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15 Methodological individualism and economics

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Individualism is a broad concept that resonates throughout economics. My goal here is to first sort out the many different ideas at work and then to make some progress in assessing them.

Two initial clarifications are in order. First, individualism has both normative and descriptive components. No doubt in practice these two components are often fused and no doubt the normative concepts help motivate the descriptive. The root intuition behind normative individualism--that justice and dessert are honored so long as social arrangements result from free human choices--is powerful and surely inspires the methodological thought that economics should explain via the choices of individuals. Nonetheless, the normative and methodological claims are logically independent. It is the latter that are explicitly involved in economic explanations and are my prime target.

Second, on my view the different theses of methodological individualism turn ultimately on empirical issues, often in quite specific ways. Consequently assessing individualism cannot be done completely without invoking specific issues in economics itself. These empirical issues will emerge naturally as we spell out different individualist claims.

The chapter proceeds as follows. Section I clarifies various individualist theses and their interrelations. Sections II, III, IV and V then assess in detail individualism as a claim about ontology, reduction, explanation, and research strategies respectively.

Theses

There are various colloquial slogans that express the general individualist position. Society is nothing but individuals. Only individuals are actors in the social world. Nothing comes about except through the actions of individuals. Any social explanation can be reduced to an individualist one. The best explanations are those in terms of individuals. No social explanation is adequate without individualist mechanisms. And so on. This section discusses just what these claims come to and how they interrelate.

These claims can usefully be put into five categories as assertions about ontology, reduction, explanation, mechanisms, and heuristics. Ontological claims

concern the kinds of things that exist. Reductionism asserts that one theory can do all the explanatory work of another. Claims concerning explanation assert that accounts in terms of individuals have some fundamental role. Theses about mechanisms make individualist processes underlying social phenomena central in some way. Finally, heuristic theses see the search for individualist theories as the best way for social science to progress.

Thus put, methodological individualism makes assertions about the social sciences in general. As we shall see in the sections that follow, most of these theses have a more specific economic counterpart. Claims about reducing the social become claims about reducing the macroeconomic. Claims about the need for individualist mechanisms become demands for rational choice explanations of equilibrium behavior. These and other economic instantiations will be discussed below. Though at the abstract level the types of theses and arguments about individualism are common across the social sciences, it is the specific embodiments in discipline-specific disputes that is essential, because the empirical issues involved need not have a uniform resolution across domains.

There are at least three different ontological versions of individualism with some currency. Sometimes the claim is made that there is no such thing as society (or social entities). This eliminativist view is logically stronger than the second ontological claim that society is composed of and does not exist over and above individuals, for the latter thesis admits that social entities exist. A further ontological claim is that the facts about individuals are basic in that once all the facts about individuals are set, then so too are the facts about social entities. In the philosophical jargon, social facts 'supervene' on individual facts.

Reductionism makes a claim about the relation between theories. The root notion is that a theory expressed entirely in terms of individuals can do all the work of any well-confirmed theory couched in terms of social entities – just as it has been shown in physics that statistical mechanics captures everything that thermodynamics explains. Exactly how we should understand the phrases 'can' and 'capture' will be detailed later.

Claims about explanation are more slippery. Reference to individuals might be either necessary or sufficient to explain and might be required for full explanation versus any explanation whatsoever. Somewhat orthogonally, we might ask which explanation best explains. Out of these dimensions come the following interesting claims: (1) No social explanation is adequate without reference to individuals, (2) social phenomena can be fully explained in individualist terms, and (3) individualist theories provide the best explanation.

As a claim about mechanisms, individualism might be given either an evidential or explanatory reading (or both). The evidential thesis would be that:

- No claim about social entities is well confirmed without individualist mechanisms.

- But even if we rejected this claim and thought that confirmation of, say, causal relations between social entities was possible without mechanisms, we might still think that explanations without mechanisms are inadequate. So the explanatory version is:
- Social theories cannot explain (or explain fully) without citing individualist mechanisms.
- This thesis parallels earlier ones about explanation with the further requirement that reference be to individualist *mechanisms*, not just individuals.

A final important but ill-defined individualist thesis is about scientific progress. Methodological individualism, the thought is, promotes scientific success. This thesis is ill-defined in part because, as we have just seen, 'methodological individualism' is many different theses. It is also ill-defined because 'scientific progress' is ambivalent: progress in prediction, explanation, theory development, etc. can vary independently.

There are numerous connections between these theses, both logical and otherwise. For example, if reference to individuals is necessary to explain at all, for example, then it is necessary to fully explain (assuming some explication of that notion). We will discuss these various connections as we proceed.

Ontological claims

There are three basic ontological variants of individualism: the claim that only individuals exist, that social entities are composed of individuals, and that social entities do not act independently of individuals. These claims have distinctive import as they are spelled out in different ways and in different specific disciplines.

The eliminativist claim that 'there is no such thing as society, only individuals' (Thatcher 1987) has its advocates, some obviously influential. It is of a piece with other eliminativist claims in the history of science – that there are no vital forces, no phlogiston, no aether.

However, the parallel with these developments is forced. Rejecting vital forces did not mean denying that organelles, cells, and organisms exist. Instead, biologists denied that these entities were independent of the properties of molecules. So long as anti-reductionists in the social science are willing to allow some similar constraint, a similar position is open to them.

That brings us to the claims that society is composed of and does not act independently of individuals. The first claim seems trivially true. However, it is less obvious than it looks, since some inanimate material objects should perhaps be included as part of society as well. As we will see momentarily, this raises non-trivial issues when it comes to economics.

The second claim that social entities do not act independently likewise has more bite than its apparent triviality suggests. Here a concept from the philosophical discussion of physicalism is useful, viz. the notion of supervenience or determination (Hellman and Thompson 1975). Some philosophers of mind, for example, claim that once all the physical facts are set, then so are all the mental facts. In the terms of the trade, mental facts supervene on physical facts or the physical facts determine the mental.

Talk of 'facts' gets clearer if we specify particular theories and their basic categories. Then determination and supervenience hold respectively that the facts about A determine the facts about B in that once all the truths in the theory of A are set, then so are the truths of the theory about B or, in other words, the B truths are fixed by the A truths.

So the more precise version of this claim is that the truths of some individualist theory fix the truths of some social theory. Put in these terms, the individualist thesis is both more precise, more clearly empirical, and thus no longer trivial. Do the truths of sociobiology or social psychology fix what truths there might be about social entities? These are substantive empirical claims.

In their economic guise these theses are equally substantive. Consider first the claim that society or social entities are composed of individuals. Arguably they are not solely so composed, for there are material objects that should be included, something obvious in a discipline that is about the production and distribution of goods. But deciding what those physical entities are and how they should be conceived is a substantive economic issue. Is a subset of these goods 'capital'? What is that exactly? These substantive economic issues need not be settled in an individualist friendly way. If 'capital' is defined via the labor theory of value, for example, then the social entities populating Marx's economics are invoked. So the truism that society is composed of individuals does not on its own commit us to a strong form of individualism.

Moreover, even the claim that society is partly composed of individuals is more controversial than it would seem because of recent developments in philosophy of mind, cognitive science, and evolutionary game theory. The substantial self existing prior to the social realm has been replaced by 'embedded selves' (Clark 1998) constructed out of social interactions; the real atoms are subpersonal strategies that approximate neoclassical maximizers in ways that traditional individuals do not. This picture is further supported by the central place of evolutionary game theory, where it is strategies that are the basic individuals, not individual agents. This 'Dennettian' future for economics has been developed in path-breaking work by Ross (forthcoming), with similar ideas suggested by Mirowski (2001) (though not directly motivated by Dennett).

Similar questions arise for the claim that social entities do not act independently of individuals. This determination claim has multiple instantiations in economics and once again contentious issues are involved. The issues are those associated

with the microfoundations literature as well as debates over aggregation (Weintraub 1979; Jannsen 1993).

At least the following questions are at issue in these debates:

- Do the preferences, assets, strategies, and knowledge of individuals determine or fix the facts about market equilibrium?
- Do the microeconomic facts determine or fix the macroeconomic facts?

These two questions are distinct because microeconomics typically is not entirely or often not at all about individual human beings. For it often treats firms and households as fundamental entities. But firms and households are social entities – aggregates of individuals with social structure. So even if it is true that the microeconomic facts fix the macroeconomic facts, that does not directly instantiate the individualist program. At most it might make it more likely in that the 'size' of the relevant social entities is 'closer' to individuals.

There are two good reasons to think that the first determination thesis is questionable. The literature on aggregation problems raises a first batch of doubts. For example, it is only under restrictive conditions that we can expect individual downward sloping demand curves to guarantee downward sloping demand curves for markets as a whole and the same seems true for other market level aggregates (Deaton and Muellbauer 1980).

The second set of doubts comes from the equilibrium requirement. Standard neoclassical market theory is a theory of equilibrium behavior. The question is whether the facts about individuals determine that an equilibrium exists. In Walrasian general equilibrium accounts the auctioneer (in conjunction with a host of other assumptions) ensures equilibrium exists. But if we move to more realistic mechanisms things are much murkier. Game theory results suggest that multiple equilibria are likely and that agents may need rather amazing abilities – like the ability to determine what is a subgame perfect Bayesian equilibrium – to find them. Investigations of learning and evolutionary mechanism show that it is far from inevitable that these processes will result in equilibrium either (Samuelson 1998).

There are two individualist responses here. First we might deny that individualism requires that 'the laws of economics are the same in the case of individuals and of nations' (Jevons 1879, p. 16). Then the aggregation problem loses its bite. Second, we might deny that equilibrium outcomes are required for individualism, eliminating the second problem.

These replies illustrate my earlier claim that the individualism debate turns on specific substantive issues in economics. While individualism can be defended by such replies, they provide a hollow victory for many current advocates of individualism. Walrasian and neoclassical approaches are often praised for and

defended on the grounds of their individualism. But these replies would support individualism by giving up key tenets of these traditions.

What of the second version of determination – that microeconomic facts fix the macroeconomic? The obstacles are similar. We can only derive macroeconomic implications from choice-theoretic constraints at the microeconomic level if very restrictive, i.e. unrealistic, aggregation conditions are imposed (Jannssen 1993; Martel 1996). Moreover, those restraints typically involve assuming equilibrium outcomes. If macroeconomic phenomena are disequilibrium phenomena, then even successful aggregation would not be enough to ensure that the macroeconomic facts are fixed by the microeconomic – since equilibrium is assumed in the one and is denied in the other.

Reduction

Individualism is often put as a thesis about theory reduction. In this section I outline what theory reduction requires, look at and reject various conceptual arguments for the reducibility of social theories to individualist ones, and then argue that the issues are empirical in nature, with the evidence primarily supporting the anti-reductionist view.

As traditionally conceived in the philosophy of science (Nagel 1961), theory reduction is about deriving the laws of one domain from those of another. Since different theories have different vocabularies, derivation first requires some way to equate terms in the reduced theory with those of the reducing theory. Equivalent linguistic meaning, however, is too demanding a requirement – the concept of temperature does not simply mean 'average kinetic energy,' even though thermodynamics perhaps has been reduced to statistical mechanics. A weaker relation that will suffice for reduction is law-like coextensionality between every term to be reduced and some reducing term. In simpler terms, we want a constant one-to-one relation between cases where the reduced term applies and some reducing term holds. Once we have these 'bridge laws' as they are called, then we have a reduction if we can derive the laws of the reduced theory from the reducing. In the temperature case, that means taking molecular definitions of temperature, pressure and volume and Newton's laws of motion and then deriving the gas laws.

There is good reason to think these requirements – of bridge laws and derivability – are not sufficient for reduction. The root idea behind reduction is that one theory can explain everything that another can. But a long series of counterexamples (see Salmon 1989) shows that derivation from a law does not ensure explanation, contra the hypothetical deductive account of explanation. For example, it follows from 'No men who take birth control pills get pregnant' that some particular man does not do so, but we have not explained why. In the case of reduction, this weakness surfaces in alleged reductions that presuppose rather than eliminate the explanations to be reduced. For example, suppose I

succeed in deducing parts of psychology from neuroscience. No interesting reduction will be forthcoming if my neuroscience describes neural states in terms like 'recognizes,' 'compares,' 'awareness level,' and so forth, because these are psychological states themselves. So reduction requires translation and derivation in a way that does not presuppose the theory to be reduced.

However, it is asking too much to demand that we *exactly* derive a theory or that we do so *in complete detail.* Since we are generally seeking to reduce a less fundamental theory to a more fundamental one, we should expect that the reduced theory is only captured approximately where it is in fact inaccurate. So reduction can involve correction. It is also too much to ask for a full derivation to be supplied. Instead what is needed is a demonstration that it is in principle possible.

So individualism as a reductionist thesis claims that a social theory – 'social' in that it refers to social entities such as corporations, states, etc. – can in principle be reduced to a theory referring only to individuals. In its most extreme form, individuals would only be described 'non-relationally' – without reference to essentially relational terms like 'more powerful than.' This view – a form of atomism – is not generally defended by methodological individualists. I will assume from here on that methodological individualism is the less drastic view that does allow relations.

To show that individualism as a reductionist thesis is false, it is strictly speaking only necessary to provide one compelling case where the requirements for reduction cannot be provided. But a more convincing case would provide reasons to think the failure was wide in scope. Individualism similarly gains support by providing actual cases of reduction and reasons to think them repeatable in other areas.

Both individualists and holists (my name for those who reject individualism) have tried to show that either reducibility *must* be possible or that it *never could be* on roughly conceptual, a priori grounds. Both sides seem misguided in that they claim more for philosophical argumentation that it can provide.

Holists argue that societies display 'downward causation': the nature of individuals is influenced by the larger social entities of which they are a part. Therefore reduction is impossible. Such arguments are uncompelling. Presumably if a social process influences an individual it does so via the actions of other individuals – social entities do not act on their own. So the individualist can simply reply that apparent cases of downward causation are likewise candidates for theory reduction.

On the other side a very common conceptual argument in favor of methodological individualism is that since society is composed of individuals and does nothing without them, explanations in terms of social entities must be reducible to explanation in terms of individuals (Watkins 1973, p. 179; Collins 1981, p. 989; Mathien 1988, p. 11). The conclusion does not follow. Seeing why

will set up a more useful framework for thinking about reductionist versions of individualism.

Reduction, we said earlier, requires (1) one-to-one mappings from each social term to some individual terms such that we can derive social explanations from individualist ones (2) without invoking social explanations in the process. That suggests three possible obstacles to reduction: the one-to-one mapping may fail in either direction and the proposed reduction may presuppose social theory. To be more precise, the potential obstacles are:

- *Multiple realizations*: social terms may pick out entities or processes that can be brought about by many diverse different individual behaviors. If that happens our one-to-one mapping is defeated – that a given social term is instantiated does not entail that any particular description of individuals holds.
- *Context sensitivity*: types of individual behavior described in individualist theory might bring about different social entities or processes in different social situations. Then our one-to-one mapping is defeated because the individual description entails no unique social description.
- *Presupposing social information*: in the process of giving individualist explanations we may presuppose facts or explanations invoking social entities or processes.

Now return to the claim that social theory must be reducible because society is made of individuals and cannot act without them. That ontological fact tells us nothing about the expressive ability of our theories or how their explanations work. Society can be fully composed of individuals and yet the categories of social theory might not match up with individualist ones in the way that reduction requires. Social theory might capture causal patterns and types of events that individualist language does not. The ontological facts, in short, do not prevent the potential obstacles to reduction from being real.

The moral to draw is that individualism in its reductionist form is an empirical issue. In the broadest sense the empirical issue is whether the multiple realizations, context sensitivity and presupposing problems are real. How are we to decide that question? Three possibilities are: provide general considerations about social phenomena or social theories that makes those problems likely or unlikely, look at cases of alleged reductions, or look at apparently successful social theories and argue that they are or are not reducible.

Considerations of all three types can be advanced, I believe, to show that individualism as the thesis that all social theories are reducible, fails. However, doing so would involve details beyond the scope of a review and is moreover something I have attempted elsewhere (Kincaid 1996, 1997).

Evaluating reductionism in the economic context is a more tractable problem because we can deal with specific theories. We have already raised doubts about reducibility in our discussion of ontological versions of individualism. There I surveyed some of the microfoundations literature bearing on the question whether aggregate phenomena supervene on individual economic behavior. I argued that the relevant microfoundations were not forthcoming and thus to that extent did not support the supervenience claim. However, reducibility requires supervenience – it is the micro to macro side of the biconditional bridge law that reduction requires. So those problems for the ontological claims are equally doubts about reduction.

The doubts do not end there, however. There is good reason to think that the multiple realizations and presupposing information problems are real in economics.

Macro level kinds in economics are natural candidates for multiple realizations in individual behavior. A standard aggregate phenomenon of microeconomics – downward sloping market behavior – is a case in point. The early work of Becker (1976) and more recent work of Hildenbrand (1983, 1994) makes a strong case that the downward sloping market demand curve can result from diverse sets of individual behavior. Random preference differences along a budget line can produce aggregate downward sloping market curves, as can other kinds of preference distributions (see Martel 1996). So the aggregate market supply and demand laws can be realized by different sets of individual behavior.

We have two good economic reasons for thinking that firm behavior as well might be multiply realized in individual behavior. First, assume that economic selection actually works to bring about profit maximizing behavior. Selection mechanisms only 'care' about the property being selected for: if there are two equally good ways to organize individuals in a profitable firm, then selection will not 'see' the individual behavior in question. So we should not be surprised if profit seeking was brought about by different sets of individual behavior if we think it exists due to economic selection.

Further evidence comes from recent attempts to explain firm behavior in individualist terms. The problem is an embarrassment of riches. Typical firm characteristics – long-term employment relations, internal labor markets, and hierarchical structure, for example – have been tackled in various ways with the rational maximizing under constraints approach. A large variety of mechanisms – for example, transaction costs, inducements not to shirk, the threat of outside takeovers, markets for managers and directors among others – can produce the traits of typical capitalist firm (Kincaid 1995). This gives us reason to believe that there are multiple plausible economic mechanisms that could realize aggregate firm behavior.

The above evidence comes from microeconomics, albeit the aggregate part of it. 'Larger' macroeconomic aggregates ought likewise be open to multiple

realizations. Macroeconomics describes markets at their greatest aggregation. The question thus is whether different combinations of less aggregative behavior (e.g. sectors) or of individual and corporate behavior might bring aggregates with the same economic properties. If so, the multiple realizations problem is real.

The third problem for reduction surfaces when the reducing theory presupposes the facts, categories or explanations of the theory to be reduced. There are many instances where alleged individualist explanations of aggregate economic behavior seem to do just that. Rather than simply listing examples, consider two general tools of economics: identifying equilibrium behavior in markets of rational self-seeking agents and equilibrium outcomes in games. Both presuppose rather than explain many facts about social entities and social structure.

Market analyses take the preferences of individuals and their assets as given. This is already to presuppose rather than explain much about norms and institutions. Equilibrium is often gotten by the auctioneer device, a stand in for institutional factors that allow markets to work. Assuming a distribution of assets is itself to presuppose that property rights already exist and are defined. Moves to incorporate expectations arguably must likewise assume defined macrostates about which individuals have beliefs (Colander 1996).

In game theory, similar assumptions are at work. The players, strategies, and payoffs are given. That is again to assume rather than explain facts about institutions, norms, and so on. Furthermore, many games have multiple equilibria. Narrowing down those equilibria to one often presupposes unexplained social facts. For example, the notion of 'focal points' relies on already shared norms. In the refinements literature unique equilibria are sometimes derived by assuming homogeneous priors in Bayesian games, thus presuming the institutional structure that produced the consensus (Jannsen 1993). Evolutionary and learning accounts may produce no unique equilibrium, but even when they do, social institutions are lurking in the environment that does the selecting (Jannsen 1993).

I note in concluding this section that none of these arguments show individualism in its reductionist guise misguided anywhere and always in economics. Because reduction is an empirical issue, no such global pronouncements are possible.

Explanation and mechanism

When doubts about individualism as a reductionist thesis arise, it is natural to think that we may have missed the target. Theory reduction is a rather specific doctrine. Maybe individualism can be formulated more plausibly as a thesis about explanation in some other sense?

One non-starter in this vein is the claim that all social phenomena can be fully explained in individualist terms even if the relevant theories cannot be reduced. This version is a non-starter because if we can provide full explanations, then we can provide reductions. Explanation is done by theories. If an individualist

account explains all that can be explained, then it captures the explanations of social theory. But if it captures those explanations, then we can derive those explanations from individualist theory. However, that is theory reduction all over again.

There is another common way of construing individualism as a claim about explanation – viz. to assert that individualist theories are the *best* explanation. This claim is generally of dubious sense and implausible when it is not.

'Explanation' is often left undefined. Since that invites confusion, let's take the best explanation to be the most accurate account of the causes. However, for one theory to better explain than another, they must compete. But holist and individualist theories are at different levels. Theories at different levels may be compatible accounts of causal processes, as presumably molecular and organismic biology are.

To show that individualist and holist theories compete, we need some way to translate them into common coinage so that they are about the same things. One route to translation – reduction – we have already argued is generally implausible. Forgoing the type identities of reduction means looking at cases – looking at particular aggregate variables in particular circumstances and identifying the individual behavior realizing it.

Given these conditions, the apparent conflict between individualist and holist theories may often be only that. Suppose that someone claims that a neoclassical account of the distribution of income in terms of the marginal productivity of labor is superior to a sociological explanation invoking power and norms. There seems to be competition between explanations here, but is it inevitable? If we ask what kind of individual behavior realizes norms and power, we may find that facts about preferences, the prior distribution of assets, relative scarcity, and other factors that underlie supply and demand curves are involved. But these are variables seemingly compatible with the marginal productivity account. Only if the individualist claimed that marginal productivity alone determined income would the two theories be competing explanations. While some hasty textbook writers may find themselves asserting such a slogan, it is incoherent (see Hausman 1981).

Seeing the individualism/holism issue as about best explanation is encouraged by a common practice in economics and the social sciences more generally. I have in mind comparing theories in the form of regression equations against a data set to determine which 'explains most', i.e. which has the highest R^2. But R^2 is a measure of predictive power, not explanatory adequacy. Moreover, it makes sense to compare such equations only if we know that the variables in question are independent. But they well may not be in the individualism/holism case, since one set realizes the other.

Another important explanatory version of individualism asserts that mechanisms are necessary for all social explanations and that the mechanisms

must be based in individual behavior. This demand seemingly motivates much of the 'microfoundations' literature in economics.

It is not plausible to think that there is any general methodological demand for mechanisms for good scientific theories. Note first that the demand for mechanisms is ambiguous: is the claim that mechanisms are needed for good *explanations*? Or are they needed to have sufficient *evidence*? Is the mechanism behind the hypothesis that A causes B some further cause C between A and B – a horizontal mechanism – or is it what realizes or makes up A – a vertical mechanism? And what is 'the' mechanism? Since causes can be described at different levels of aggregation and different levels of detail, 'the' mechanism is no more sensical than 'the' cause generally is. At best we can talk about 'a' mechanism.

In none of these diverse senses are mechanisms a *sine qua non* for scientific virtue. We can know that the throwing of the rock broke the window without knowing the molecular details of the rock's structure or of the rock/glass interaction. Citing the thrown rock likewise provides a good causal explanation without such details. Modern physics is full of macro explanations that are well confirmed and explanatory without providing lower level detail. Darwin explained evolution by natural selection without knowing about DNA. And so on.

Of course mechanisms can play an important role. Whether they do so depends on at least three questions: How well confirmed is the theory at the macrolevel? What does the theory presuppose about mechanisms at some specified level? How well confirmed is the theory at that level? When a theory at the macrolevel is relatively poorly confirmed, when it makes specific assumptions about mechanisms, and where our understanding of the mechanisms is good, then asking for mechanisms is indeed important. When the opposite is the case, the demand for 'macromechanisms' (Colander 1996) will be equally plausible.

A final preliminary point: even when mechanisms are central, the question remains open whether they should be *individualist* mechanisms. It may be that a macrolevel theory presupposes some strong claims about mechanisms, but the mechanisms are not ones involving individuals but instead social groups. We might want to see the mechanism producing equilibrium outcomes when our results depend essentially on the equilibrium requirement, yet the mechanism might be economic selection of *firms*.

Once these points are granted, their application to economics again requires a careful look at specific theories. The one general thing we can say is that a theory in economics gains no automatic support simply because it alleges individualist mechanisms. If the theory of the mechanism is highly implausible and macroeconomic claims presuppose no very specific individual level process, then individualist mechanisms should count for little. In this case pointing

to individualist mechanisms as fundamental is grandstanding, not making a serious argument.

I won't pretend to carefully survey all the instances where the demand for individualist mechanisms has been invoked in economics. I want to rather point to some relevant areas and considerations.

Sometimes the microfoundations literature asks that macroeconomic claims be shown compatible with general equilibrium theory or perhaps, less demandingly, with rational maximizing behavior. Given our general framework for thinking about mechanisms, there are several points to make about these requirements. Strong market clearing and rationality assumptions (i.e. rational expectations) or ad hoc fixed price mechanisms both fall into the category of weakly confirmed theories of mechanisms that should be minimal constraints on macroeconomic theorizing. Nor are we forced to pick between the two. Learning and expectations might reasonably be demanded of macroeconomic theories without requiring hyperrationality or systematic stupidity. If macroeconomics needs individualist foundations, it does not follow that rational expectations or fixed price models exhaust the alternatives.

A second, related point: what goes under the guise of 'individualist' foundations in the microfoundations literature is sometimes anything but that. Models with 'representative agents' which treat aggregates of consumers or producers as if they were single individuals is individualism only in name. It is like trying to give a neurological account of brain processes by calling each major area of the brain a 'neuron' and giving them the properties of single neurons.

Turning from macroeconomics, individualist mechanisms might also be desirable in microeconomics, since the latter generally refers to households and firms, which are social entities. Recent work in the economics of the household and in the theory of the firm is motivated in part by such considerations. Again the key issues revolve around the three questions identified above and attention to specific accounts is called for.

At stake are both what traits of firms and households we want to capture and what sort of individualist account should be constraining, if any. One project would be to derive the behavioral assumptions of GET – profit maximizing, well-defined household utility functions, etc. – from individual behavior. Another would be to derive observed empirical behavior of firms and households from individual behavior. The theory of individual behavior might be the standard rational choice account or some other, more psychologically based bounded rationality model.

There is unlikely to be any simple and uniform answer to the question as to whether mechanisms are needed in these areas, because we are dealing with different and independent claims. It might be argued that GET does not make strong assumptions about individualist mechanisms in that profit maximizing can come about via economic selection on firms. Yet well-defined household

utility functions can appeal to no such process and thus the need for mechanisms is more pressing. So in each case we are juggling three variables – plausibility of macrotheory, plausibility of microtheory, and the extent which the former presupposes specific facts about the domain of the latter. A detailed assessment of these various issues would be taking a position on a variety of substantive topics in multiple areas in economics and is beyond the scope of this chapter.

Heuristics

We come now to the last batch of individualist claims – those about heuristics. Here individualism is recommended as a route to scientific progress, a tool for discovery. Just as reductionism in the natural sciences has been at the heart of scientific method, so too should it be in the social sciences. The social sciences and economics in particular will advance best by seeking individualist explanations. This is a common rationale.

We have already discussed many different versions of individualism. Thus the advice to 'seek individualist explanations' cannot be just one recommendation. 'Seek reductions' is a significantly different strategy than 'seek individualist mechanisms,' for example. In principle there is a heuristic for each formulation discussed earlier.

Whatever heuristic is at issue, evaluating it is no easy business. We first have the problem of defining scientific progress and second the difficulties involved in finding evidence that any particular research strategy actually causes the virtue in question. Scientific research is a complex social phenomenon and it is no easier to identify its purposes and causes than it is for any other complex social phenomenon.

Assessing heuristics is further complicated by the fact that the same strategy can have different effects in different contexts. In fact, heuristics can sometimes promote their opposite: Newton's inductivism produced a theory confirmed by deductions from first principles.

These qualifications aside, we can venture some reasonable hypotheses. Following the precept 'seek reductions' is likely to lead to error. Focusing on individual detail when aggregate processes are multiply realized is likely to see diversity where there is unity. Focusing on individual detail when the aggregate effect is context sensitive may produce false generalizations. Ignoring higher level institutional detail can lead to ignoring important variables.

These difficulties refer to features of reduction in general. Thus it is not surprising that the history of science does not unequivocally support reductionism as the route to scientific progress. Vitalism dominated nineteenth-century biology, but arguably promoted progress because it allowed scientists to focus on biological phenomena in their own right (Coleman 1971). Reductionist strategies may have thwarted progress in evolutionary biology for reasons like those described above (Wimsatt 1980).

Weaker individualist heuristics may be more plausible. 'Seek individualist mechanisms' is perfectly compatible with giving the social or aggregate an essential place. When (1) a macrotheory makes specific presuppositions about mechanisms, (2) we have relatively well-confirmed theory at the individual level, and (3) there is reason to believe that the mechanisms involved are relatively universal, then seeking mechanisms no doubt may be a fruitful strategy.

There is again no reason to think that these criteria must be met everywhere or nowhere in economics. Thus assessing this individualist heuristic calls for careful case-by-case analyses.

Conclusion: philosophical morals

I end my discussion by drawing a philosophical moral from the debate over individualism. We have seen that individualism is many different theses and that at every turn evaluating them quickly gets us involved in quite specific substantive issues in economics. To even formulate various individualist theses, even apparently trivial ones such as 'society does not act independently of individuals,' we were led to talk about the relation between specific economic claims or theories. What seemed trivially true, when probed, was not so trivial after all but instead a contestable economic claim. Appeals to individualist virtues in various debates turned out on further scrutiny not to be appeals to some abstract theoretical virtue but a very specific proposal in economic theory.

The philosophical lesson I draw is that methodological virtues and disputes cannot be settled in the abstract nor can they decide empirical controversies in the abstract. Methodological virtues and methodological assessment are of a piece with concrete empirical inquiry.

This view of philosophy of science – as continuous with science itself – ought to come as no surprise, given the influential attacks of Quine some 50 years ago on the analytic/synthetic distinction and the resulting picture of knowledge as a web of belief, where everything is in principle revisable. Yet old habits die hard, and in practice many arguments in philosophy of science and in the sciences themselves still proceed as if they could be settled on perfectly general conceptual, a priori grounds. Seeing just how wrong that is in the case of the individualism debate is a useful reminder in practice of Quine's points in theory.

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