Adam Smith, realism and the urban economy

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Abstract: This paper offers an overview of the existing literature on Smith and realism. Noting alignments drawn in the extant literature between Smith's 'History of Astronomy' and The Theory of Moral Sentiments and critical realism in particular, the paper goes on to review whether further connections between Smith's work and realism may be pointed to more broadly. In doing this, we also switch the starting point, and ask whether and in what form key foundations and principles of the realist literature may open up new perspectives on Smith's work. The urban economy—which presents questions about how we identify causal mechanisms and the bases on which we can theorise about phenomena—is taken as a substantive domain for considering this interplay concerning Smith and realism.

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1. Introduction

The purpose of this paper is two-fold: first to draw on the modern discourse on ontological reasoning to enhance our understanding of Adam Smith as a realist and second to consider how Smith's application of his realist approach can enhance our understanding of the modern ontological perspective. While the work of any historical figure in economics provides material for ontological analysis, Smith is a natural subject. A background in metaphysics meant that different aspects of Smith's ontology were explicit in his moral philosophy and in his economics.

The broad reach and intellectual depth of Smith's body of work belie the capacity for straightforward accounts to capture its complexity and evolutionary path of development. Inevitably here we are selective in terms of reference texts and their interpretation, recognising that other selections and interpretations could have been made. The chosen focus of ontological reasoning nevertheless allows us to tease out a consistent account which can contribute to the existing realist readings of Smith. Most analyses of Smith with respect to realism refer mainly to his philosophy of science and also his moral philosophy. Here we carry the analysis forward to his economics, focusing on the *Wealth of Nations* (Smith, [1776] 1976, hereafter WN).

We select a feature of Smith's economics which has received relatively less attention than others as a useful context for considering Smith's realism. His contributions on the urban economy in the *Wealth of Nations* provide a domain by which to consider how and how far realism features in his work. But first we discuss the concept of realism itself since it is complex and open to a variety of interpretations. Here we consider realism in broad terms, drawing on Smith's context in the Scottish enlightenment. But for all the difference in (real and intellectual) context, we draw also on modern discussions of critical realism and scientific realism in order to interpret Smith's writing on the urban economy. To connect this to contemporary empirical concerns, we position Smith alongside the literatures on urban economics and economic geography. For clarity, we consider 'urban economics' to relate more closely to an economics view of urban spatial systems, whilst we consider 'economic geography' to reflect more of a

human geography view of the same spatial systems (these views are often, though not always, distinct)[1].

The aim is more to suggest lines of connection between realism broadly conceived in modern discourse and Smith's work than to take a firm view on which branch of realism provides a more authentic view of Smith's writing on the urban economy. The extent of different modern interpretations of Smith's economics and his methodology is well-known (Winch, 1997, for example), so it should not be surprising that there should also be different modern interpretations also of his ontology and epistemology.

The discussion in section 2 considers Smith's ontology in terms of his theory of human nature as set out in the *Theory of Moral Sentiments* (Smith, [1759] 1976, hereafter TMS) and his philosophy of science as set out in his essay on 'The History of Astronomy' (Smith, [1795] 1980, hereafter HA). The discussion includes a focus on assessing the compatibility of Smith's ontology and his methodology. We draw on others' work on Smith's realism, notably that of Montes (2003) but also that of Schliesser (2005) and Wilson and Dixon (2006), all of whom have found Smith's approach to be compatible with critical realism. Indeed Lawson had earlier identified such a compatibility in the *Wealth of Nations*:

> it is easy enough, in places, to read into Smith's account something like the critical realist 'position-practice' system (Lawson, 1994, p. 531).
>
> [Smith's] general vision ... [is] one of a reality structured by power relations and opposed interests and moved by, among other things, perpetual conflict and tendencies to disorder. In short, it is the sort of vision that only a transcendental realist perspective, or one very much like it, can accommodate (Lawson, 1994, p. 533).

Analysing Smith's contributions to urban thinking in section 3, we consider how Smith's practice, based on his philosophy of science and his theory of human nature, can illuminate modern realist debates over the merits of models and possibilities for prediction.

[1] In different renditions, there are crossovers and connections between the terms 'urban economics', 'spatial economics' and 'geographical economics'. We focus on the former for the purposes of consistency in this paper. Marchionni (2004) refers to the differences between economic geography and geographical economics in her comparison.

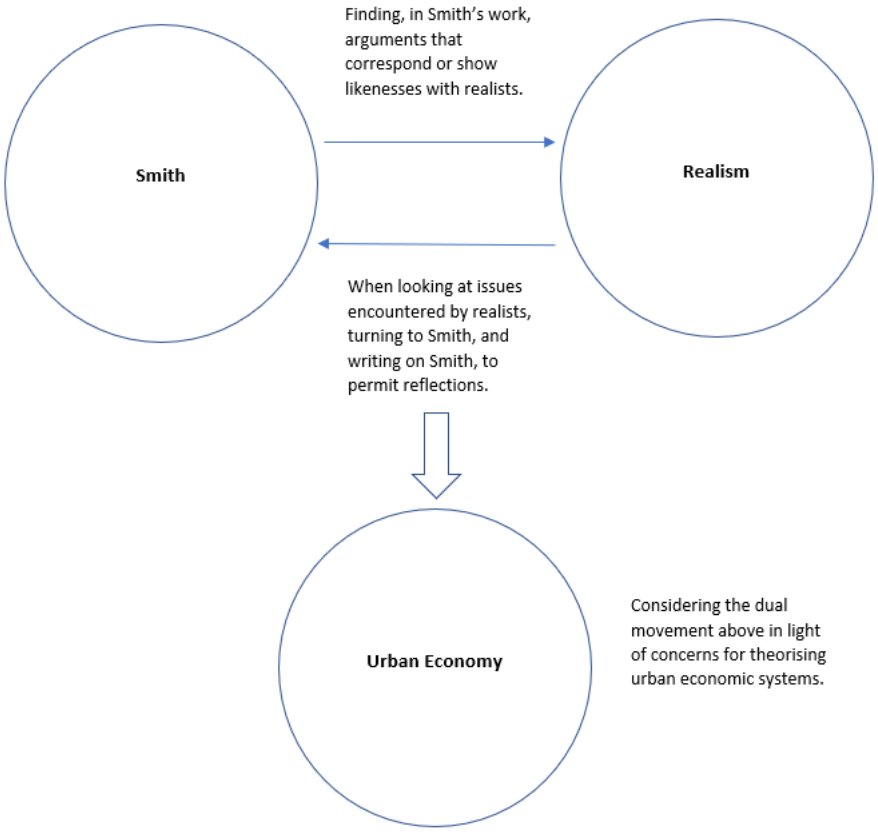

Fig. 1. *Sequence of argument and approach*

Source: authors' own illustration

The schema for the paper is set out in Figure 1 above.

The general approach of identifying Smith with realism is supported by Fiori's (2024) detailed exploration of the range of interpretations in the Smith literature. Fiori defines Smith's particular form of realism as follows: 'Smith had no doubts that external reality exists, but believed that it is necessarily filtered by our perceptions and our scientific beliefs' (*ibid*., p. 804). Because of the range of forms and applications of realism in the modern literature, Hodge (2008, p. 165) attempts to identify the basic ideas held in common by realists[2]. First it is held

[2] See also Boylan and O'Gorman (1995, pp. 89-93).

that theoretical statements are (or may be) true or false. Second this truth or falsity, and indeed the existence of the world, are independent of the theorist[3].

The third feature often identified with realism is that 'it is possible to know what the independently existing objects and their properties in the world truly are. ... [That] is the task of science and the role of theory' (Hodge, 2008, p. 165). But for many realists such efforts are inevitably fallible. Boylan and O'Gorman (1995) argue nevertheless that scientific realism envisages fallible theoretical explanation at least as getting closer to the truth about unobservable entities over time[4].

Lawson (2015b, p. 5) is clear about the fallibility of knowledge:

> Any realism has it that there is a world that exists at least in part independently of, and certainly prior to, any knowledge claims that are formed about it. Accordingly, all claims or beliefs about this reality are fallible, and the truth status of any such claims and beliefs depends not on us but on the way the world is.

Accordingly, Mäki (2002) distinguishes between 'weak' realism and 'strong' realism whereby theoretical statements only 'may be', rather than 'are', identified as true or false, respectively. This distinction arises from a discussion of the variety of understandings of realism evident in modern economics discourse. Similarly, Mäki and Oinas (2004) identify a 'thin' philosophical 'CoreRealism' defined in simple ontological, semantic and epistemological terms, without commitment to any particular ontology and associated methodology. What they term the 'thick'

[3] This condition is distinct from an understanding of the nature of the social world as being influenced by the epistemology of its constituents.

[4] Sayer (2004, p. 1778, n. 2) addresses the problems posed by the realist goal expressed in terms of truth as follows: 'Another definition of realism in terms of the belief in the capacity of scientific theories to refer to real-world entities, and to attribute (successfully or unsuccessfully) properties to them, is curious. It is not that I disagree with the claim that theories can refer to real entities, but the point was one generally made against empiricists who believed that only observation languages could refer to such entities, and for whom theories had a shadowy, at best heuristic function for ordering data. The definition also fails to take its distance from the very notion of a clear-cut distinction between factual and theoretical statements. The definition is therefore curiously dated in terms of how the debate has moved on since the days of logical empiricism'.

‘GeoRealism' of human geographers, based on a specific metaphysical (and associated methodological) stance, is seen to be philosophically limiting.

Yet by identifying the ontology of an individual figure in economics the realism inevitably becomes thick. In his critique of Mäki and Oinas (2004) as being unduly minimalist, Sayer (2004) argues for a thick form of realism which allows efforts to form (fallible) knowledge about real entities and their properties:

> Although critical realists are more epistemologically cautious than Mäki and Oinas, they are nevertheless `optimistic' about the possibility of scientific progress to the extent that they argue that it is often possible to distinguish more true from less true theories, and to reduce illusion (Sayer, 2004, p.1780).

Hodge (2008) also explores in detail the differences in origin and content between Mäki’s scientific realism and Lawson’s account of critical realism. A key methodological issue dividing these accounts is that Mäki’s scientific realism presents an acceptance of modelling as a key tool of science while Lawson rejects formal modelling with respect to an open system subject matter. (We return to this issue in section 3.)

The primary characteristic of critical realism is an emphasis on the need to specify or identify the ontology underpinning one’s own approach or that of the object of interpretation. Second, in an expression of thick realism, it is held that a social ontology and its structures are layered, consisting of the empirical (experience and impression), the actual (events) and the real (potentially countervailing powers and mechanisms), all of which may be out of phase. While the real layer is inaccessible directly, it is the purpose of science to tease it out. Third, the social world consists of a system which is intrinsically and extrinsically open, characterised by emergence. The identification of real powers and tendencies is therefore context-dependent, given the capacity of context to evolve. Causal mechanisms are pursued by a process of retroduction involving abstraction in the form of simplification rather than fictionalisation (or isolation) through fully-specified conditions.

For critical realists the fallibility of knowledge, in spite of the realist goal of truth, is due to a range of factors: the independence of reality from our knowledge of it; the necessarily provisional nature of theorising about an evolving open system; and the fact that retroductive reasoning means that

> [o]ur knowledge about such powers and mechanisms is regarded as a transitive 'produced means of production' derived from the assembly of facts, hunches, hypotheses, intuitions etc. at any given time and which is in a continual state of flux as these assemblies are transformed over time by 'the laborious social practice of science' (Lawson, 1997, p. 25).

Thus, while some have interpreted Smith as the inspiration for the general equilibrium theory of markets there is a substantial literature presenting the argument that this interpretation is seriously at odds with textual evidence (see e.g. Winch 1997; Montes, 2003, ch. 5). Rather it is argued that Smith's approach to science and to economics has much more in common with modern open-system theorising, as in heterodox economics, much of which subscribes to a greater or lesser degree to critical realism (Lawson, 2003; Downward, 2003).

In what follows we will examine Smith's work for these various features of realism, and we make reflections concerning his work on the urban economy.

2. A realist reading of Adam Smith

Smith's approach does not fit well with the conditions for realism as set out by Hodge, since he saw our access to external reality as being mediated by 'perceptions and scientific beliefs' (Fiori, 2024, p. 804). In fact his epistemology can contribute readily to understanding the qualifications to the conditions discussed above, particularly in the critical realist literature. We explore in what follows the nature of Smith's epistemology and how it followed from his theory of human nature.

Adam Smith was one of the leading figures in the Scottish enlightenment. But to understand his own contributions, and in particular his stance on realism, we need to understand his intellectual context—what he drew from it and where he diverged from it. Natural law philosophy played a key part in the evolution of Scottish moral philosophy from the seventeenth century (Forbes, 1982). While the focus was ontological, on the origins and character of human nature, of moral sense and the nature of society, equally important was the epistemological approach brought to the enquiry. Hobbesian arguments that it was a universal feature of human nature to be self-interested and Rousseau's argument that human nature instead evolved from its original state in the noble savage were challenged for their *a priori* justifications. Instead an interpretation of Newtonianism as an alternative to deductivism was adopted early in Scotland,

replacing Cartesianism (Shepherd, 1982; Comim, 2002)[5]. Here we see the emerging character of Scottish enlightenment realism, building on a long running discourse on human nature and epistemology.

Smith's moral philosophy teacher Hutcheson was a particular influence on him but Smith departed from Hutcheson's argument that moral sense was a (natural) innate sense. Smith also distinguished his moral philosophy from Reid's common sense philosophy with its emphasis on an innate capacity for judgement. Common sense philosophy was realist in that it emphasised the importance of common-sense belief in the existence of the material world independent of ideas and Smith shared much with common sense philosophy in seeking to build a theory of human nature on realist grounds. But he sought to uncover the causal mechanisms at work in human nature in psychological terms of system with respect to human faculties and propensities, rather than in terms of Reid's innate epistemological principles (Young, 1997; Comim, 2002)[6].

Here we see Smith diverging from a traditional natural law view of individual reasoning and behaviour being governed by intrinsic values towards an evolutionary view of moral sentiments being forged at a social level. We can see that the different interpretations of Smith as proposing a deterministic universalist natural law-like account of the development of society on the one hand and proposing a more evolutionary account of emergence on the other stem from different understandings of natural law philosophy and its influence on him[7]. Forbes (1982, p. 202)

[5] Smith was well aware of the arguments against deductivism developed in Hume's ([1739-40] 1978) *Treatise of Human Nature*. Strawson's (1989, ch. 7) analysis of Hume's realism pursues the logic of the inaccessibility of true knowledge of the nature of the real world and the difficulties this poses for realism.

[6] According to Comim (2002, p. 97), these principles 'consisted in the common sense of humankind, which reflected the powers of conception and judgement: the foundations of our sense of reality'.

[7] Lawson (2015a, ch. 4, n. 29) identifies these two understandings with different interpretations of Marx with respect to classical political economy.

concludes a nuanced analysis of the evolution of natural law philosophy within the Scottish enlightenment by arguing that Smith and his contemporaries:

> were not turning their backs on [their predecessors] so completely as perhaps they thought, but were ... continuing the process of making natural law secular, empirical, sociological, popular and practical that had begun in the century before.

For Smith the exercise of the capacity for sympathy is a fundamental causal force within his theory of human nature. It is a multi-faceted force which arises from a plurality of perspectives. It involves the individual's own perspective, her understanding of another's perspective with respect to her behaviour and also the behaviour of the other individual, and finally the perspective of an independent observer, the 'impartial spectator'. The exercise of sympathy is evident in market exchange where price offers reflect a judgement as to what might be acceptable to the buyer and also to the seller's own moral judgement. Moral judgement is exercised not just within social interactions but also through the perspective of the impartial spectator, facilitated by the (imperfect) imagination. As Wilson and Dixon (2006) explain, Smith's complex notion of sympathy is to be distinguished from the propensity for benevolence. Sympathy refers to a capacity for appreciating differences of perspective when it comes to moral judgement, while benevolence refers to a particular moral stance. Further it is sympathy applied to notions of justice which explains the evolution of social systems addressed to the social good.

Smith focused on how civic ethics helped to forge the development of a constructive, cohesive liberal society (Evensky, 2001). This evolutionary process could be understood best in systemic terms with reference to underlying forces behind the reproduction and transformation of social structures, of which the exercise of sympathy was the key. Just as individuals as social beings engage in social interactions, including market interactions, applying their imaginations in order to understand the perspective of other individuals, so at a social level conventions and institutions also evolve through the exercise of sympathy, particularly on the part of the legislator, as the underlying causal mechanism. The exercise of sympathy is thus presented as a causal mechanism underlying behaviour, both between individuals and between individuals and society, governed by psychological factors. But for Smith social systems evolved differently according to local context, challenging any universalist interpretation. He drew 'attention to the fact that societies are not homogeneous', raising the 'possibility of a conflict

of values' (Campbell and Skinner, 1976, p. 17). The upshot is Smith's view of society as a system which is intrinsically and extrinsically open.

By setting out to investigate the *nature and causes* of the wealth of nations, Smith's realism is made explicit in the language used in the title of his seminal contribution to economic thought. Indeed this alone can be taken as an indication of compatibility between Smith and critical realism, as explored in detail by Montes (2003, ch. 5). While Smith's economics, like his moral philosophy, is built on the causal forces of human motivation, it is motivations other than the exercise of sympathy that are singled out. Indeed the emphasis is on such causal forces as the 'general disposition to truck, barter, and exchange' (WN, I.ii.5) and, importantly, on self-love:

> [M]an has almost constant occasion for the help of his brethren, and it is in vain for him to expect it from their benevolence only. He will be more likely to prevail if he can interest their self-love in his favour (WN, I.ii.2).

While much has been written on the apparent contradiction between the theory of human nature expressed in the *Theory of Moral Sentiments* and that applied in the *Wealth of Nations* (the 'Adam Smith problem'), the view of the editors of the 1976 edition of the latter is now widely shared, that Smith's individual works should be considered as parts of a systemic whole, each with its own emphasis. It is the behaviour of the social beings of the *Theory of Moral Sentiments* which creates the conditions for economic organisation and activity[8].

The causal forces underpinning the economic system operate at the level of the real; like gravity they are imagined rather than directly observed, unlike the resulting actual events. Further there is scope for example for the exercise of sympathy, as a multi-faceted force, to involve countervailing tendencies further impeding direct observation. Wilson and Dixon thus make the case that Smith's realism accords with the emphasis of critical realism on emergence, and tendencies: '… his concern is with the real: the condition of possibility of our actings' (Wilson and Dixon, 2006, p. 272). Social systems are open, the product of human nature.

This emphasis on (possibly countervailing) causal tendencies which are not directly accessible is central to the conclusion that Smith employed an open-system ontology, something he shared with Hume. For example, Hume ([1777] 1975, VII.1.52.66) referred to the causal tendencies operating within the human body as 'mysterious and unintelligible' (Dow, 2002, p. 688).

[8] The distinction between sympathy and benevolence is important for interpreting the self-love of the *Wealth of Nations*.

Nevertheless, anticipating the layered ontology of critical realism, the aim was to probe the nature of these tendencies. The aim of philosophy as 'the science of the connecting principles of nature' was to endeavour 'to introduce order into this chaos of jarring and discordant appearances' (HA, II.12) [and to] 'lay open the concealed connections that unite the various appearances of nature' (HA, III.3).

As Kim (2012, p. 816) puts it:

> Smith recognised that the world is a multidimensional, relational complex and, thus, in a sense, an open system, and that the patterns and regularities deduced from the hypothesised model may not necessarily be realised at the actual level of reality.

Smith's essay on 'The History of Astronomy' (HA) provides an explicit expression of his ontology and epistemology. He intended this essay to be a case study in support of his theory of human nature as developed in the *Theory of Moral Sentiments*. It aimed to demonstrate the ways in which human faculties and propensities influence the conduct and appraisal of science. The underlying methodology of science which Smith adopted accords with the Scottish interpretation of Newton's experimental method which Montes (2003) explains as further evidence of Smith's compatibility with critical realism (see further Montes, 2006, 2008).

While for Smith human faculties included the capacity for reason and observation of experience, what motivated the pursuit of knowledge was primarily the sense of wonder and surprise which arise from observing unexplained events (HA, I; see further Schliesser, 2005). New explanations were then accepted or not within society as a result of a range of psychological factors including aesthetics, and conformity to conventional understandings and judgements. The latter reflect moral judgements with respect to this conformity, as in the moral standing of those upholding conventions, most evident in the Church's stance on astronomical explanations. Motivation and appraisal were thus driven by the forces of moral sentiment and the imagination, both of which underpin Smith's driving force of sympathy (Montes, 2003, ch. 2; Wilson and Dixon, 2006).

While the natural sciences draw on material evidence, in the social sciences experimental evidence consists of in-depth study of experience from different historical and geographical contexts. Metaphor and analogy are then used by both types of science as aids to the imagination in forming hypotheses. They are also used for communicating theory in an effort to persuade audiences, i.e. for theory appraisal. Lewis (1999), writing in the critical realist literature, explains the key role played by metaphor in such efforts to overcome the scientific challenge

posed by the lack of direct access to causal tendencies and thus to demonstrating truth. Postulated tendencies are then arrived at by a process of retroduction, abstracting from the detail of context. Since the scientific challenge is the inaccessibility of the real, it is impossible to specify exactly and completely from what the analysis abstracts. Smith's ontology thus rules out the method of isolation which requires such specification, suitable for closed-system argumentation. Rather, Smith's methodology uses abstraction with a view to generating provisional, partial arguments which can be applied to a real context by means of *reversing* the abstraction. This requires abstraction by simplification, rather than by fictional assumptions which cannot be reversed. This methodology allows provisional theoretical propositions to be assessed in relation to evidence from a range of contexts and, if appropriate, amended in a further round of retroduction.

Abstraction thus provides a framework for analysis rather than a universal explanation and is open to revision as the experience of the subject matter evolves. Such evolution is particularly pertinent for the social sciences given the scope for social transformation and the indeterminacy of the underlying causal forces. While it has been noted as a curiosum that Smith pays so much attention to evidence of exceptions to his general principles (see e.g. Paganelli, 2022), in fact this was exactly what was to be expected from the approach to history implied by Newtonian methodology (Dow, 2020). It was through such analysis that the nature of the simplification employed in the process of retroduction could be fleshed out.

Yet Smith was clear in his 'History of Astronomy' that the capacity to establish a categoric account of causal mechanisms was limited to human capabilities to infer explanations at the level of the real from the empirical and the actual levels.

> Who wonders at the machinery of the opera-house who has once been admitted behind the scenes? In the Wonders of nature, however, it rarely happens that we can discover so clearly this connecting chain (HA, II.9).

Yet he warned of the temptation to assume that it is the real that has been uncovered by the imagination:

> [E]ven we, while we have been endeavouring to represent all philosophical systems as mere inventions of the imagination, to connect together the otherwise disjointed and discordant phaenomena of nature, have insensibly been drawn in, to make use of language expressing the connecting principles of this one, as if they were the real chains which Nature makes use of to bind together her several operations (HA, IV.76).

Smith used the metaphor of 'imaginary machine' to apply to systems of astronomy 'invented to connect together in the fancy those different movements and effects which are already in reality performed' (HA, IV.19). Such imagined systems were part of the overall retroductive process of theorising to be followed by further consideration when applied to new contexts. The best that the Newtonian methodology could produce therefore was accounts which were psychologically satisfactory in the search for truth and in the light of experience, and which were provisional in the face of an evolving open system. As Kim (2012, p. 818) puts it:

> Smith's rules in favour of the best explanation gave priority not only to explanatory and predictive adequacy, but also to coherence with promising cosmology and physics as presupposed by astronomy, which come to reflect a critical realist strategy … the aesthetic principle enters into the context of justification as a complementary standard.

For Smith, knowledge was fallible. As Schliesser (2005, p. 708) puts it:

> Although Smith does not speak of truth, he does give reasons (i.e. simplicity, distinctness, comprehensibility, lack of reasonable competitors and accounting for the phenomena) for why the doctrine can be considered as the 'established' system that is not merely 'sociological' in nature.

We thus see Smith treading a path which avoided both determinism and constructivism in such a way as to be compatible with modern realism, especially critical realism, with its aim to uncover real causal mechanisms which are not directly accessible. Smith exhibits a number of characteristics that critical realists make a claim to: a layered ontology, an ontological focus on human nature, and society as an open system, the goal of identifying causal mechanisms as tendencies employing a retroductive methodology, and an acceptance (and accommodation) of the fallibility of theoretical explanation[9].

[9] Onto the basic form of the critical realist approach Lawson has developed an additional theory of critical ethical naturalism:

> Because social reality is open, as indeed are all future forms of social determination, it will be evident that, unlike in the favourite hypothetical setups of professional philosophers, there will rarely be a single objective or course of action to uncover, or form of action of consideration to be brought to bear in

3. Realism to Smith through the domain of the urban economy

3.1 Smith on the urban economy

So far we have considered how realism (specifically critical realism) can be found in Smith's theory of human nature and his philosophy of science. We now turn to the aim of filling an apparent lacuna in the literature with respect to the reverse assessment; that is, how Smith's writing, and reflections on this writing, may shed light on problems and issues in the realist literature. Here we consider Smith in relation to realist debates on the role for models and the possibilities for prediction. We pursue this discussion within the domain-specific concerns of the urban economy, drawing particularly on the *Wealth of Nations* where Smith's philosophy of science was put into practice, as well as commentaries given by Stull (1986) and Camagni (2023). We argue that, whilst Smith's writing in the *Wealth of Nations* is not explicitly realist, we can point to links and affinities. The discussion reflects the different ways in which 'models' are understood, either referring to formal mathematical structures or to a broader process whereby patterns of causal relations are retroduced from observation[10].

We consider ideas on the urban economy through both *urban economics*, on which Mäki offers insights, and the *human and economic geography* perspective, where Lawson's ideas command greater sway. Both urban economics and (human and economic) geography share the same target object (that is, change in the urban economy broadly). However, they markedly differ on the use of formal models to aid explanation, with urban economics being in favour (or disposed to use) (Henderson and Thisse, 2024), and geographers typically being reluctant, sceptical or simply against (see e.g. Sayer, 1978). More crudely, urban economists may be regarded as those who bring an economics toolkit to problems of the spatial economy, whilst economic geographers reject or at least look beyond that toolkit (also see Overman, 2004). The two areas

> decision taking. Openness underpins plurality in ethics just as it does in social science (Lawson, 2015b, p. 6).

[10] Morgan and Morrison (1999) survey the complex history of the concept of models. The concept is considered further in the next subsection as it applies to Smith and urban studies.

see substantial cleavages in ontology and methodologies between them, despite repeated calls for dialogue given common empirical targets (Duranton and Rodríguez-Pose, 2005).

Claims for Smith as a key thinker on the urban economy can be found in both literatures. Hanlon and Heblich (2022, p. 3), who consider the potential for 'historical work on urban and regional economies to inform…', reflect on Smith's foundational role: 'At least since Adam Smith's inquiry into the nature and causes of the Wealth of Nations, economists have sought to uncover the factors that drive differences in development'. Meanwhile, Ioannou and Wojcik (2022, p. 5432) point out affinities between Smith and economic geography, where they remark: 'Smith approached the study of the economy in ways that should resonate with today's geography'. Though we focus more specifically on the urban economy, we take a similar position to Camagni (2023, p. 65), who writes from the connected area of regional science:

> Regional science, too, due to its interdisciplinarity in the sphere of society and territory and its attention to institutions, would draw important suggestions and deep inspiration from a more profound understanding of Smith's work, which could prove crucial for its further development and renewal.

Smith covered substantial ground in laying out how the urban economy worked within a wider spatial system. Indeed, references to urban contexts are peppered through the *Wealth of Nations*. Though urban economists now typically turn to Marshall for an outline of first principles, Smith (as pointed out by Stull, 1986, 300), in the *Wealth of Nations*, gives a clear statement of the role of agglomeration in commercial society:

> Smiths, carpenters, wheel-wrights, and plough-wrights, masons, and bricklayers, tanners, shoemakers, and tailors […] naturally settle in the neighbourhood of one another, and thus form a small town or village. The butcher, the brewer, and the baker soon join them, together with many other artificers and retailers […] The town is a continual fair or market, to which the inhabitants of the country resort in order to exchange their rude for manufactured produce (WN, III.i.4).

That certain activities required urban size was also remarked upon:

> There are some sorts of industry, even of the lowest kind, which can be carried on nowhere but in a great town. A porter, for example, can find employment and subsistence in no other place. A village is by much too narrow a sphere for him; even

> an ordinary market town is scarce large enough to afford him constant occupation (WN, I,iii.2).

The notion that labour specialisation, and workers being able to focus on a narrow set of tasks, matters for urban economic change, remains a major principle of the contemporary urban economics literature (Puga, 2010; Duranton and Jayet, 2011)[11].

Within Smith's writing, furthermore, we can see varieties of urban economic activity portrayed, such as that exhibited by an emerging financial centre. In one digression in the *Wealth of Nations*, Smith details Amsterdam as 'the great warehouse of Europe for bullion' (WN, IV.iii.b.11), where a banking institution is established to support exchange activities that 'derives a considerable revenue' for the city (WN, IV.iiib.17). We can also obtain a view on how different forms of economic activity at an urban location interact and perhaps suppress each other: 'There was little trade or industry in Edinburgh before the union. When the Scotch Parliament was no longer to be assembled in it … it became a city of some trade and industry' (WN, II.iii.12).

Stull's (1986) paper 'The Urban Economics of Adam Smith' provides a useful entry point to consider Smith's urban view as being located within the 'four stages' approach to development. After laying out each stage (in sequence)—hunting, pastorage, agriculture and commercial—Stull (1986, p. 294) points to an almost necessary shift:

> Since for Smith agriculture is always the industry of the country and commerce the industry of the city, society necessarily becomes more urbanized as this process unfolds. This suggests that Smith's theory of growth can also be interpreted as a theory of urbanization.

Paganelli (2022) takes aim, however, at the claim that Smith adhered to a model of development through the four stages which is deterministic. Her account suggests rather that a taxonomy of 'states' of development is given, and fundamentally that 'exogenous' shocks are required to render empirical plausibility to movement across the stages. Paganelli (2022, p. 102) goes on to posit an alternative reading that inverts the progression of stages:

[11] Duranton and Jayet (2011) consider the division in terms of the spatial distribution of 'scarce occupations'.

> For Smith, is the deterministic model of stadial development commonly adopted by his peers actually the appropriate model to explain development? What if a better model is the 'inverted' model … [of cities as economic drivers for the country]?

Smith's writing on the inter-dependencies between the country and towns, places his writing as the forerunner to the later writing of Von Thünen which has been foundational in urban economics (Fujita, 2012). This is manifested through the consideration of the dispersion of land uses around a market centre (town) as shaped by different intensities of agricultural output and variable transport costs. Indeed, in the *Wealth of Nations*, Smith (WN, III.i.1) notes:

> The corn which grows within a mile of the town, sells there for the same price with that which comes from twenty miles distance. But the price of the latter must generally, not only pay the expense of raising and bringing it to market, but afford, too, the ordinary profits of agriculture to the farmer.

Such a rendition leads Camagni (2023, p. 33) to observe:

> We find here a clear definition of situation or location rent as a saving on transport costs, together with the full Von Thünen formula of bid rent in spatial equilibrium, fifty years before him.

Further, Stull (1986, p. 303) considers Smith's growth process in terms of his discussion of town and country, and as an application of Smith's core principle of the division of labour:

> The inhabitants of the country purchase of the town a greater quantity of manufactured goods, with the produce of a much smaller quantity of their own labour, than they must have employed had they attempted to prepare them themselves. The town affords a market for the surplus produce of the country, or what is over and above the maintenance of the cultivators, and it is there that the inhabitants of the country exchange it for something else which is in demand among them. The greater the number and revenue of the inhabitants of the town, the more extensive is the market which it affords to those of the country... (WN, III.i.1).

Reflecting the broad scope of Smith's writing on the urban economy, Stull (1986, p. 310) concludes his enquiry as follows:

> Smith's urban analysis is a remarkable achievement. Not only does it anticipate much of the modem textbook treatment of urban growth and structure, but it also is integrated in a seamless way with the main corpus of his economic theory.

Meanwhile, Camagni (2023, p. 50) summarises Smith's contribution as 'a wide fresco on socio-economic transformation, moving equilibria, and long-term development'.

Having restated Smith's foundational relevance, we can now turn to consider his approach in terms of theorising urban economic phenomena. We structure this argument initially with reference to models and model use. The intent here is to show how a reading of Smith (and work on Smith) inspires or prompts us to reflect on contemporary approaches to engaging the urban economy as an explanatory problem within the social sciences. Moreover, we ask what common points or affiliations can realist approaches draw from a Smithian account.

3.2 Smith, models and realism

Models and their use, as intimated prior, is a key dividing line between urban economists[12] and economic geographers. For Mäki, modelling is almost coterminous with theorising regardless of ontology. He gives a useful definition of a model as follows:

> It is to serve as a surrogate object. Scientists often start their investigations by building a model and examining it instead of trying to enter into a direct contact with what the model is about, viz. its target. Scientists use models as surrogate objects that stand for and represent the target objects of their inquiries. Modelling thus is an indirect method of inquiry (Mäki, 2018, p. 221).

The extract introduces core ideas of a model—the target and the surrogate object—yet models can widely vary in terms of their application and empirical engagement. The quote, taken from Mäki's (2018) response to Rodrik (2015), also engenders issues regarding realisticness, as opposed to realism. The point from Mäki here is that the latter can survive under the lack of the former; that is, you can have a theory based on the operation of observer-independent, causal mechanisms within a model that is not realistic (in terms of a target phenomenon/object),

[12] A prominent model used by urban economists is the Rosen-Roback spatial equilibrium model to consider location choices according to different factors that are traded off (rents, wages and amenities).

provided, ideally, that the lack of realisticness is 'negligible' (Mäki, 2018, p. 227) or does not significantly impact the model's conclusions.

In outlining a case for CoreRealism, Mäki and Oinas (2004, p. 1769) further elaborate on the potential fit between model use and realism:

> Covering-law explanations may be lined up with realism: one believes there are general laws in the real world, does one's best to discover them so as to make true claims about them, uses one's best conjectures about them in explanations, and explains phenomena in terms of such general-law statements conjoined with singular claims about contingent initial conditions. Forms of modelling may be attempts to truly describe the structure and functioning of real causal mechanisms in isolation from interfering causal influences regardless of whether the models are quantitative or qualitative, mathematical, verbal, or diagrammatic.

This gives a view of realism that accepts in Fleetwood's terms 'isolating for closure' (2017, p. 45),and stands in contrast to the open systems view held to be essential by critical realists. This process is distinct from abstraction which is a method whereby the nature of the simplification cannot be fully specified given an open-systems ontology (among other things, limiting mathematical formalisation)[13].

The idea of a 'model', as discussed by Mäki as fitting a form of realism, brings into view a key fault line with Lawson. Lawson (1997) is highly sceptical about the usefulness of modelling, especially formal mathematical modelling which, he argues, can only be justified by a closed-system ontology (see also Fleetwood, 2001). Others take an alternative position, allowing for models, including formal models, as partial, provisional arguments within an open theoretical structure (see e.g. Chick and Dow, 2005; Setterfield, 2003). Here we explore the possibility that Smith would himself have adopted a moderate position. As above, we do this informed by Smith's own writings, but also using work developed by others on Smith's urban gaze.

A body of research has considered whether Smith used models. Model use by Smith is referred to by Paganelli (2022, p. 97) with reference to Smith's recourse to imagination. In Hardt's (2023) account, meanwhile, and with reference to Smith's concern for 'imaginary machines', 'many similarities' with the core aspects of model building are pointed to. In contrast, Morgan (2012, p. 378) points, referencing Smith, to an approach to economics which is 'qualitatively

[13] Mäki (2012, p. 4) identifies Von Thűnen as the first to articulate the nature and role of isolation.

very different' from what we observe today, which is '… largely dependent on small mathematical or diagrammatic models'. Elsewhere, nevertheless, Morgan (2013; also see Morgan, 2001) has argued that there remains an ongoing concern within economics for telling stories, as indeed Smith does, as such stories provide effective reasoning tools. Key here, perhaps, is to differentiate modelling, as recognised in economics today, from more basic model forms that still reflect a core model function through abstraction; 'depicting some aspect of the economy in a schematic, miniaturized, simplified, way' (Morgan, 2012, p. 3)

Smith's model view is not presented in a concise form but over many pages of the *Wealth of Nations* (Stull, 1986, p. 294). In Stull's (1986) rendition, Smith presents a view of urban life, in the *Wealth of Nations*, which tries to elicit key relations and tendencies rather than give a full account of urban economic life. This asks, in essence, can horizontal limitations on the set of objects be made that nevertheless offer a useful lens on the target phenomena (Marchionni 2004)? In that Smith does evince a basic model view—as per Stull's (1986, pp. 294-310) overview—we can see in Smith's writing the identification of a series of key dimensions: stages of social development; land and transport interactions; the spatial diffusion of specialisation; levels of hierarchy of commercial centres with ordered functions, acting as key parameters to consider urban change through technical change and the evolving division of labour.

Camagni (2023, p. 50) arrives at a similar reflection:

> Smith did not develop a fully dynamic model of the economy in the sense that we attach to the term today, not disposing of the necessary mathematical tools. But he did understand which were the driving forces of progress at large, their complex interactions, and their effects on the (intertemporal) equilibrium conditions of the economy. He consequently elaborated a long-run, historical vision of a developing society moving slowly from a 'rude' primitive condition to agriculture, manufacturing, and trade.

Though Smith's model use barely resembles what we would consider to be economic modelling now (in terms of specifying isolations), it is nonetheless a 'model world' (Mäki, 2009) based on critical assumptions which are indicative of abstraction as defined above.

We argue that Smith's 'model' use may align or show correspondences with a realist perspective and we wish to make a few remarks here. First, concerning the model view above, and given that Smith analyses each dimension in relation to its real context, it can be argued

that the assumptions invoke provisional closure through simplification rather than idealisation—two very different types of unrealisticness (see further Grüne-Yanoff, 2011). Any isolation is thus provisional since simplifications can be reversed for further enquiry.

A second, but related, consideration may be to draw distinctions between Smith's philosophy of science (as given in 'The History of Astronomy') and his writing about urban economic systems in the *Wealth of Nations*, which may be open to law-like interpretations. As others have argued, Smith believed in the creation of theory rather than discovering theories and revealing the 'laws of nature' and recognised the complexity of humans and their motivations (Ioannou and Wojcik, 2022). Nevertheless, it is clear in the *Wealth of Nations* that Smith saw firm regularities in socio-economic life, through, for example, an implicit hierarchy of towns and cities (Stull, 1986, pp. 300-305), and in the interactions between capital and revenue, and 'idleness' and 'industry' (WN, II.iii.10). Stull (1986, p. 295), for example, points to the following principles, operating at the 'late agricultural stage or the commercial stage', which work cumulatively to form a growth process in Smith's work:

> The first [fundamental principle], one of the most famous in economics, states that the division of labor is limited by the extent of the market. The second, less prominent in *Wealth* but no less important analytically, asserts the reverse: the extent of the market is limited by the division of labor.

Duranton and Jayet (2011) give supportive evidence concerning the former within agglomeration processes, however, here we simply raise the conundrum of whether such statements imply inviolable law-like processes, or whether these may be considered in terms of demi-regularities, as per the critical realist perspective.

Smith's approach plausibly follows Newton's experimental methodology whereby abstract principles were retroduced from extensive in-depth study of different contexts, not as inviolable natural laws but as reference points for further enquiry. Theory was provisional, open to revision in the face of relaxing assumptions for application to different contexts, The *Wealth* is replete with references to relevant experience in a wide range of times and places. As Perri and Pesciarelli (1996, p. 37) put it in their consideration of Smith's analysis of town and country: 'Smith's aim was to elaborate an ideal scheme — the natural course of things — which could be compared with the real one in order to suggest ways in which the gap between them could be bridged'.

This quotation and its reference to the 'ideal' and the 'natural' illustrates the significance of terminology for debates over Smith, with relevance also for its role in modern debates over modelling (Blaug, 1997, p.35). 'Ideal' has Cartesian connotations of a purely *a priori* scheme from which any deviation is a logical imperfection, while 'natural' has connotations both of determinism and, in common language, moral approval. From a realist Smithian perspective, rather, an 'ideal scheme' is the abstraction retroduced in Newtonian fashion from detailed study of experience across time and place, as in the four-stages model of development; this abstraction can then act as a frame of reference for further study of experience. As far as the term 'natural' is concerned we have already seen the scope for different meanings in relation to natural law philosophy. While Smith made frequent use of the term it tended to refer either to his ontology in terms of human nature or simply to what was customary.

In summary, we consider that there is a basic model use in Smith, but one where contexts are foregrounded in the narrative. In Smith, we see some somewhat familiar domain challenges in terms of explaining the urban economy—despite very different economies evident now—yet toolkits in urban economics today show faint resemblance. We argue not for a retreat to approaches of the past, but—across economic geography and urban economics—to consider the merit of different forms of enquiry when confronted with a complex explanatory problem. Indeed, by reflecting on Smith, we have scope to re-consider the core functionality of modelling—opening up core processes and dimensions within social systems—which arguably reveals opportunities for 'trading zones', or exchange opportunities, with other approaches to research inquiry (where such approach further shed light on the same object) (Barnes and Sheppard, 2009; also see Overman, 2004)[14]. We argue, moreover, that model use can be compatible with some open-system realist approaches.

3.3 Wider connections between Smith and realism

[14] See Marchionni, 2004, on challenges associated with such pluralism.

In addition to modelling, concerns for prediction also feature in realist debates (Næss, 2006; Porpora, 2024; also see Hodge, 2008[15]) and present opportunities to engage Smith's stance. Prediction is a concern for those interested in the urban economy; from gauging, ex-ante, the impacts of particular policies, to considering how an economic or political shock may play out on local economic change.

Porpora recites the common refrain from realists that they have no stake in making predictions, but counters this suggesting that they can, and they should; they simply need to be aware of the explanatory limits of the claims they make. That is, critical realism does not afford the same level of epistemological certainty to predictions as positivists do. The best that can be hoped for is the (fallible) identification of multiple tendencies which may or may not be operating and may countervail each other. Further, where demi-regularities provide an indication of operating tendencies, critical realist analysis can be reliable enough to guide policy action (as in urban planning) and thus can be useful.

Næss's (2006, 2015) work on the economic impacts of transport investments and cost-benefit analyses gives a specific (and earlier) urban example for Porpora's conjecture. Næss points to the need to accept a lack of 'precision' and 'exactness' given real world complexities in a future frame[16]. He notes (2015, p. 1239):

> Being able to say something about the likely consequences of proposed policy measures is a necessary condition for planning. Such predictions, based on social science studies, are also possible. The predictions in question are, however, usually not of the precise, quantitative kind, but qualitative impact assessments, with modest statements about the directions of influences and maybe their order of magnitude.

Linking this to Smith, some claim that Smith is ultimately uneasy with prediction. For example, Hühn (2019, p. 8) remarks: 'Explanation is only tentative as it is a mere invention of the imagination, while prediction is made impossible because of frailty'. However, Hühn's case

[15] Hodge (2008, pp. 169-170) notes that 'Only a closed system can provide generalisations with no exceptions and only then can there be any faith in the reliability of predictions derived from such generalisations'.

[16] The review by Venables *et al.* (2014) points to issues of uncertainty in ex-ante transport appraisal, in contemporary policymaking.

for rejecting prediction based on 'frailty' only requires Porpora's point about the limits of our claims to be recognised for some form of prediction to be plausible.

By focusing on the principles punctuating Smith's writing and his (fallible) identification of causal tendencies, there is indeed scope for readers to draw conclusions about his predictions for commercial society. Smith's willingness to form judgements about policy measures also testifies to his capacity for general prediction. In Smith's writing on public works, for example, a very rudimentary stance on prediction can be pointed to as concerns the role of expected revenues from infrastructure use— 'a small toll upon the carriages which make use of them'— as an 'equitable' way to provide for the maintenance of public works (WN, V.i.d.3).

Smith's acceptance of prediction may be identified in areas beyond his specific urban or spatial concerns. In his summary account of Smith's works, Heilbroner (1986, p. 9) notes the main focus of enquiry as identifying 'the dynamics of a society that has finally incorporated economic freedom as a central institution'. This involves two strands corresponding to the *Theory of Moral Sentiments* and the *Wealth of Nations* respectively: enquiring into the nature and consequences of the 'socialization of behaviour' and the 'discussion of the trajectory of a society of natural liberty'. By analysing particular causal tendencies arising from his theory of human nature and his stages framework Smith was able to make some general predictions about economic growth in different types of economy under different conditions. At the same time, he noted a range of countervailing forces which raised important exceptions to the implied prediction of social and economic progress. These exceptions ranged from the self-deception of the poor man's ambitious son who believes that riches will bring happiness (TMS, IV.i.8) to the systematic efforts of employers to combine in order to suppress wages (WN, I.viii.13), and of merchants and manufacturers 'to widen the market and to narrow the competition' (WN, I.xi.p.10) to examples in history of reversals in economic progress.

In summary, we have made a case that Smith would not be antithetical to prediction, and a view of prediction close to what Porpora and Næss argue for, in terms of fallible claims that are not exact or precise but nevertheless give a forward view, appears plausible in Smith.

4. Conclusion

This paper revises an existing literature on the critical realist underpinnings in Smith's writing. A further step was then taken by starting with two issues considered by modern realists—

modelling and prediction. In the process we considered Smith's writing on the urban economy to see what insights his writing, and related reflections, in the *Wealth of Nations* can bring to bear on these issues.

First, a case for the critical realist claim to Smith has hinged largely on a reading of 'The History of Astronomy', his view on the philosophy of science, and the ontology he developed in the *Theory of Moral Sentiments*. When we read the *Wealth of Nations,* at least when focusing on Smith's urban writing, the critical realist perspective may not be incompatible, but neither does it stand out. Nevertheless compatibility can be identified when we consider the methodology of the *Wealth of Nations* in relation to Smith's philosophy of science, including his ontology. Indeed in their Introduction to the *Wealth of Nations*, Campbell and Skinner (1976, pp. 4-5) note that they would

> review the main elements of the other branches of Smith's work ... not only because Smith himself taught the elements of economics against a philosophical and historical background, but also because so much of that background was formally incorporated in the WN itself – a book, after all, which is concerned with much more than economics as that term is now commonly understood.

Much of the commentary on the *Wealth of Nations* has proceeded without reference to either 'The History of Astronomy' or the *Theory of Moral Sentiments*. Indeed, Smith did not dwell on the connection between his economics and either his philosophy of science or his theory of human nature. This may explain why many traditional analyses have focused on a semi-deterministic natural-law interpretation of Smith's economics. But here we have considered Smith's urban analysis in a way which draws out Smith's Newtonian methodology which was based on his realist philosophy of science. As a result, the conventional (universalist) natural law interpretation of Smith requires significant modification in a direction which allows for closer connection with the modern realist literature.

Second, we show that different renditions of realism allow us to consider Smith in different ways. We show that Mäki's lens on model use gives us pause to consider a model world in Smith's urban writing, and Stull (1986) and Camagni (2023) have previously noted this. But at the same time, Smith's model use is wedded to context, to an acceptance of fallibilism and to simplification which cannot be fully specified, rather than to idealist isolation. Smith's models conform more to the abstractions of Newton's methodology as a framework for subsequent detailed analysis of context as opposed to being the end-point of analysis.

Third, the urban economy provides a fruitful domain by which to consider the interplay between realist and Smithian perspectives. Smith wrote in multiple places about urban contexts, and offered context-rich accounts that would accord with the perspectives (and explanatory starting points) held by economic geographers. At the same time, a clear connection to basic models as devices to aid theorisation can be found in Smith's writing, with relevance for arguments in the wider realist literature advanced by Mäki (with connections, in turn, to urban economics). A reading of Smith also prompts us to consider how his view of the urban economy, connects to, and is set within, wider processes of social and technological change. Such a panoptic view seems valuable in a context of wider political and economic ruptures taking place.

Finally, the alignments and links presented in this paper show the merits of reading a body of work together, rather than individual works in isolation. 'The History of Astronomy' provides the clearest likenesses to realism as a philosophy of science. But it is argued that, whilst the *Wealth of Nations* is less explicit about its philosophical approach (in linking to realism), affinities and compatibilities can nevertheless be drawn out. Both of these key elements of Smith's body of work were built on the foundation of the social ontology which Smith expressed in the *Theory of Moral Sentiments*.

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