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Adam Smith's Philosophy of Science: Economics as Moral Imagination

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Abstract The paper takes a fresh look at two essays that Adam Smith wrote at the very beginning of his career. In these essays, Smith explains his philosophy of science, which is social constructivist. A social constructivist reading of Smith strengthens the scholarly consensus that *The Wealth of Nations* (WN) needs to be interpreted in light of the general moral theory he explicates in *The Theory of Moral Sentiments* (TMS), as the two essays and TMS stress the importance of the same concepts: e.g., moral imagination, the socially embedded individual, and humility. The connecting tissue between all three works is made up of sentiments and values. Smith regards the socially embedded human as the agent in all three realms (knowledge creation, morality, economics), and humans are always driven by values. Smith not only conceives of economics as an applied moral philosophy, but also bases both research areas on a view of knowledge creation that stresses specific epistemic values. If mainstream economic theory (and business theory that is based on it) wants to have any claim to Adam Smith, it would have to change not only *what* it argues but also *how* it argues. Economists would have to replace the language of mathematics with the language and logic of moral philosophy and give values centre stage.

Keywords Adam Smith · Epistemology · Economics · Moral philosophy · Epistemic values · Methodology

The comments of the three reviewers have improved this paper immeasurably.

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Introduction

Economists and the general public view Adam Smith as an economist. Indeed *The Wealth of Nations* (WN) is regarded as the founding document of modern economics, while his work in other areas is almost completely overlooked. Even the vast majority of Smith scholars, who assert that his economics was applied moral philosophy, do not place much value on his contributions to the philosophy of science. This paper argues that not only does this do injustice to Adam Smith, but it also stands in the way of fully understanding his published works and also his intended work. The young Smith planned to write books on all three branches of science (moral philosophy, natural philosophy, logic), and barely had time to finish his two books on one of them. Yet, as Ross (2004) argues, the ageing Smith downsized his plan to complete only the writings on moral philosophy by adding a book on "natural jurisprudence" and one on politics. However, he had the two manuscripts burned two days before his death as he saw them as not ready for publication. It stands to reason that a philosopher who intends to write authoritative pieces on all branches of science, or at least on all branches of the social sciences, can only do so from the firm ground of a well-developed philosophy of science? This paper will describe Smith's underrated contribution to the philosophy of science and point out how this necessitates a new look at his economics specifically.

The counter-movement against Smith's philosophy of science and his moral philosophy started immediately after his death. In fact, there was a complete and radical break with the very ideas on which Smith built his economics. It is far more realistic to view Adam Smith as the last of a line, and not as the founder, of modern economics. McCloskey hints at this when she calls Smith "the last of

the former virtue ethicists", but she argues that it is mainly Smithian *moral philosophy* that is different from those economists that came after him. Her argument is not new. It is, in fact, the consensus among Smith scholars that WN must be read in the context of the earlier *Theory of Moral Sentiments* (TMS) and that Smith described the same human being with the same analytical framework, only in a special context.

Both works were part of the Smithian project to develop a complete "science of man" (Ross 2004, p. 51), with TMS describing humanity in general, and WN exploring the possibilities of a virtuous "commercial society" (Griswold 1999; Otteson 2002). The argument I present in this paper includes, yet goes beyond, this consensus view. I argue that Smith's moral philosophy, as well as the projected works, was themselves underpinned by a well-developed and modern philosophy of science. In fact, his moral philosophy and his epistemology cannot be separated from each other: in all his writings, *epistemic values* play the central role as well as *shape* his general and economic moral philosophy.

Epistemic values are all values that impact what and how something is studied.[1] In Smith, they come in three levels: there are fundamental underlying values relevant to all sciences; there is an intermediate level that applies only to the social sciences; and lastly, an object-related set of values ascribed to whatever is studied. Smith's starting point was the Stoic systematic according to which there are three branches of science: moral philosophy, natural philosophy and logic. He believed that these branches had differing epistemologies, but he also assumed that they were underpinned by certain common epistemic values. In the two essays, he focuses on the epistemology for moral and natural philosophy. Since Smith assumed that knowledge is always created by humans, epistemic values are not only relevant for moral philosophy, but also for natural philosophy (physics, chemistry), because the *values and sentiments of the scientists* are involved in knowledge generation. Smith's basal epistemic value for both branches is humility: scientists must never make absolute truth claims. This is where Smith's epistemology is strongly normative. The rest is, in line with his moral philosophy, descriptive in nature.

On the second level, relevant to moral philosophy (the science of man) only, another epistemic value plays an important role: human frailty. At the third and last level of epistemology, epistemic values again take centre stage, but this time it is not the values of or for the scientist, but the values ascribed to the *object* of study. On this last level, epistemic values are not relevant when studying natural philosophy, as the objects of study are either inanimate, animals or plants. However, they are very relevant when studying human beings, as economists claim to do. What assumptions do scientists have about humans and their behaviour?

To the moral philosopher Smith, the individual is a vessel that he fills with a multitude of sentiments and values. On all three levels, mainstream economics and Smithian economics are completely at odds. Modern economics views itself to be "positive", i.e., value-free throughout,[2] and makes strong truth claims with regard to its theories' explanatory and predictive powers. Smith believed that scientists must be humble in their theory-building, must accept that human action cannot be predicted with any degree of confidence because humans are frail, and that human action is driven (not determined!) by many competing sentiments, and not just one: selfishness. So, by "taking ethics out of Smith" (McCloskey 2008, p. 48), *his value-based epistemology was also taken out of his economic theory and Smithian economics ceased to exist*.

Thus, Smith's design for his projected science of man was the following: everything was based on his first written piece, the two essays on the philosophy of science; building on that, he wrote TMS as the basis for WN, and the planned works on jurisprudence and politics. What connect all of the writings of Smith are values. This should not really surprise anyone. Smith was a professor of moral philosophy after all. The fact that his epistemology also relies heavily on values is only a surprise because we have gotten used to what Eastman & Bailey call the fact-value antimony (1998), i.e., the assumption that science is based on a clean separation between facts and values. As Kenneth Gergen (1996, 1999) has pointed out numerous times, a core proposition of social constructivism is that science cannot be value-neutral—Smith agreed. To understand just how different Smithian economics is from today's mainstream, I will now briefly go into some relevant aspects of the methodology of economics.

Epistemology and Mainstream Economics

Traditionally, critics of the mainstream chide economists for their philosophy of science or, rather, the lack thereof. The two, perhaps most prominent, philosophers of science in economics of the last 30 years, Mark Blaug and Uskali Mäki, despair at the active disinterest that economists have

[1] Another area where epistemic values play a role is research output, i.e. knowledge. I will not refer to this in this paper.

[2] I will explain later that mainstream economics has very strong epistemic values: like all positivists they assume that they know the Truth, and their object of study, man, is assumed to be radically selfish.

for epistemology. Blaug's strategy was playing a benevolent and all-forgiving father to the errant sons and daughters: he harshly criticised economists for their methods, but since he sympathised with Friedman's overall goal (to have a Popperian open science), he never gave up on teaching them how epistemology is relevant. Mäki, on the other hand, often refers to economics as the "dismal science" because he suspects that economists have long ago stopped listening to philosophers of science (Mäki et al. 2003: Preface). And indeed, how could there be a connection between economics as moral philosophy and economics as logic? As Hühn (2015a) and Hühn and Dierksmeier (2016) argue, economics as a scientific discipline was originally conceived as a moral philosophy by Smith, and then metamorphosed twice; each time moving further away from its ethical and epistemic basis. First economics was changed into a natural science (economics as physics), thereby shedding third-level epistemic values, and then, in a final step was reinterpreted to be a formal science (economics as logic), dropping the first and second level of epistemic values so dear to Smith. As a result, economics is as far away from its original form (moral philosophy) as is possible.

In the first metamorphosis, Smith's object of study, the socially embedded human individual, was transformed into an inanimate object, and thus, a physics epistemology was utilised—atoms have no ethics and thus moral philosophy and epistemic values of the object could be ignored. The second paradigm shift was caused in part by physics ridding itself of positivist epistemology and moving towards the sophisticated falsificationism of Imre Lakatos. Heisenberg's uncertainty principle (1927) got rid of the notion of precise predictions roughly at the same time as Frank Knight (1921) tried to do the same for economics with his uncertainty–risk differentiation. Heisenberg got a Nobel Prize, yet Knight was shoved into a corner because; for economists, precise prediction was the cornerstone of their claim to scientificity (Friedman 1953). In other words, physics was a little too "unscientific" for the proudly rigorous economists. Thus, economics was again reinterpreted, this time to be a *formal science*, which allowed economists to assume and postulate anything they wished into the human. Smith's socially active, real, and frail individual had been turned into a cypher; an empty vessel to be filled as required.

Hühn and Dierksmeier (2016) argues that criticising this formal science approach to economics was historically only successful when ethical and epistemic criticisms were combined into one argument. Friedrich August Hayek (1975) and Sumantra Ghoshal (2005) did just this, and were able to convince a wider audience. It is noteworthy that they inadvertently moved closer to Smith's view that gives epistemic values centre stage. However, even the very spirited attack of Nobel Prize laureate Hayek (he used his acceptance speech) could not significantly advance the debate within mainstream economics itself. Why is that so? This is because by then, the mainstream had become an integrated ideology that effectively shut down any attempt at debate (Hühn 2008).

This sounds like a political criticism, and it is. But not out of choice. None other than Milton Friedman forced serious epistemologists to argue in such a way when he declared any critique of mainstream economics to be "pure and unadulterated socialism" (1970). Criticising the mainstream today means criticising an institution and its politics. Very recently, a member of the Royal Swedish Academy, Bo Rothstein, attempted to rekindle the debate. His attempt was shut down with political arguments, not scientific arguments: criticising economics might cause the Academy to strike the Nobel Prize for Economics altogether, he was told.

Friedman deserves most of the credit for first ending the debate on the philosophy of science and then the debate on the role of moral philosophy in economics. He was arguably successful because he directed his attack on values both times. In 1953, Friedman published his *Essays on Positive Economics*, which contained the immediately (in)famous F-Twist. The Friedman Twist was the attempt to cut through the most important of the Gordian Knots within the wool ball that is economic theory: the assumptions about human nature, Smith's third-level epistemic values. Rational expectation theory proposes that *homo economicus* is driven by one sentiment (that is disguised as a non-sentiment: rationality): insatiable and perfect selfishness. This "rationalist conception of rationality" (Williams 2006, p. 18), nothing but a postulate, stands in stark contrast to reality—the same reality that the positivist mainstream claims to be able to explain *and* predict. While earlier economists, frustrated by a reality unwilling to conform to their theory, had tried to derail debates about facts and epistemology (Machlup 1936; see a whole chapter in Mäki 2002) or deny the facts altogether (most economists), Friedman had a new strategy: *to create a completely new category of facts* that neutralises the power of common facts.

When Frank Knight (1921) told his Chicago colleagues that future human action does not constitute calculable risk but unknowable uncertainty, he was patted on the back and then ignored. And fifteen years later, Fritz Machlup (1936) asked his fellow economists *why bother with methodology?* And then proceeded to tell them why they really should stop worrying about the philosophy of science: "If the alternatives are naive simplification on the one hand, and unintelligible profundity on the other, I would rather choose the former" (p. 40). Note the strawman argument:

philosophers of science sell "unintelligible profundity" and can therefore be safely ignored.

But still, critics kept bothering economists by pointing out that their most important assumption, radical rationality, is simply factually wrong: it is non-rational. Thus, another 20 years later, Friedman declares that having factually wrong assumptions about facts is in fact a good thing. He (1953, p. 20) assures us that "[a] theory or its "assumptions" cannot possibly be thoroughly "realistic" in the immediate descriptive sense so often assigned to this term". He cleverly invents a new type of facts; namely facts that are not descriptive, but supportive, of an ideology. I therefore like to call this type of fact an "ideological fact" or a Friedman Fact, as it seems to have its roots in the world of postulated *nuomena* rather than the world of *phenomena*. This means it is closely related to Paul Feyerabend's (1975) "hypothetical fact", but completely unrelated to his "observed fact". The only difference between a Friedman Fact and a hypothetical fact is that the former has strong moral and political connotations.

The next step was to deduce more "facts" and theories from these Friedman Facts. Suddenly, economics was conveniently free of having to *induce from reality* and could "discover" more and more economic "laws" through completely hypothetical deduction. Wassily Leontief agreed with my interpretation and was one of the very few big names who called out the hypothetico-deductive mainstream for valuing "formal mathematical reasoning" more than the empirical, and wrote that there is a "[c]ontinued preoccupation with imaginary, hypothetical, rather than with observable reality" (Leontief 1971, p. 1). The F-Twist was the breakthrough moment, as it evidently succeeded in declaring all fact-based criticism of economics "trivial" (Friedmann, 1953, p. 26) by twisting arguably one of the two most important scientific virtues (correspondence between facts and theory[3]) that it is the cause of "confusion". The F-Twist itself is presented on page 8: "To be important, therefore, a hypothesis must be descriptively false in its assumptions". Friedman's logic, in short, is: the rationality assumption in economics is clearly absurd, and *therefore*, economics is an important theory. Friedman declares the biggest Achilles' heel of economics to be its biggest scientific strength. Philosophers of science such as Blaug and Mäki call the F-Twist an "embarrassment" (Blaug 1992, p. 110) and scratch their heads as to why most economists believe such nonsense, or at least implicitly incorporate it into their theory-building.

The consequences for economics have been massive. The connotations and denotations of "empirical" have changed: for Leontief (and Smith) they meant observable facts, while today they are statistical *constructs*. Leontief (1971, p. 1) used his whole presidential address to the American Economic Association to call Friedman's bluff, and noted, "it is precisely the empirical validity of these assumptions on which the usefulness of the entire exercise depends". To no avail: his fellow economists had already gotten used to assuming, proposing, and postulating whatever they wanted, and what he feared had become widely accepted practice (1970: 1): "By the time it comes to interpretations of the substantive conclusions, the assumptions on which the model has been based are easily forgotten". Friedman had given economists an excuse to not only forget about the assumption, but to forget about reality too. Who wants to deal with messy observable facts, when, what Hey (1997) calls, clean "stylised facts" are accepted by a hypothetico-deductive crowd?

Friedman, in the same essay, performed another rhetorical manoeuvre that is at least on par with the F-Twist, and has also found its way into the axioms of mainstream economics: he states multiple times that all criticisms of economic theory are "largely irrelevant" because economic theory delivers such accurate predictions and that "the fundamental methodological principle [is] that a hypothesis can be tested only by the conformity of its implications or predictions with observable phenomena" (1953, p. 40). Yet, economic predictions are notoriously imprecise as the many economic crises surely attest to, and this means Friedman uses his newly minted hypothetical fact category a second time; to immunise economics from questions. What is more, he declares the symmetry hypothesis, a cornerstone of positivist philosophy, to be nil and void.

According to the symmetry thesis, theories can only make predictions about phenomena *because* the theory can also explain the same phenomena. If the explanation for human actions is imprecise, or even absurd, the predictions are imprecise or absurd. Humans are assumed to be radically selfish all the time, and therefore, economists can predict how these radically selfish individuals will behave in the future. The Friedman Twist II is a perfect tautology.

Lastly, Friedman is evidently not employing logic, but rhetoric. McCloskey (1998) writes that economists do not understand that *every* science, including theirs, is mostly based on rhetoric: we argue in concepts and concepts are always language-based. If McCloskey is right on both counts, and I believe this to be the case, then it is easier to understand why Friedman's epistemic absurdities have been so widely accepted. Economists simply took for granted that his argument was logical and empirically corroborated, when it was rhetorical instead. Friedman lead them on a merry dance, twisting and turning, until they no longer knew whether they were turning left or right, but

[3] I would see creativity, only in conjunction with conformity with observable facts, as the other important scientific virtue.

were nevertheless giddy with the feeling of being totally free and perfect scientists.

I also credit Friedman with fully immunising economics from ethical criticism, because he successfully performed yet another F-Twist in 1970, when he declared ethical considerations in business theory to be "pure and unadulterated socialism", i.e., unethical.

To summarise, "good" methodology in Friedmanian economics, i.e., current mainstream economics, is based on the irrelevance of the traditional understanding of facts, and "good" moral theory is based on excluding moral considerations from economics altogether. That is as far removed from Smithian economics as is possible, as I will demonstrate in the next part.

Smithian Philosophy (of Science)

As I have stated above, Adam Smith, a classically educated scholar (Vivenza 1984, 2001), planned to publish authoritative works on all three branches of science, yet later amended this plan to focus on the completing at least the science of man (moral philosophy). It is ironic that this ambitious undertaking was thwarted because of the enormous success of the two books that were published during his lifetime. Smith was a perfectionist, and rather than following through with his grand plan, he decided to perfect his two published works on moral philosophy (human science) and, in case he had the time, probably planned to then attend to the two manuscripts that he was drafting on the side. His *magnus opus* was the *Theory of Moral Sentiments* (TMS, 1759/1976), in which he described how man made decisions. His second book, the *Wealth of Nations* (WN 1776/1976), must be interpreted in the light of TMS. The infamous Adam Smith Problem, i.e., the idea that he wrote one book proposing sympathy as the main driver of human behaviour, and another in which he argued that selfishness is the most important human sentiment, is thoroughly rejected by all Smith scholars (see for instance Raphael and Macfie 1976; Winch 1978; Brown 1994; Griswold 1999; Mehta 2006; Paganelli 2009, Forman-Barzilai 2010), but is firmly embedded in the mainstream narrative (Hühn and Dierksmeier 2016). Yet while Smith scholars see a nuanced social philosopher, by and large, even they dismiss Smith as a philosopher of science.

Rothschild (2004, p.156, my emphasis), to whom we owe some of the most profound insights into the economic philosopher Smith, has a representative opinion: "Smith was not so much a 'poor epistemologist' in my view, as a non-chalant epistemologist: someone who did not think a great deal, *at least in the last thirty years or so of his life*, about what it is to have a theory of knowing (or thinking)". It is true: Smith did not explain his view on the philosophy of science (neither did he name his sources) in his two books, but that is because he had produced a long essay on the topic in the 1750s, when he was still in his twenties. It is, I think, important to note that Rothschild puts a major qualifier into her assessment of Smith's epistemology: "at least in the last thirty years or so of his life". She wants to indicate that she had read Smith's essays, but for some reason needs to exclude his epistemology from her narrative on Smith.

Without the Adam Smith Problem, and including the posthumously published *Essays on Philosophical Subjects* and especially the *History of Astronomy* (HA) and the *History of Ancient Physics* (HP), it becomes very clear that Adam Smith's projected works were underpinned by a very modern understanding of knowledge and knowledge creation. Blaug (1992, p. 52), who unfortunately fell for the Adam Smith Problem, is very surprised to find out that Smith had a well-developed understanding of epistemology at a very young age: "Adam Smith did contribute an amazingly erudite essay in the philosophy of science". But because he sees two irreconcilable Smiths—the WN Smith and the TMS Smith—he does not detect the narrative that Smith had propounded years before he started work on his two books. Deborah Redman (1993, p. 216) explains why Smith, the epistemologist, is even less well known than the moral philosopher Smith by quoting Schumpeter, whose opinion on Smith's economics is extremely negative. She writes, "Schumpeter (1954, p. 154) refers to this essay as 'the pearl of the collection' and adds: 'Nobody, I venture to say, can have an idea of Adam Smith's intellectual stature who does not know these essays.'". Note that Schumpeter refers to "these essays" and not "the essay", and rates them higher than Smith's two major works, TMS and WN. So the problem with Smith's philosophy of science is the same as with the rest of his oeuvre: very few have read it.

But it is nevertheless astounding that great scholars such as Blaug have read it, acknowledge its erudition, and yet still fail to connect it to his other work. While TMS and WN are thick tomes, the essays are rather short and Smith makes his views very clear, opening HA by explaining that three sentiments underpin our quest for knowledge: wonder, surprise, admiration. Even when looking at epistemology, Smith views theory through a Sentimentalist lens. He goes on to explain how these sentiments drive science and what the role of philosophy is:

"Philosophy is the science of the connecting of nature. Nature, after the largest experience that common observation can acquire, seems to abound with events which appear solitary and incoherent with all that go before them, which therefore disturb the easy movement of imagination… Philosophy, by representing the invisible chains

which bind together all these disjointed objects, endeavours to introduce order into this chaos…" (2010, p. 336).

A superficial reading might suggest a (neo-)positivist Smith. And thus, for instance, Kim (2012) and Berry (2006) view Smith as a critical realist, i.e., a Popperian falsificationist (Blaug 2002, p. 47). But even the very young Smith is already far ahead of his time and seems to support a (social) constructivist view,[4] as I will show. Smith ends HA by very politely hinting that even Newton's theory, whose "principles, it must be acknowledged, have a degree of firmness and solidity that we should look in vain for in any other system" are, like "all philosophical systems […] mere inventions of the imagination" (p. 384). He argues that we are using language (language is itself invented: the linguistic turn in Smith) "to connect together the otherwise disjointed and discordant phenomena […] as if they were real chains which Nature makes use of to bind together her several operations" (p. 384). This is not an out-of-context quote for, in the next essay, *History of the Ancient Physics,* he writes that scientists' roles are "[t]o introduce order and coherence into the mind's conception of the seeming chaos" and "[to] render, therefore, the lower part of the great theatre of nature a coherent spectacle to the imagination" (p. 386). Smith makes extensive use of the theatre metaphor and compares scientists to playwrights or composers who, taking cues from personal observation, write a narrative or a musical score. Since there are many composers and playwrights, there are different theories about the workings of nature, and different people appreciate different narratives and musical scores. Even Newton's system had to fight, and only "now prevails over all opposition" (p. 384).

Smith describes the progress in science in Kuhnian (1962) terms: a long period of revolutionary science is followed by normal science. What is more, the Truth, it seems, is something that Adam Smith is very sceptical about, and his scepticism translates into humility—his most important epistemic value. Wonder is reduced by a scientific theory that proposes connections between two formerly disjointed events: "Who wonders at the machinery of the opera house who has once been admitted behind the scenes?" he asks, and immediately admonishes that "[i]n the wonders of nature, however, it rarely happens that we can discover so clearly this connecting chain" (p. 334). But it does happen that firm connections are made (solar and lunar eclipses are Smith's example) and then wonder is gone. Does this mean that scientific theories can discover the Truth?

To Smith it does not, as even Newton's theory of gravitation is nothing but an invention of the imagination (p. 384). This suggests that Smith, like Lakatos, and Quine & Duhem, differentiated between auxiliary hypotheses and the overarching theory. Throughout his two essays, Smith refers to larger theories—what Lakatos calls "research programmes" as "systems"—and to individual hypotheses as "principles", "ideas", "hypotheses" or "suppositions". Talking about Thales and Pythagoras, for instance, he says it is impossible to determine "whether their doctrine was so methodised as to deserve the name of a system" (HA, p. 341). It is exactly on this note that Smith ends his *History of Astronomy*: "the greatest discovery that was ever made by man, *the discovery of an immense chain of the most important and sublime truths*, all closely connected together, by one capital fact, of reality of which we have daily experience" (p. 384, my emphasis). So, while many "important and sublime truths" together make up Newton's theory, this theory cannot claim to be the Truth as it is just an invention of the imagination.

This is not a naive positivist or neo-positivist Popperian Chicago Smith expounding the existence of facts that can be uncovered, and laws that can be propounded. Jerry Evensky (2005, p. 6) sums up Smith's relationship with facts: "Nature's "Truth" lies "behind the scenes." No philosopher has the privilege, as an opera patron might, of going behind the scenes to observe those "concealed connections" (HA, p. 51). No philosopher can see what the invisible hand has drawn on those inaccessible blueprints". The things-in-themselves can never be observed, and our language—here he digresses from Plato—is necessarily imprecise. Thus, Smith's whole project of establishing a science of man is based on one central epistemic value: humility.

Smith is often described as an atheist and anticlerical scholar. He was no such thing. He merely saw the horrors that absolute truth claims cause in religion. Sectarianism has its roots in every sect claiming to have the Truth, and thus declaring all other sects to be heretics. Smith did not want this to happen in philosophy. He foresaw the sectarianism in (social) science that would cause wars lasting even longer than the 30-year war that devastated Europe. If there was an implicit demarcation criterion between science and non-science, for Smith it was this: philosophers must never claim to have found the Truth.

This is Smith's philosophy of science for the *natural sciences*. His *human science* epistemology is quite different from his natural science epistemology (Redman 1993). The two factors that inject even more uncertainty in his epistemology for the human sciences are human frailty and imagination—both based on his epistemic virtue, humility.

[4] Constructivism is a wide range of ideas that have been around for thousands of years as Gergen (1999) points out. I stress this point because to some it may be a far-fetched idea to see constructivist ideas 200 years before they have been formulated in greater coherence and been labelled as such.

Imagination

Imagination is one of the central themes in Adam Smith's philosophy. It not only invents connections between phenomena and thus drives science but it is also at the centre of spectatorship and thus his explanation of human behaviour. Smith was a moral philosopher of a type that is almost extinct today: he was descriptive and therefore committed to reality and not to any utopian ideal or an ideology. He was interested in how *real individuals* actually make moral decisions. He tried to describe the workings of the human conscience. D.D. Raphael, the editor of the Glasgow Edition of Smith's works praises him for it: "I worked out what I take to be Smith's theory of conscience and found it compelling. I think there are weaknesses in other parts of Smith's ethics and I would not place him in the ranks of the really great moral philosophers—shall we say Plato and Aristotle, Spinoza and Kant?—but on the specific topic of conscience I think he beats them all" (Raphael 2007, p. 10).

The conscience is engaged in a constant conversation with an impartial spectator, who asks us to sympathise with others, to put ourselves in their place or, as Knud Haakonssen (2006, p. 10) puts it, "[t]his form of imagination Smith calls "sympathy"". A word of warning is necessary here. Smith was an eighteenth-century sentimentalist, and the idea that human decision-making should be based on only rationality would have been absurd to him. Also, the Kantian notion that drives today's perception, namely that human decision-making *should* be rational and that our desires/emotions are leading us astray, is not part of Smith's universe. Smith fully subscribed to the Aristotelian doctrine of the mean. We therefore must not understand Ryan Hanley's description of Smith as a "dialectical thinker" (2009, p. 91) to mean that he was caught between the rationality–emotionality poles: that is typical Enlightenment thinking. Dialectical means that the extremely well-read and very eclectic Smith regularly amalgamated pieces from diverse philosophical schools, and then remarked on the shortcomings of the theory he had just created. Not only did Smith see many competing sentiments at work when humans make decisions, prudence, the sentiment that is closest to rationality, is still only a very distant cousin to modern-day rationalist rationality. Therefore, McCloskey's description of modern economics as a prudence-only approach is somewhat misleading. Smith's prudence came in a higher and lower form: one more focused on society's good, the other more looking after oneself. Even the lower form was only a very distant relative of today's selfishness. That is for two reasons.

Firstly, Smith always stressed the social embeddedness of the individual (Skinner 1996; Bevan and Werhane 2015), and, secondly, he was influenced by the Stoic understanding of prudence: it is proper self-care and not selfishness (Mehta 2006, p. 258). So when the impartial spectator asks the self to imagine itself in the other's place, it was a far more complex operation than the simple question of how much does he gain, how much do I gain? To Smith, how well we could imagine ourselves into other people's situations depended on how well we knew their circumstances, because imagination needs observation. The more we know about them (friends, family, close colleagues), the better the sympathy manoeuvre works. Not only do we treat close friends differently from total strangers, but the impartial spectator looks upon us favourably if we do so (TMS III.2.3). The most important aspect of the sympathy manoeuvre is that we *want* to do it—it is not a tiresome Kantian duty or performed out of utilitarian calculation. In TMS (III.2.3), Smith explains that when we discover alike feelings, upon imagining ourselves in another person's shoes, the impartial spectator grants us tranquillity of mind and that is, for Smith, our ultimate goal in life.

The truly innovative aspect in Smith's social philosophy is that he is able to connect the individual smoothly with the societal level: individual decisions create society, but at the same time, the surrounding society influences these decisions. Griswold writes that Smith's "view is, rather, that we always see ourselves through the eyes of others and are mirrors to each other" (1999, p. 105), and Hanley (2004, p. 127) summarises it concisely, "Smith mediates the *prima facie* antagonistic claims of individual freedom and the "social construction of the self"". In other words, to Smith, all economics is a kind of psychological microeconomics, since all microeconomics is based on the conscience guiding human decisions. That is one of Smith's largely unrecognised great contributions to economic theory: he connects the individual with society and does not erase the individuality by defining him as a genus, or, as Patricia Werhane (1991, p. 53) puts it, his individual, via the impartial spectator "is neither subjectivist nor impersonal": while "Smith personifies the spectator" he is best understood as an "abstraction" (p. 38). Ernst Tugendhat (2004, p. 93) builds on that notion and connects it to Aristotle's doctrine of the mean and argues that "his impartial spectator, provided for the first time a precise sense for the mean". In other words, through the spectator in every individual, Smith operationalises the doctrine of the mean. The "social passions" and "selfish passions" (Werhane 1991, pp. 108–109) are considered by every spectator and create justice and a functioning marketplace (of life) (Otteson 2002).

Thus, Smith's philosophy of science anticipates constructivist ideas. The individual is constantly engaged in a creative conversation with the impartial spectator, "this

inmate of the breast, this abstract man, the representative of mankind, and substitute of the Deity" (TMS III 3.2).[5] From this two-sided dance (Espinosa et al. 2008: constructivist Maturana 1975, 2002 calls it "structural coupling"), where both partners, society and the individual, lead at the same time, society and the individual emerge. It is an autopoietic[6] process in which *society is created* by all individuals constantly evaluating their own and others' actions and intentions, and the *individual emerges* by looking in the mirror she herself creates. This is how imagination adds a layer between the social philosopher and Truth: societal truth is constantly reimagined, reconstructed.

Truth, in Smith, is what social constructivist Kenneth Gergen 250 years later would call "truth within a community" (2004, p. 20), with only one difference: in Smith's constructed social reality, God's eternal values have a moderating anti-oscillatory effect. In Smith's economy, there is no static equilibrium that is maintained by a dictatorial hand: everything is in constant flux yet stable through the individuals' constant micro-comparisons and micro-adaptations.

With the help of Patricia Werhane, we can find strong echoes of the constructivist Smith in Amartya Sen's[7] concept of "transpositional views" (Werhane 1999, pp. 86–87):

> Sen introduces the notion of a "constructed view from nowhere" to account for our ability to compare various positionally objective points of view to make coherent sense of them and, in this process, develop other general theses about what is being observed or experienced (Werhane 1999, p. 114).

Smithian (moral) imagination is a very fruitful starting point for trying to understand how markets are created (Hühn 2017) and how they work on many levels: epistemologically, it gets rid of the notion that there are fixed economic "laws" and gives rise to economic accounts that are instead based on values. Unlike mainstream approaches, in which humans are passive executors of quasi-natural laws, Smith's economic actors are actually agents in the original sense of the word: they *create* values and values define reality to a large extent.

Frailty

Human frailty is another major factor that should make the social scientist humble in his proclamations about both explanation and prediction. Frailty is often overlooked in Smith's work as he does not explain its role in his philosophy much. He simply assumes that any philosopher worth his salt will have understood that there is a difference between an individual recognising what her conscience tells her, and the individual acting on such a demand. In other words, we sometimes do not act upon our own (the spectator's) counsel, and therefore, future human behaviour cannot be predicted with any confidence. Frailty is only mentioned twice in Smith's work, once in *Correspondence* and once in his *Lectures on Jurisprudence* and we have to thank Jerry Evensky for making it the *leitmotif* in his masterly *Adam Smith's Moral Philosophy*, and arguing that this is Smith's demarcation criterion between the natural and moral philosophy[8]:

"The subjects of natural philosophy—the planets, the plants, the tides, and so on—these things do not imagine or reason, they simply follow the design of nature. Not so the subjects of moral philosophy; humans imagine, they reason, and they suffer "human frailty" (Correspondence: 221). That "frailty" makes humankind unique in nature. We are the unnatural dimension of nature. Our vices can distort the "regular and harmonious movements" of the design" (Evensky 2005, p. 8).

If one were looking for differentiating criteria between Smith and the following philosophers and economists, frailty and the sentiments are probably the best candidates. I have explained above how the symmetry hypothesis is a central epistemic value of the positivist research programme of economism (Hühn 2008). Smith has his own theory and one could call it an asymmetry hypothesis: both sides of the positivist syllogism are denied. Explanation is only tentative as it is a mere invention of the imagination, while prediction is made impossible because of frailty.

Thus, human frailty is one of the two important reasons for epistemic differences between the two branches of science, natural and moral philosophy, especially for how theory-building should proceed. For Smith, the goal of philosophy in general is explanation (Haakonssen 2006, p. 4), and not prediction. In the social sciences, according to Smith, prediction is seriously hampered by human frailty, while in the natural sciences, explanative theories are just products of human creativity. For both branches of science, explanation, Smith argues, must flow from observation and cannot be postulated. In other words, to Smith, induction is the method of choice for science.

[5] In the last edition of TMS, Smith stressed that the spectator was a mix of God's unchanging morality and of society's changing morality. Like many aging philosophers, he perceived public morality to be deteriorating and wanted to add God's values as an anchor.

[6] Autopoiesis introduced by Varela et al. (1974) is a central concept in constructivism and refers to the ability of living systems not only to offset entropy but to self (*auto*) create (*poiesis*) the very structures that enable the system to do so.

[7] Sen is married to Martha Nussbaum, an important Smith scholar, and I would assume that Sen understands Smith's core concept, the impartial spectator, rather well and I also assume that this particular aspect of his economics is at least indirectly influenced by Smith.

[8] Emma Rothschild (2004: 160) also quotes the "human frailty" passage in Correspondence, but in a completely different context.

Compare that to the hypothetico-deductive framework employed by economists today. There is no connection to Smith's conception of how (economic) knowledge is produced.

There seem to be three major differences between Smith and modern economics when it comes to how economic inquiry should proceed. First, Smith believed that only repeated observation of individuals results in useful theory. Secondly, he saw no use for experiments, and lastly, as already mentioned, he thought the resulting theories not to be laws but tentative suggestions, produced through imagination. Let us look at the three concepts that widen the gap between Smith and modern economists: observation, individuals, and experiments. I will show that Smith had a completely different understanding of the meanings of these concepts and what their respective roles in scientific inquiry should be.

Observation

Smith set out to create a "science of man" that explains human action through observing individuals and hypothesising what mix of sentiments drives their behaviour. Yet Smith is also keenly aware of the imperfect relationship between decision-making and action, which he attributes to human frailty. The "general maxims [derived] from experience and induction" (Evensky 2005, p. 292) on human motivation and behaviour are therefore even more tentative than Newton's gravitational laws that he also views as mere inventions of the imagination. There is great humility at both ends of the knowledge creation process: we cannot know the things-in-themselves, and the theories we propose are tentative and provisional. Modern economics knows no such humility: it assumes that both explanation and prediction are "scientific", i.e., certain. Smith's understanding of the scientific process is entirely inductive, and he makes sure that his readers cannot misunderstand this by opening HA (p. 325) like this:

"Wonder, Surprise, and Admiration, are words which, though often confounded, denote, in our language, sentiments that are indeed allied, but that are in some respects different also, and distinct from one another. What is new and singular, excites that sentiment which, in strict propriety, is called Wonder; what is unexpected, Surprise; and what is great or beautiful, Admiration".

Three sentiments (not rationality) start the scientific process, and they themselves are aroused by observation. Thus, at the beginning of everything is observation, not a thought. Yet, this is not the naive We-see-what-there-is-to-see Positivism that Popper criticised, nor is it the neo-positivist Popperian who trusts facts to disprove theories. Smith acknowledges that observation is an *active process* that is in fact theory-driven:

"We wonder at all extraordinary and uncommon objects, at all the rarer phenomena of nature, at meteors, comets, eclipses, at singular plants and animals, and at every thing, in short, with which we have before been either little or not at all acquainted; and we still wonder, though forewarned of what we are to see. We are surprised at those things which we have seen often, but which we least of all expected to meet with in the place where we find them; we are surprised at the sudden appearance of a friend, whom we have seen a thousand times, but whom we did not imagine we were to see then. We admire the beauty of a plain or the greatness of a mountain, though we have seen both often before, and though nothing appears to us in either, but what we had expected with certainty to see" (EPS, p. 325).

All three sentiments are based on a contrast with the normal. Thus, there needs to be a theory of the normal. What is more, we are "forewarned" about the wonder we are about to perceive. We have the theory where we should see our friend, and then we are surprised to meet him where our theory says he should not be, and we admire that we surpass our theory of what should be there. So while the scientific discovery process is kicked off by observation, we only enquire further if those observations clash with pre-existent theories about the phenomena.

Haakonssen (2006, p. 11) touches upon this Smithian point of view: "In fact, experience can only function as evidence, or be "understood", if it fits into an orderly system of beliefs". Pierre Duhem, a mathematician and Willard Van Orman Quine, a logician, explained this from a formal science point of view, while Adam Smith, a sentimentalist philosopher, uses three sentiments to argue the same thing: observation is theory-laden, it is an active process. Just like the Duhem-Quine thesis is ignored by economists because it creates enormous problems for positivists and neo-positivists alike (Cross 1982), Adam Smith's constructivist inductivism is not picked up on because it is so unexpected and also impossible to integrate in the insulated hypothetico-deductive methodology. What is more, Smith argues very carefully, indirectly, and is always humble. He puts forward an argument and then weakens it because, to him, the realistic description of messy reality takes precedence over artificial ideological clarity. This middle-of-the-road stance is typical for Smith (Griswold 1999, p. 261), but modern readers bulldoze over the nuances: we are used to scientists committing themselves to ideological silos while Smith's philosophy was an integrative project right from the start. He feels free to agree with Hume, Newton and his teacher Hutcheson, and when he feels they are too one-sided, he deviates from their ideas just as easily.

His constructivist stance is evident in many places, and it is influenced by the fact that Smith also taught literature:

to him it was normal that language is created and in turn creates reality. He starts the part of HA where he looks at the historical development of astronomy by asking (p. 337) "Why has the chemical philosophy in all ages crept along in obscurity, while other systems, less useful, have possessed universal admiration for whole centuries altogether?" The answer to this rhetorical question underlines that Smith is fully aware that perception is an active process: "The connecting principles of the chemical philosophy are such as the generality of mankind know nothing about […] Salts, sulphurs, and mercuries, acids and alkalis, *are principles which can smooth things only to those who live about the furnace*" (p. 337, my emphasis). To Smith the words (salts, acids, alkalis, etc.) represent concepts, and the concepts are principles or theories. Those who know the theories can see or imagine connections that those who do not know the theories cannot see. Imagination has a double function: Smith is aware that scientists imagine theories and that these theories spur imagination. In other words, reality to him is constructed based on previously constructed connections. He uses imagination for the creative process, and also to describe the intermediate outcome of the creative process.

If this level of sophistication in Smith's philosophy of science would have been recognised, his moral and economic philosophy would have been much better understood and serious misunderstandings could have been avoided. For instance, the invisible hand: because Smith saw the fatal appeal of this logic and feared the destructive impact of this theory on practice, he pre-emptively added a chapter to his last edition of TMS. 200 years before Giddens (1987) proposed his double hermeneutic, i.e., the feedback loop in the social sciences from theory to practice, the constructivist Smith argued that if selfishness is assumed to be the cause for society's wealth, the basis for society would be destroyed. In what is one of the most strongly worded passages in TMS Smith (IV. v) writes:

"There is, however, another system which seems to take away altogether the distinction between vice and virtue, and of which the tendency is, upon that account, wholly pernicious: I mean the system of Dr. Mandeville. Though the notions of this author are in almost every respect erroneous, there are, however, some appearances in human nature, which, when viewed in a certain manner, seem at first sight to favour them. These, described and exaggerated by the lively and humorous, though coarse and rustic eloquence of Dr. Mandeville, have thrown upon his doctrines an air of truth and probability which is very apt to impose upon the unskilful. Dr. Mandeville considers whatever is done from a sense of propriety, from a regard to what is commendable and praise–worthy, as being done from a love of praise and commendation, or as he calls it from vanity. Man, he observes, is naturally much more interested in his own happiness than in that of others, and it is impossible that in his heart he can ever really prefer their prosperity to his own".

Dr. Mandeville's licentious system destroys the distinction between virtue and vice because it is based on the invisible hand metaphor: personal selfishness, a vice, produces riches for all and is therefore a virtue. Smith is very emphatic in denouncing the immorality of this:

"It is the great fallacy of Dr. Mandeville's book to represent every passion as wholly vicious, which is so in any degree and in any direction. It is thus that he treats every thing as vanity which has any reference, either to what are, or to what ought to be the sentiments of others: and it is by means of this sophistry, that he establishes his favourite conclusion, *that private vices are public benefits*" (TMS IV 11).

Smith was keenly aware of the destructive effects social/moral theories can have on the behaviour of the public because he was not a simple-minded positivist, but a very sophisticated philosopher of science who integrated the paradox between constructivism and inductivism. One of the main goals of Smithian social science was to counter the Roussouean cultural pessimism regarding the developing "commercial society" (Rasmussen 2008; Griswold 2010). The most poisonous fruit on this tree was Mandeville's "invisible hand" theory. Smith was worried about the theory's impact on the public's view of what should motivate economic activity. Yet even if we would not find these passages in his major work, it would be inconceivable that a virtue ethicist who is interested in the human conscience could actually *advocate* for selfishness.

The Individual

The individual in a social context is at the beginning, the centre and at the end of Smith's social philosophy (Werhane 1991; Hühn 2015b). Economists and most philosophers today assess the work of others by assigning an ideological label. Smith's assigned label is that of an ideological liberal. He is seen as the author of the central tenet of neoliberalism: selfishness is a force for the good, and government must not impede the selfishness of the individuals. Everything else follows from this crude and false categorisation of a philosopher that Viner (1927, p. 199) called "*the* great eclectic". Thus, Evensky (2005) fittingly calls this twentieth-century neoliberal economist *Chicago Smith.* I have already explained Smith's attitude towards selfishness: he sees it as a *disruptor* of economic exchanges, not a driver or governing principle. In addition, there is ample evidence in WN that governments should play an important role in economic matters, according to Smith. For, while Smith is by no means a statist (he has serious doubts as to the virtuousness of governments), he

nevertheless sees 27 different tasks that a "virtuous government" should attend to above and beyond "defence, justice, public works and institutions, and preserving the "dignity of the sovereigns" (Kennedy 2008 pp. 247–248).

As explained above, WN can only be understood in terms of the earlier TMS and both are themselves embedded in a certain epistemology that he explicated earlier still, mainly in the *History of Astronomy* and in *The History of the Ancient Physics*. As Smith was first and foremost a virtue ethicist (Evensky 1993; Den Uyl and Griswold 1996; Calkins and Werhane 1998; Griswold 1999; Mehta 2006; McCloskey 2006, 2008; Solomon 2008; Hanley 2009; Pack 2010), this epistemology cannot deviate much from the epistemology of virtues ethics expounded by Aristotle and Saint Thomas Aquinas. At the centre of virtue ethics is the character of the individual, which is not formed in a vacuum. Thus, the socially embedded individual and her decision-making process is Smith's level of analysis. I have explained above what I think is one of the most important contributions Smith made to economics: how his sympathy manoeuvre elegantly connects the individual with the societal level without giving up the essential features of individuality (free will, ability to learn, choice).

Experiments

Experiments have become more important in economics in the last few decades with the rise of so-called behavioural economics. They have served as a line of defence against major economists, who criticise economics for not being "empirical" enough (Leontief 1971; Hayek 1975; Coase 1993; Perelman 1996; Heilbroner and Milberg 1996). What role do experiments play in Smith's philosophy of science? None. In none of his writings are experiments mentioned. He does not use experiments in TMS or WN, and he does not even mention experiments in his essays on epistemology. The fact that Smith does not refer to experiments in the *History of Astronomy* can maybe be explained because planets, suns and the moon cannot be replicated in a laboratory. Yet he also does not mention experiments in his essay on the history of (terrestrial) physics. There is one passage that could be construed as a reference to an experiment: "Thus, Fire when mixed with Water, produced sometimes a watery vapour" (p. 389), but he is actually explaining how rain and hail form.

The absence of experiments is, from today's point of view, an oddity. However, it cannot be explained by declaring Smith to be disinterested or uneducated: when reading his essays one is struck by how deep and wide his knowledge of the natural sciences is, and the easy elegance with which he presents it. A much more plausible explanation is that he was trying to explain *how scientific discoveries happen*. To the radical inductivist and constructivist Smith, discoveries are *only* possible when observing nature and one of the three sentiments is aroused. To modern economists, this is simply too foreign a concept, as economic theories are not at all connected to observations, but are rather synthetic proposals whose value must be (dis)proved. So while Smith focused on the *idea generation* (theories are after all only "inventions of the imagination"), today the value of a theory is derived from *how well it does in tests*. The fact that these "tests" are often theoretical or experimental makes the contrast with Smith even starker. To Smith, there was simply no way to make scientific discoveries, other than to observe celestial bodies, concrete animal anatomy, or to watch humans in real life making real decisions, and then find plausible explanations. To today's economist, observing individuals in real life is an utterly alien idea that they do not connect with science at all, unless it is done in an experiment that they have carefully designed.

What if Smithian Economics Would make a Comeback?

Smith is not the father of modern economics. He was fundamentally opposed to modern economics' ethics and epistemology. To him, economics was part of the branch of science that contains the study of all human activity, i.e., moral philosophy. Today's economics is clearly a formal science—although many mistake it for a natural science. Others have explained just how different Smith's ethics were (Raphael 1992; Griswold 1999; Otteson 2002; McCloskey 2008). For this essay, it is enough to point to the fact that Smith was not only the inventor of the invisible hand logic, but decried the vulgarity of "Dr. Mandeville's licentious system". His epistemology was equally opposed to modern economics, and not because he had no opinion on the subject or because the extant philosophy of science was not well-developed enough. As I have shown, he proposed an epistemology before he started to work on either TMS or WN, and that this epistemology was far ahead of its time. What would economics look like if it really had been built on Smithian ethics and epistemology? I can only guess, as learning is in character unpredictable (Hoppe 1997), and nobody could imagine what ideas two hundred years of true Smithian economics would have yielded.

The underlying narrative of economics would in all likelihood have been dramatically different in at least two respects. The vice-to-virtue logic, i.e., that individual selfishness becomes an ethical good on the societal level, would be an outsider theory, or maybe not even relevant to the scientific discourse at all. How many economists know Mandeville to be the true author of the invisible hand

logic? Smith focused on cooperation, and thus the market would not be a limited competitive space but a place of endless opportunities. Even theories that are outside the mainstream, such as Schumpeter's "creative destruction", always see economic activity as something at least ambivalent (creative destruction is also appealing because it is a superficial oxymoron). Smith saw selfishness as a *disruption* of the economic process, not a driver. Smith's economics was the economics of the individual. But not the atomised, egoistic individual that can and should be amalgamated into a faceless mass, represented by *one* ideal type: *homo economicus*. Smith's impartial spectator connects the individual with society without destroying her individuality. Thus, an economics built on the individual would be far more creative, learning-oriented, nuanced, and moral psychological than what we have today.

Replacing hypothetico-deductivist methodology with inductivism would completely change how economists work. Results are of course impossible to predict, but it is quite easy to see what it would do to the education of economists. The education of doctors of philosophy would actually have a more philosophical outlook, rather than encompassing a mere training in statistical methods and mathematical modelling. How much philosophy is there in PhD programmes today? Redman (1993: 228) suggests that Smithian economics would actually be an opportunity to widen the range of methods: "While the method of comparative statics implicit in *The Wealth of Nations* is still alive in economics today, the Scottish approach is rapidly being relegated to history, although, as several authors have recognized, it actually complements today's analytic approach".

Culture would play a major role in the study of economics because Adam Smith was a localist. Culture does not change the operation of the impartial spectator, but it does change the concrete relationship between individuals, i.e., the context. Context was very important to Smith, simply because it is important in Aristotle's virtue ethics. The impartial spectator would maybe ask more questions in collectivist cultural contexts, and fewer in an individualist context.

Since the internal decision-making processes of the individual are what Smith focused on, psychology would be more important in economics. However, it would not be value-neutral and mathematised psychology, but a descriptive moral psychology that would shape the mainstream of economics. Smith made sympathy the theme of his social philosophy, and the small movement of positive psychology would probably be the mainstream, with traditional deficiency-focused psychology being a minor research stream.

Research would not only focus on the human condition as a research subject, but would also involve the whole person on the other side of the looking glass, for Smith described the process of scientific discovery in terms of warm human sentiments, not in terms of non-human cold rationality. As I have shown, epistemic values of the scientist and the object of study feature prominently in Smith's epistemology.

Economics would also not have fallen prey to what Hayek (1975) scathingly called the "pretence of knowledge" and the related arrogance. Redman (1993: 228) summarises this very well: "Further merits of the 'Scottish approach' are its *methodological modesty and realism*: Smith's rejection of absolute truth, his understanding that the economy and its 'truths' evolve, and his emphasis on the theoretical knowledge and on human failings. A final virtue is Smith's *practical insight*; […] the insistence that science is grounded in facts".

Smith was a moral philosopher and his epistemology acknowledged the relevance of values. This stands in contrast to modern approaches to epistemology that traditionally try to exclude ethical considerations from theorising. The fact that Smithian epistemology is not only based on values but also includes values in every phase and all details he uses makes it a "thick concept" (Williams 1985/2006; McDowell 1978), and Werhane pointed that out to us in 1991: "Smith also combines and overlaps descriptive and normative elements in his analysis of the political economy" (p. 174). I will use the last part of this section to briefly point out where I see major ethical components in Smith's philosophy of science.

Smith sought to create a science of man that was based on a science of man: his theory of how humans make decisions and why they act in a certain manner was based on acknowledging that his own theory-building must be based on his own humanity. Modern approaches to epistemology try to make the human element less important (or face massive push-back like, for instance, Thomas Kuhn), while Smith was committed to introducing humanity with all its imperfections to his philosophy of science. The very thickness of his account—that stood in the way of discovering Smith's epistemology—might now be a chance for the real Smith to emerge from the caricature painted by mainstream economists.

Important cornerstones of Smith's theory that combine the descriptive and the normative are that sentiments are involved in creating knowledge and in evaluating and ranking knowledge; fallibility and humility are major themes; humans get a central role in his account of knowledge creation but are never in control; observation of real humans in real situations is the only way that tentative deductions are possible.

Humans not only make decisions by weighing sentiments, but sentiments also drive the scientific discovery process. Moral imagination (sympathy), surprise,

admiration, and especially wonder result in "that suspension of the breath, and that swelling of the heart, which we may all observe, both in ourselves and others, when wondering at some new object, and which are the natural symptoms of uncertain and undetermined thought" (EPS, p. 330). Smith, neither in his moral philosophy not in his underlying philosophy of science, saw a need to separate the *ratio* from the *emotio* because both had the same author: the socially embedded individual. There is no value-free science because all of science is created by man, and man is driven by sentiments. Just like Kuhn, Smith also sees science as a social competition: an idea is judged to be superior to other ideas, and the judges use their sentiments to come to a conclusion. But like the creator of the ruling theory, the judges too are frail, and thus, this competition of imagination is never finally decided: absolute truth claims have no place in Smith's philosophy of science.

In Smith's semi-anarchic social constructivist world of science, nobody controls the Truth and scientists must be humble, but they can also be creative and use language to garner support for their theories. However, they must always consider real humans in real situations, and their theories must pass the ethical smell test. Mandeville's invisible hand, to Smith, is unrealistic because it raises a vice to be the only sentiment ("It is the great fallacy of Dr. Mandeville's book to represent every passion as wholly vicious"). It is also unethical because it erases the distinction between vice and virtue, yet nevertheless gains traction due to "the lively and humorous, though coarse and rustic eloquence of Dr. Mandeville". It probably is no coincidence that Smith's last effort (the revision of TMS) was directed at debunking a theory he considered to be factually wrong and ethically unworthy: he saw his own "system" in danger and had to act. It is nothing short of tragic that Mandeville's "licentious system" is ascribed today to Smith by those he called "unskilful" (TMS IV.v): his false heirs, the mainstream economists.

Concluding Remarks

As Hühn (Hühn and Dierksmeier 2016; Huehn 2016) argues, Smith was the last representative of a long line of classical economists that firmly placed economics within the social or human science with moral philosophy setting the framework. His immediate successors broke with him completely and moved economics with regard to its ethics and its epistemology to the natural sciences. Today's economics happens almost exclusively from within a formal science framework, with "reality" represented, not observed, by statistical concepts (Hey's "stylised facts"), and/or in artificial situations (experiments): moral philosophy no longer plays any role because values have been discarded from all levels of analysis. If mainstream economists would want to reconnect their field with philosophy of science in any meaningful way, they would either have to give up Smith as the founding father of economics, or else ask themselves a very tough question: if Smith did indeed discover the basis for economics, maybe his philosophy of discovery, i.e., his philosophy of science, had something to do with it?

At the moment, the mainstream holds two positions when it comes to Adam Smith that are quite obviously incompatible: Smith is the founder of modern economics, but his methods were completely unscientific. There is, however, only very little reason to assume that economics and philosophy will converge again in the near future. One of the top German economists, Peter Bofinger, is quite representative of the situation. In 2013, he published a paper titled "The Blessing of Selfishness" where he argued that one of the "giants of economics" (Adam Smith) had explained once and for all how selfishness is a virtue that we all should pursue. This shows that nothing has changed since Stigler wrote that WN is "a stupendous palace erected upon the granite of self-interest" (1971, p. 265). When the most famous proponents of economics are so certain in their ignorance about the history and the philosophy of their discipline that they grind the bones of the giants, on whose shoulders they themselves claim to stand, into dust, there is little cause for optimism. Claus Dierksmeier's (2011, p. 265) gallows humour may actually be realism: "Adam Smith may well be the most-quoted and least-read economic thinker of all times".

This paper has argued that Adam Smith was indeed the father of modern economics, albeit a very different economics than that which is practiced today: a thick concept inseparably connecting the normative and the descriptive. Economic activity is human beings evaluating the ethical worth of their, and other individuals', actions. Smith might just be worth reading again for his ideas on what the underlying philosophy of science of economics should be, so that economics may become a social science again. For that to happen, only one thing has to change: values, the ethical not the mathematical kind, must be put at the start, middle, and end of all economic theorising. To Smith, there was no science without values, there was no business theory without ethics, and there was no economic science without moral philosophy providing the language.

Compliance with Ethical Standards

Human and Animal Rights This article does not contain any studies with human participants.

References

Berry, C. M. (2006). Smith and science. In K. Haakonssen (Ed.), *The Cambridge companion to Adam Smith* (pp. 112–135). Cambridge: Cambridge University Press.

Bevan, D., & Werhane, P. (2015). The inexorable sociality of commerce: The individual and others in Adam Smith. *Journal of Business Ethics, 127*(2), 327–335.

Blaug, M. (1992). *The methodology of economics: How economists explain*. Cambridge: Cambridge University Press.

Blaug, M. (2002). Ugly currents in modern economics. In U. Mäki (Ed.), *Fact and fiction in economics* (pp. 235–256). Cambridge: Cambridge University Press.

Bofinger, P., (2013). Adam Smith: Der Segen des Egoismus, *Frankfurter Allgemeine Sonntagszeitung*: http://www.faz.net/aktuell/wirtschaft/wirtschaftswissen/die-weltverbesserer/adam-smith-der-segen-des-egoismus-12536505.html.

Brown, V. (1994). *Adam's Smith discourse: canonicity, commerce and conscience*. London: Routledge.

Calkins, M. J., & Werhane, P. H. (1998). Adam Smith, Aristotle, and the virtues of commerce. *The Journal of Value Inquiry, 32,* 42–60.

Coase, R. (1993). The institutional structure of production. In O. E. Williamson & S. E. Winter (Eds.), *The native of the firm: origins, evolution, and development* (pp. 227–235). Oxford: Oxford University Press.

Cross, R. (1982). The Duhem-Quine thesis, Lakatos and the appraisal of theories in macroeconomics. *The Economic Journal, 92*(366), 320–340.

Den Uyl, D. J., & Griswold, C. L. (1996). Adam Smith on friendship and love. *Review of Metaphysics, 49*(3), 609–637.

Dierksmeier, C. (2011). The freedom–responsibility nexus in management philosophy and business ethics. *Journal of Business Ethics, 101*(4), 263–283.

Eastman, W., & Bailey, J. R. (1998). Crossroads—mediating the fact-value antinomy: Patterns in managerial and legal rhetoric, 1890–1990. *Organization Science, 9*(2), 231–245.

Espinosa, A., Harnden, R., & Walker, J. (2008). A complexity approach to sustainability–Stafford Beer revisited. *European Journal of Operational Research, 187*(2), 636–651.

Evensky, J. (1993). Adam Smith on the human foundation of a successful liberal society'. *History of Political Economy, 25*(3), 395–412.

Evensky, J. (2005). *Adam Smith's moral philosophy*. Cambridge: Cambridge University Press.

Feyerabend, P. (1975). *Against method: outline of an anarchistic theory of knowledge*. London: Verso Books.

Forman-Barzilai, F. (2010). *Adam Smith and the circles of sympathy: cosmopolitanism and moral theory*. Cambridge: Cambridge University Press.

Friedman, M. (Ed.). (1953). The methodology of positive economics. In *Essays in positive economics* (pp. 3–43). Chicago: University of Chicago Press.

Friedman, M. (1970) The social responsibility of business is to increase its profits. *New York Times Magazine*, September 13.

Gergen, K. J. (1996). Social psychology as social construction: The emerging vision. In C. McGarty & A. Haslam (Eds.), *For the message of social psychology: Perspectives on mind in society* (pp. 113–128). Oxford: Blackwell.

Gergen, K. J. (1999). *An invitation to social construction*. London: Sage.

Ghoshal, S. (2005). Bad management theories are destroying good management practices. *Academy of Management Learning and Education, 4*(1), 75–91.

Giddens, A. (1987). *Social theory and modern sociology*. Cambridge: Polity Press.

Griswold, C. L. (1999). *Adam Smith and the virtues of enlightenment*. Cambridge: Cambridge University Press.

Griswold, C. L. (2010). Smith and Rousseau in dialogue. *Adam Smith Review, 5,* 59–84.

Haakonssen, K. (2006). Introduction—the coherence of Adam Smith's thought. In K. Haakonssen (Ed.), *The Cambridge companion to Adam Smith* (pp. 1–12). Cambridge: Cambridge University Press.

Hanley, R. P. (2004). Introduction. *The Adam Smith Review.* 1, 127–128.

Hanley, R. P. (2009). *Adam Smith and the character of virtue*. Cambridge: Cambridge University Press.

Hayek, F. A. (1975). The pretence of knowledge. *The Swedish Journal of Economics, 77*(4), 433–442.

Heilbroner, R., & Milberg, W. (1996). *The crisis of vision in modern economic thought*. Cambridge: Cambridge University Press.

Hey, J. (1997). The Economic Journal. Report of the Managing Editor, *Royal Economic Society Newsletter*, January, 3–5.

Hoppe, H. H. (1997). On certainty and uncertainty, or: How rational can our expectations be? *The Review of Austrian Economics, 10*(1), 49–78.

Huehn, M. P. (2016). Ethics as a catalyst for change in business education? *Journal of Management Development, 35*(2), 170–189.

Hühn, M. P. (2008). Unenlightened economism: The antecedents of bad corporate governance and ethical decline. *Journal of Business Ethics, 81*(4), 823–835.

Hühn, M. P. (2015a). The unreality business-how economics (and management) became anti-philosophical. *Philosophy of Management, 14*(1), 47–66.

Hühn, M. P. (2015b). Adam Smith: 18th century sentimentalist or 20th century rationalist? *Business Ethics Journal Review, 3*(4), 22–27.

Hühn, M. P. (2017). Responsible innovation: a Smithian perspective. *Philosophy of Management*. doi:10.1007/s40926-017-0057-y.

Hühn, M. P., & Dierksmeier, C. (2016). Will the real A. Smith please stand up! *Journal of Business Ethics, 136*(1), 119–132.

Kennedy, G. (2008). *Adam Smith: A moral philosopher and his political economy*. Basingstoke: Palgrave Macmillan.

Kim, K. (2012). Adam Smith's 'History of Astronomy'and view of science. *Cambridge Journal of Economics, 36*(4), 799–820.

Knight, F. H. (1921). *Risk, uncertainty and profit*. New York: Hart, Schaffner and Marx.

Kuhn, T. S. (1962). *The structure of scientific revolutions*. Chicago: University of Chicago.

Leontief, W. (1971). Theoretical assumptions and non-observed facts. Presidential address to the American Economic Association 1970. *American Economic Review, 61*(1), 1–7.

Machlup, F. (1936). Why bother with methodology? *Economica, 3*(9), 39–45.

Mäki, U. (2002). *Fact and fiction in economics: Models, realism and social construction*. Cambridge: Cambridge University Press.

Mäki, U., Gustafsson, B., & Knudsen, C. (Eds.). (2003). *Rationality, institutions and economic methodology*. London: Routledge.

Maturana, H. R. (1975). The organization of the living: A theory of the living organization. *International Journal of Man-Machine Studies, 7*(3), 313–332.

Maturana, H. R. (2002). Autopoiesis, structural coupling and cognition: a history of these and other notions in the biology of cognition. *Cybernetics and Human Knowing, 9*(3–4), 5–34.

McCloskey, D. N. (1998). *The rhetoric of economics*. Madison: University of Wisconsin Press.

McCloskey, D. (2006). *The Bourgeois virtues: Ethics for an age of commerce*. Chicago: University of Chicago Press.

McCloskey, D. (2008). Adam Smith, the last of the former virtue ethicists. *History of Political Economy, 40*(1), 43–71.

McDowell, J. (1978). Are moral requirements hypothetical imperatives? *Proceedings of the Aristotelian Society, 52,* 13–29.
Mehta, P. B. (2006). Self-interest and other interests. In K. Haakonssen (Ed.), *The Cambridge companion to Adam Smith* (pp. 246–269). Cambridge: Cambridge University Press.
Otteson, J. R. (2002). *Adam Smith's marketplace of life*. Cambridge: Cambridge University Press.
Pack, S. J. (2010). *Aristotle, Adam Smith and Karl Marx: On some fundamental issues in 21st century political economy*. Cheltenham: Edward Elgar Publishing.
Paganelli, M. P. (2009). Smithian answers to some puzzling results in the experimental literature. In J. T. Young (Ed.), *The Elgar companion to Adam Smith* (pp. 181–192). Cheltenham: Edward Elgar.
Perelman, M. (1996). *The end of economics*. London: Routledge.
Raphael, D. D. (1992). Adam Smith 1790: The man recalled, the philosopher revived. In P. Jones & A. Skinner (Eds.), *Adam Smith reviewed* (pp. 93–118). Edinburgh: Edinburgh University Press.
Raphael, D. D. (2007). *The impartial spectator: Adam Smith's moral philosophy*. Oxford: Clarendon Press.
Raphael, D. D., & Macfie, A. L. (1976). Introduction. In A. Smith (Ed.), *The theory of moral sentiments* (pp. 12–24). Oxford: Clarendon Press.
Rasmussen, D. C. (2008). *The problems and promise of commercial society: Adam Smith's response to Rousseau*. Philadelphia: Penn State Press.
Redman, D. A. (1993). Adam Smith and Isaac Newton. *Scottish Journal of Political Economy, 40*(2), 210–230.
Ross, I. S. (2004). Great works upon the anvil in 1785. Adam Smith's projected corpus of philosophy. *The Adam Smith Review, 1,* 40–59.
Rothschild, E. (2004). Dignity or meanness. *The Adam Smith Review, 1,* 150–164.
Schumpeter, J. A. (1954). *History of economic analysis*. Oxford: Oxford University Press.
Skinner, A. S. (1996). *A system of social sciences: Papers relating to Adam Smith*. Oxford: Oxford University Press.
Smith, A., (1750/2010). *Essays on philosophical subjects.* Whitefish: Kessinger Publishing.
Smith, A., (1776/1976) *An enquiry into the nature and causes of the wealth of nations, Glasgow edition of the works and correspondence of Adam Smith*, Vol. 2. Glasgow: Glasgow Publishers.
Smith, A., (1790/1976). *The theory of moral sentiments, the Glasgow edition of the works and correspondence of Adam Smith* (ed. by David Raphael), Vol. 1. Glasgow: Glasgow Publishers.
Solomon, R. C. (2008). Free enterprise, sympathy, and virtue. In P. J. Zak (Ed.), *The critical role of values in the economy* (pp. 16–41). Princeton and Oxford: Princeton University Press.
Stigler, G. (1971). Smith's travels on the ship of state. *History of Political Economy, 3,* 237–246.
Tugendhat, E. (2004). Universalistically approved intersubjective attitudes: Adam Smith. *The Adam Smith Review, 1*, 88–104.
Varela, F. G., Maturana, H. R., & Uribe, R. (1974). Autopoiesis: the organization of living systems, its characterization and a model. *Biosystems, 5*(4), 187–196.
Viner, J. (1927). Adam Smith and laissez faire. *The Journal of Political Economy, 35,* 198–232.
Vivenza, G. (1984). *Adam Smith e la cultura classica*. Pisa: IPEM.
Vivenza, G. (2001). *Adam Smith and the classic: The classical heritage in Adam Smith's thought*. Oxford: Oxford University Press.
Werhane, P. H. (1991). *Adam Smith and his legacy for modern capitalism*. New York and Oxford: Oxford University Press.
Werhane, P. H. (1999). *Moral imagination and management decision-making*. New York: Oxford University Press.
Williams, B. (1985/2006). *Ethics and the limits of philosophy*. New York: Taylor & Francis.
Winch, D. (1978). *Adam Smith's politics*. Cambridge: Cambridge University Press.