *Theory of Moral Sentiments* (see Temple-Smith, 1997; and Millmow, 1997, p. 94) and other economic theorists who develop economics along the moral tradition indicated above. It is to be hoped that journals such as the present one will forge some headway in making professionals seriously consider, once again, economics as a moral science.

Endnotes

¹ In the study “‘free riding’ refers to the absence of contribution towards the provision of a public good by an individual, even though he or she will not be excluded from benefiting from that good. The free rider hypothesis is based on the assertion that under such conditions it is irrational to voluntarily contribute” (Marwell and Ames, 1981, p. 296).

² This article led to a response by Yezer, Goldfarb, and Poppen (1996) and a rejoinder by Frank, Gilovich, and Regan (1996).

³ Citations in this section, unless otherwise stated, are to Smith.

⁴ The most famous summary of their views is given in Heckscher (1955).

⁵ The closest to a quotation along these lines is Winch (1978, p. 187).

⁶ See for example Friedman and Friedman (1980, p. 19).

⁷ See Lux (1990, pp. 21,98,120). Chapter 5 of Rima (1972) is entitled “Adam Smith: From Moral Philosophy to Political Economy.” See also Stigler (1982) and Fitzgibbons (1995, pp. 7-8).

⁸ One set of these lecture notes was discovered in 1895, a century after Smith’s death, and published by Edward Cannan in 1896. The second set of notes was discovered a further half century later in 1958 and published for the first time (along with the other set of notes) as Smith (1978). See Meek, Raphael, and Stein (1978, pp. 4-13).

⁹ On the other hand, Smith’s *Wealth of Nations* may have had an “unintended and quite unplanned” effect of “establishing political economy as an independent subject” (Hutchison, 1978, pp. 5-6).

¹⁰ The higher version of prudence refers to statesmanship (see Smith, 1976a, p. 216; Alvey, 1998b, p. 7).

¹¹ Contrary to the view developed below, in the old *Das Adam Smith Problem* it was held that Smith changed his mind after writing the *TMS*: the *WN* is based on self-interest and rejects

the moral views of the *TMS*. Following along the lines of these German commentators is Lux (1990). Similarly, Brown argues that Smith's *WN* is an amoral discourse (1994, pp. 26,46,162,195,209,215,218).

¹² The following interpret Smith's economics within a moral framework: Duhs (1998, pp. 1497-8); Fitzgibbons (1995 and 1997 throughout); and Young (1997 throughout).

¹³ The remainder of the paragraph and the following one draw on Kleer (1992, pp. 149-53).

¹⁴ Smith's distinction between productive and unproductive labour was widely accepted at the time but has been rejected in modern economics (see Blaug, 1985, p. 55; cf. Hollander, 1987, p. 1).

¹⁵ In this context Smith contrasts cities dominated by a royal court with regular cities (1976b, p. 336).

¹⁶ Unlike "the perspective of modern positivism which still dominates the methodological views of mainstream economics," in Young's interpretation, Smith's economics "precluded neither normative inquiry nor normative conclusions" (1997, p. 8).

¹⁷ Hollander refers to the "narrowing of focus" of economics after 1870. Specifically there was "a greater concern with exchange and allocation in their own right rather than within a growth context" (Hollander, 1987, p. 426).

¹⁸ Strangely, Ricardo directly applied conclusions from his abstract models to policy advice (see Sowell, 1974, p. 122).

¹⁹ Malthus did allow some limited role for mathematics in political economy (see Hollander, 1997, pp. 985-6).

²⁰ Smith also had a similar bias (1976b, pp. 360-75; see Hollander, 1987, pp. 40,156,175).

²¹ Winch says that Malthus feared that economic growth could be “purchased at too high a price in terms of national security, unhealthiness, instability, vice, and misery. This lay at the heart of the moral dimension Malthus sought to add to political economy” (1996, p. 267).

²² Hollander says that, late in his life, Malthus changed his mind on this issue and was revising his *Principles* accordingly (Hollander, 1997, pp. 410, 809-10, 840, 846-67, 1005).

²³ In a different context Marshall approvingly quotes a similar statement by Mill (Marshall, 1920, p. 636; see Mill, 1981-91, vol. 10, p. 306; and vol. 13, p. 453).

²⁴ Smith “saw no purpose for [mathematics] in his system” (Redman, 1997, p. 217).

²⁵ Jevons entered economics after working as a chemist (see Alvey, 1988a, pp. 351-5; Keynes, 1973-89, vol. 10, p. 119).

²⁶ These days, economics departments are usually found in business schools rather than in humanities schools.

²⁷ Marshall was Cambridge’s Second Wrangler (second in class) in 1865.

²⁸ His major reservations, however, concerned purely abstract work which was not applicable to the real world.

²⁹ The last mentioned is an extraordinary goal when one considers the neutral stance on income distribution matters of many contemporary economists.

³⁰ Samuelson and Nordhaus (1998, p. 16n.) suggest that the “cool head” is linked to the “positive economic analysis” and the “warm heart” to the “normative value judgments.”

³¹ Externalities refer to the discrepancies that can occur between social cost and private cost, and between private value and social value.

References

- Alvey, J.E. (1988a), "Stanley Jevons: a centennial assessment" in Wood, J.C. (Ed.), *William Stanley Jevons: Critical Assessments*, 3 vols., Vol. 1, pp. 351-68, Routledge, London.
- Alvey, J.E. (1988b), "Adam Smith's moral justification for free enterprise: economic growth", *Asian Economies*, No. 67, pp. 5-28.
- Alvey, J.E. (1998a), "Adam Smith's three strikes against commercial society", *International Journal of Social Economics*, Vol. 25, No. 9, pp. 1425-41.
- Alvey, J.E. (1998b), "Adam Smith's view of moral education in commercial society" in Bianchini, A, Dolby, J. and Holland, M. (Eds.), *Proceedings of the Joint Conference of the Australasian Political Science Association and European Union Studies Association of New Zealand. Christchurch, New Zealand, 28-30 September, 1998*, 2 vols., Vol. 1, pp. 1-15, APSA/EUSANZ, Christchurch.
- Alvey, J.E. and Staveley, R. (1996), "The value assumptions underlying Marshall's *Principles of Economics*" in Wood, J.C. (Ed.), Vol. 8, pp. 355-71.
- Barber, W.J. (1997), "Reconfigurations in American academic economics: a general practitioner's perspective", *Daedalus*, Vol. 126, No. 1, pp. 87-103.
- Blaug, M. (1985), *Economic Theory in Retrospect*, 4th ed., Cambridge University Press, Cambridge, U.K.
- Boulding, K.E. (1970), *Economics as a Science*, McGraw Hill, New York.
- Brown, V. (1994), *Adam Smith's Discourse*, Routledge, London.
- Canterbery, E.R. (1995), *The Literate Economist*, Harper Collins College, New York.
- Coats, A.W. (1996), "Utilitarianism, Oxford idealism and Cambridge economics" in Groenewegen, P. (Ed.), *Economics and Ethics?*, Routledge, London.

-
- Davis, J.B. (1991), "Keynes's view of economics as a moral science" in Bateman, B.W. and Davis, J.B. (Eds.), *Keynes and Philosophy*, Edward Elgar, Aldershot.
- Drakopoulos, S.A. (1997), "Origins and development of the trend towards value-free economics", *Journal of the History of Economic Thought*, Vol. 19, No. 2, pp. 286-300.
- Duhs, A. (1998), "Five dimensions of the interdependence of philosophy and economics integrating HET and the history of political philosophy", *International Journal of Social Economics*, Vol. 25, No. 10, pp. 1477-1508.
- Fitzgibbons, A. (1988), *Keynes's Vision*, Clarendon Press, Oxford.
- Fitzgibbons, A. (1995), *Adam Smith's System of Liberty, Wealth, and Virtue*, Clarendon Press, Oxford.
- Fitzgibbons, A. (1997), "The moral foundations of *The Wealth of Nations*", *International Journal of Social Economics*, Vol. 24, Nos. 1/2/3, pp. 91-104.
- Frank, R.H., Gilovich, T.D., and Regan, D.T. (1993), "Does studying economics inhibit cooperation?", *Journal of Economic Perspectives*, Vol. 7, No. 2, pp.159-71.
- Frank, R.H., Gilovich, T.D., and Regan, D.T. (1996), "Do economists make bad citizens?", *Journal of Economic Perspectives*, Vol. 10, No. 1, pp. 187-92.
- Friedman, M. (1953), *Essays in Positive Economics*, University of Chicago Press, Chicago.
- Friedman, M. and Friedman, R. (1980), *Free to Choose*, Penguin, Harmondsworth.
- Frisch, R. (1981), "From utopian theory to practical applications: the case of econometrics", originally delivered as the Nobel Prize lecture in 1970, *American Economic Review*, Vol. 71, No. 6, pp.1-11.
- Galbraith, J.K. (1987), *A History of Economics*, Hamish Hamilton, London.
- Gordon, B. (1975), *Economic Analysis Before Adam Smith*, Macmillan, London.

-
- Hamouda, O.F. and Price, B.B. (1997), “The justice of the just price”, *The European Journal of the History of Economic Thought*, Vol. 4, No. 2, pp. 191-216.
- Hausman, D.M. and McPherson, M.S. (1993), “Taking ethics seriously: economics and contemporary moral philosophy”, *Journal of Economic Literature*, Vol. 31, pp. 671-731.
- Heckscher, E.F. (1955), *Mercantilism*, 2nd ed., (trans. Shapiro, M.), George Allen & Unwin, London.
- Heilbroner, R. L. (1992), *The Worldly Philosophers*, 6th ed., Simon & Schuster, New York.
- Hollander, S. (1979), *The Economics of David Ricardo*, University of Toronto Press, Toronto.
- Hollander, S. (1985), *The Economics of John Stuart Mill*, 2 vols., University of Toronto Press, Toronto.
- Hollander, S. (1987), *Classical Economics*, Basil Blackwell, Oxford.
- Hollander, S. (1997), *The Economics of Thomas Robert Malthus*, University of Toronto Press, Toronto.
- Hutchison, T.W. (1978), *On Revolutions and Progress in Economic Knowledge*, Cambridge University Press, Cambridge, U.K.
- Jevons, W. S. (1970, orig. pub. 1871), *The Theory of Political Economy*, Black, R.D.C. (Ed.), Penguin, London.
- Keynes, J. M. (1973-89), *The Collected Writings of John Maynard Keynes*, 30 vols., Moggridge, D.E. and Johnson, E. (Eds.), Macmillan, London.
- Kleer, R. A. (1992), “The ‘author of nature’: Adam Smith and teleology”, unpublished Ph.D. dissertation, University of Toronto.
- Kreps, D. M. (1997), “Economics—the current position”, *Daedalus*, Vol. 126, No. 1, pp. 59-85.

-
- Langholm, O. (1979), *Price and Value in the Aristotelian Tradition*, Universitetsforlaget, Bergen.
- Lux, K. (1990), *Adam Smith's Mistake*, Shambhala, Boston.
- Malthus, T. R. (1986), *The Works of Thomas Robert Malthus*, 8 vols., Wrigley, E.A. and Souden, D. (Eds.), Pickering and Chatto, London.
- Mankiw, G. N. (1998), *Principles of Microeconomics*, Dryden Press, Fort Worth.
- Marshall, A. (1920, orig. pub. 1890), *Principles of Economics*, 8th ed., Macmillan, London.
- Marshall, A. (1925a), "The present position of economics", inaugural lecture at Cambridge after election to the professorship at Cambridge in 1885, in Pigou, A.C. (Ed.), pp.152-74.
- Marshall, A. (1925b), Correspondence with Professor A. L. Bowley, in Pigou A.C. (Ed.), pp. 419-30.
- Marshall, A. (1961), *Principles of Economics*, 9th ed., Guillebaud, C.W. (Ed.), Macmillan, London.
- Marwell, G. and Ames, R. (1981), "Economists Free Ride, Does Anyone Else?", *Journal of Public Economics*, Vol. 15, pp. 295-310.
- Meek, R.L., Raphael, D.D., and Stein, P.G. (1978), "Introduction", in Smith, 1978, pp. 1-43.
- Mill, J.S. (1981-91), *Collected Works of John Stuart Mill*, 33 vols., Robson, J.M. (Ed.) University of Toronto Press, Toronto.
- Millmow, A. (1997), "To eke out a marginal existence: economics in business schools", *Economic Papers*, Vol. 16, No. 3, pp. 88-96.
- Mirowski, P. (1989), *More Heat Than Light*, Cambridge University Press, Cambridge, U.K.
- Pigou, A.C. (Ed.) (1925), *Memorials of Alfred Marshall*, Macmillan, London.

-
- Redman, D. (1997), *The Rise of Political Economy as a Science*, MIT Press, Cambridge, Mass.
- Ricardo, D. (1951-73), *The Works and Correspondence of David Ricardo*, 11 vols., Sraffa, P. (Ed.) with Dobb, M.H., Cambridge University Press, Cambridge, U.K.
- Rima, I.H. (1972), *Development of Economic Analysis*, Richard D. Irwin, Homewood.
- Robbins, L. (1936, orig. pub. 1932), *The Nature and Significance of Economic Science*, Macmillan, London.
- Ross, I. S. (1995), *The Life of Adam Smith*, Clarendon Press, Oxford.
- Rothschild, K. W. (1993), *Ethics and Economic Theory*, Edward Elgar, Aldershot.
- Samuelson, P. A. and Nordhaus, W.D. (1998), *Microeconomics*, 16th ed., Irwin McGraw-Hill, Boston.
- Schabas, M. (1990), *A World Ruled by Number*, Princeton University Press, Princeton.
- Sen, A. (1987), *On Ethics and Economics*, Basil Blackwell, Oxford.
- Smith, A. (1976a, orig. pub. 1759), *The Theory of Moral Sentiments*, Raphael, D.D. and Macfie, A.L. (Eds.), Oxford University Press, Oxford.
- Smith, A. (1976b, orig. pub. 1776), *An Inquiry into the Nature and Causes of the Wealth of Nations*, 2 vols., Campbell, R.H. and Skinner, A.S. (Eds.), Oxford University Press, Oxford.
- Smith, A. (1978), *Lectures on Jurisprudence*, Meek, R.L., Raphael, D.D. and Stein, P.G. (Eds.), Oxford University Press, Oxford.
- Smith, A. (1987), *The Correspondence of Adam Smith*, Mossner, E. C. and Ross, I. S. (Eds.), 2d. ed., Oxford University Press, Oxford.
- Solow, R. M. (1997), "How did economics get that way and what way did it get?", *Daedalus*, Vol. 126, No. 1, pp.39-58.

-
- Sowell, T. (1974), *Classical Economics Reconsidered*, Princeton University Press, Princeton.
- Staveley, R. and Alvey, J.E. (1996), "The philosophical assumptions underlying Marshall's economics", in Wood, J.C. (Ed.), Vol. 8, pp. 372-90.
- Stigler, G. (1982), *The Economist as Preacher*, Basil Blackwell, Oxford.
- Temple-Smith, R. (1997), "Moral foundations of a nation's wealth: Adam Smith in the classroom", Fifth Annual Teaching Economics Conference, 3-4 July, Toowoomba, Australia.
- Waterman, A.M.C. (1998), "Reappraisal of 'Malthus the economist,' 1933-97", *History of Political Economy*, Vol. 30, No. 2, pp. 293-334.
- Winch, D. (1978), *Adam Smith's Politics*, Cambridge University Press, Cambridge, U.K.
- Winch, D. (1996), *Riches and Poverty*, Cambridge University Press, Cambridge, U.K.
- Wood, J.C. (Ed.) (1996), *Alfred Marshall: Critical Assessments*, 8 vols., Routledge, London.
- Yezer, A. M., Goldfarb, R. S. and Poppen, P.J. (1996), "Does studying economics discourage cooperation? Watch what we do, not what we say or how we play", *Journal of Economic Perspectives*, Vol. 10, No. 1, pp. 177-86.
- Young, J.T. (1997), *Economics as a Moral Science: The Political Economy of Adam Smith*, Edward Elgar, Cheltenham.